

Cityscape

*A Journal of Policy
Development and Research*

THE MOVING TO WORK RETROSPECTIVE EVALUATION
VOLUME 22, NUMBER 3 • 2020



PD&R



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U.S. Department of Housing and Urban Development
Office of Policy Development and Research

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Symposium

The Moving to Work Retrospective Evaluation

Guest Editor: Elizabeth Rudd

Guest Editor's Introduction

The Moving to Work Retrospective Evaluation

Elizabeth Rudd

U.S. Department of Housing and Urban Development

The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. Government.

Introduction

This symposium includes seven articles about Moving to Work (MTW), a demonstration with 39 public housing agencies (PHAs) that gives participating agencies enormous flexibility to determine how to provide low-income housing assistance in pursuit of the demonstration's three statutory objectives: (1) to improve cost effectiveness, (2) to promote self-sufficiency of assisted households, and (3) to increase housing choice for low-income families. Six articles report research conducted by Urban Institute and MDRC for a HUD-sponsored retrospective evaluation of MTW.¹ Congress requested an assessment of the MTW demonstration as a whole, rather than studies of initiatives at individual agencies. This was difficult to achieve because MTW encourages participating agencies to exercise local decisionmaking—this means that averages across agencies of outcomes embody agencies' divergent goals and circumstances, and thus likely hide more information than they reveal. Nevertheless, the six retrospective studies reported on in this symposium offer the first longitudinal analysis and the most comprehensive view to date of MTW agencies, MTW housing assistance, MTW activities, and the performance of MTW agencies in relation to statutory objectives. The essay on HUD's Rent Reform Demonstration also included here explains MTW's contribution to a major, groundbreaking study on rent setting in HUD programs.²

¹ These reports will be available on the HUD User website, www.huduser.gov.

² Information on HUD's Rent Reform Demonstration is available on huduser.gov and at www.mdrc.org/project/rent-reform-demonstration#overview.

The Moving to Work Demonstration 1996 – Present

MTW was authorized as a demonstration in 1996 amidst the Clinton-era initiatives that cut welfare rolls and put time limits on assistance to needy families.³ Reform of housing assistance for low-income families was also on the policy agenda of the time. Concerns included the “fast approaching train wreck” of rising costs,⁴ the poor quality of public housing and its contribution to concentrated poverty and racial segregation, the notion that housing assistance disincentivizes work, and housing authorities’ claims that federal regulations were unnecessarily costly and stifled innovation. Congress did not attempt wholesale reform of HUD’s programs in the 1990s but enacted a few different types of reform efforts.

Hope VI (1993) gave housing agencies grants to facilitate the construction of mixed-income communities and, later, allowed grantees to do mixed-finance projects. The Quality Housing and Work Responsibility Act (QHWRA) (1998) reformed management of public housing and combined existing tenant-based assistance programs to create the housing choice voucher program. MTW (1996) was unique in that it proposed to tackle concerns about HUD’s programs by allowing PHAs, as stated in the Omnibus Consolidated Rescissions and Appropriations Act of 1996, “the flexibility to design and test various approaches for providing and administering housing assistance.” The idea was to try deregulation on a small scale for a short time to see how it worked to

... reduce cost and achieve greater cost effectiveness in federal expenditures; give incentives to families with children where the head of household is working, seeking work, or is preparing for work by participating in job training, educational programs, or programs that assist people to obtain employment and become economically self-sufficient; and increase housing choices for low-income families.⁵

MTW has lasted for nearly 25 years, and today there are 39 PHAs with MTW Agreements that go through 2028. These 39 MTW agencies have a wide scope in how they may provide housing assistance and use federal funds to pursue MTW’s statutory goals, albeit within constraints that HUD approves MTW activities, MTW activities must pursue statutory objectives, and MTW agencies must continue to serve substantially the same number of families as they would absent the demonstration. MTW agencies design their own rent policies, streamline administrative requirements, provide short-term and time-limited assistance, build up reserves, and more. Specific conditions of their MTW Agreements also give these 39 MTW agencies more generous funding formulas than at traditional PHAs.

³ MTW was included in the Omnibus Consolidated Rescissions and Appropriations Act of 1996 (Public Law 104-134, 110 Stat 1321), dated April 26, 1996. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 replaced Aid to Families with Dependent Children (AFDC) with Temporary Assistance to Needy Families (TANF), leading to a decline in families receiving assistance from the historic peak of 5.1 million in 1994 to today’s approximately 1 million. For details, see the Congressional Research Service report “The Temporary Assistance for Needy Families (TANF) Block Grant: Responses to Frequently Asked Questions” available at <https://fas.org/sgp/crs/misc/RL32760.pdf>.

⁴ From the Congressional Record—Senate, available at <https://www.congress.gov/crec/1998/10/08/CREC-1998-10-08-pt1-PgS11833-2.pdf>, statement by Senator Bond.

⁵ Section 204(a) of the Omnibus Consolidated Rescissions and Appropriations Act of 1996 (Public Law 104-134, 110 Stat 1321), at 110 Stat. 1321-281, dated April 26, 1996.

The Moving to Work Expansion Authorized in 2016

In 2016, Congress told HUD to add 100 agencies to MTW and to require these agencies to participate in studies of specific policy innovations. Consequently, there will be two groups of MTW agencies: (1) The current MTW agencies (sometimes labeled “legacy agencies”), and (2) the 100 agencies that Congress mandated in the 2016 Consolidated Appropriations Act that have not yet joined MTW, usually referred to as “expansion agencies.” The expansion agencies will include many more small agencies than the legacy group, will have funding formulas similar to those of traditional PHAs, and for the first few years in MTW, each expansion agency will be part of a cohort devoted to studying one type of policy innovation.⁶

The studies included in this symposium are about the 39 current MTW agencies that joined the demonstration before 2016 and have agreements that go through 2028.

Six Moving to Work Retrospective Studies and One Essay on the Rent Reform Demonstration

A Picture of Moving to Work Agencies’ Housing Assistance, by Martha M. Galvez, Ruth Gourevitch, and Benny Docter, describes MTW agencies and the housing assistance they provided from 2008 – 2016 in comparison to traditional PHAs. This article’s exhibit 1 displays the names of the MTW agencies and when they entered the demonstration. One topic covered is that MTW agencies, over time, are taking up a greater proportion of total Housing Choice Voucher and Public Housing program funding. This is likely due partly to differences between the legacy MTW agencies’ and traditional PHAs’ funding formulas, a situation that will not be replicated for the MTW expansion agencies, and the fact that legacy MTW agencies include some of the largest PHAs in the country.

How MTW agencies do things differently than traditional PHAs in the areas of fund flexibility, project-based vouchers, and rent setting is covered in four separate articles. “Fund fungibility,” or fund flexibility, is a basic component of MTW that allows MTW agencies to use funds appropriated for the Housing Choice Voucher and Public Housing programs for any allowable use under either program, as well as for local, non-traditional activities.⁷ In *Moving to Work Agencies’ Use of Funding Flexibility*, Diane K. Levy, Leiha Edmonds, and David Long explain what fund fungibility is and how MTW agencies use it to pursue the MTW statutory objectives of cost effectiveness, self-sufficiency, and housing choice.

Attaching voucher funds to specific units through long-term contracts (also known as “project-basing”) seems like an oxymoron—isn’t the whole point of the Housing Choice Voucher program to allow assisted households to choose their own homes? Yet, as tenant-based housing assistance increased as a share of HUD’s rental assistance, Congress enhanced opportunities for PHAs to use

⁶ Funding for expansion MTWs will generally be calculated as follows: Public Housing will be funded using the same formulas as traditional PHAs; HCV funding will be calculated based on expenditures, similar to traditional PHAs. Please refer to the MTW Operations Notice for a complete description of the funding calculation for MTW expansion PHAs. See www.hud.gov/mtw for details on all aspects of MTW and the MTW expansion.

⁷ These activities are described in PIH Notice 2011-45, “Parameters for Local, Non-Traditional Activities Under the Moving to Work Demonstration Program.”

project-based vouchers (PBVs). Traditional PHAs may only project base a small portion of their voucher funding, but MTW agencies may, with HUD approval, attach up to 100 percent of their voucher funding to specific, hard units.⁸ In *Moving to Work Agencies' Use of Project-Based Voucher Assistance*, Martha M. Galvez, Daniel Teles, Alyse D. Oneto, and Matthew Gerken examine the extent of, locations of, and factors associated with project-basing of voucher funding, including the placement of PBV-subsidized units in Low-Income Housing Tax Credit and Rental Assistance Demonstration projects.

How to set rents is at the heart of HUD housing assistance programs. In 1969, Senator Edward Brooke got an amendment to the U.S. Housing Act passed that limited rent in federally assisted housing to 25 percent of a family's income; later, this increased to 30 percent. Before the Brooke amendment, rents in public housing were set to cover the full operating costs of public housing developments, and rents were often unaffordable for the lowest-income families. Pegging tenant rent contributions to income helps keep rent affordable, but critics argue that it disincentivizes work because every dollar earned by a tenant is really only 70 cents. The notion that income-based rents discourage tenants from earning more money is investigated in Nina Castells's study of Santa Clara County Housing Authority's (SCCHA) rent reform, which raised the tenant contribution from 30 to 32 percent of income. In *The Effects of Increasing the Tenant Rent Contribution in the Housing Choice Voucher Program*, Castells reports findings of her quasi-experimental analysis of the impact of SCCHA's rent reform on employment, earnings, and housing subsidy.

HUD's Rent Reform Demonstration tries the opposite of SCCHA's approach. In *Designing an Alternative Rent Policy for the Housing Choice Voucher Program*, James Riccio describes how HUD and other stakeholders of HUD's Rent Reform Demonstration decided to test a policy that could incentivize earnings by keeping the tenant contribution the same for 3 years, irrespective of fluctuations in income. Families that increase their income during the 3 years do not put 30 cents of every added dollar toward rent, and families that earn less do not get a break on the rent. Tenants whose incomes drop too much, however, could suffer increased material hardship or eviction. Riccio's essay details the trade-offs weighed to produce a policy for HUD's Rent Reform Demonstration that could incentivize work yet maintain the social safety net function of HUD housing assistance.

HUD's Rent Reform Demonstration and Castells's study of SCCHA's rent policy contribute to a growing body of research on rent setting in HUD programs. The MTW expansion will be used to study other rent policy approaches such as tiered and stepped rents.⁹

Assessing the performance of the demonstration in relation to MTW's statutory objectives of cost effectiveness, self-sufficiency, and housing choice is the focus of two studies included in this symposium. *Can Diverse Activities Have a Combined Impact? Examining the Effects of the Moving to Work Demonstration on Housing Choice and Self-Sufficiency Outcomes* by Mark Treskon, Matthew Gerken, and Martha M. Galvez uses comparative interrupted time series models to see if groups

⁸ Congress requires PHAs to offer assisted households the opportunity to switch to a tenant-based voucher after a year of project-based assistance. MTW agencies may waive or modify that requirement.

⁹ See PIH Notice 2019-04 "Request for Letters of Interest under the Moving to Work Demonstration Program for Fiscal Year 2019: Cohort #2 – Rent Reform."

of MTW agencies performed better than matched groups of traditional agencies in terms of selected indicators. The authors measured average outcomes for selected groups of MTW and traditional agencies, but conclude by emphasizing the mismatch between the goals of MTW—to foster innovation responsive to local conditions—and looking at average outcomes for a group of agencies. This study, and the studies reported in *A Picture of Moving to Work Agencies' Housing Assistance* and *Fund More, Serve More, Save More: MTW and Cost Effectiveness*, finds that MTW agencies added households more rapidly than matched traditional agencies. This fact must be interpreted in light of the more generous funding received by the 39 legacy MTW agencies.

The cost-effectiveness of MTW agencies has been assessed before by comparing MTW to traditional agencies at one point in time.¹⁰ The study reported in *Fund More, Serve More, Save More: MTW and Cost Effectiveness* is different. It uses panel data spanning 2003 to 2017 and tests whether joining the MTW demonstration is associated with a change in the number of households served, the amount of HUD funding, and the number of households served per HUD dollar received. It concludes that MTW agencies are finding cost efficiencies, but the study cannot identify how. As of this writing, this study is by far the most comprehensive and rigorous assessment of cost effectiveness at MTW agencies.

The MTW retrospective evaluation studies form a foundation for future research designed to find out how MTW agencies achieve cost efficiencies and use reserves and to learn from innovations at individual MTW agencies. The retrospective studies also underscore, highlight, and starkly emphasize the methodological challenges to the evaluation of MTW, which, in turn, should be a warning to HUD: HUD needs data that support measures of key variables that are consistent over time and across agencies. A consistent measure of rent burden, for instance, depends on measures of income, but MTW agencies may change the definitions of adjusted income and total annual income. Measures of turnover in the Housing Choice Voucher program depend on recertification schedules, but MTW agencies may change the recertification schedule. As PHAs gain more freedom from federal regulation, how will HUD keep track of policies that vary across hundreds of PHAs, and how will those who monitor and evaluate HUD programs be able to determine which policies apply to which households?

International Perspectives from Colombia, Germany, and England

Three scholars of housing policy, including housing assistance for low-income households, offer perspectives from very different contexts on the MTW retrospective studies.

¹⁰ Reports from the study by Abt Associates include Buron, Larry, Melissa Vandawalker, Tyler Morrill, Jill Khadduri, Jeffrey Lubell, and Azim Shivji. 2017. *Testing Performance Measures for the MTW Program*. Abt Associates; and Khadduri, Jill, Melissa Vandawalker, Rebecca Cohen, and Jeffrey Lubell. 2014. *Innovations in the Moving to Work Demonstration*. Abt Associates. The Government Accountability Office's recent report on MTW is "Rental Housing: Improvements Needed to Better Monitor the Moving to Work Demonstration, Including Effects on Tenants." GAO-18-150. January 2018.

Adriana Hurtado-Tarazona, assistant professor at the University of the Andes, has studied urban inequality, informality, and social housing in Colombia and Italy. Ciudad Verde, a “social housing megaproject” in Soacha, a suburb of Bogota, Colombia, was the subject of her doctoral dissertation.

Max-Christopher Krapp works for the Institute for Housing and Environment in Darmstadt, Germany, and focuses on European housing policies and housing security. He recently co-authored a discussion of challenges for housing policy posed by SARS-CoV-2.

Becky Tunstall is Professor Emerita of Housing at the University of York. Her new book, *The Fall and Rise of Social Housing: 100 Years on 20 Estates*, explains the transformation of crime-ridden and neglected social housing developments into successful mixed-income neighborhoods.

Guest Editor

Elizabeth Rudd, Ph.D., is a social science analyst in HUD’s Office of Policy Development and Research. She served as the government technical representative for the HUD grant under which Urban Institute and MDRC conducted the MTW retrospective evaluation.

Acknowledgments

So many colleagues provided indispensable assistance to me and to the research team for the MTW evaluation, especially with understanding the MTW demonstration and HUD’s data. They know so much, shared their expertise, and were always patient, helpful, and good-humored. I cannot thank them enough. I also thank the several readers who helpfully criticized symposium article drafts.

A Picture of Moving to Work Agencies' Housing Assistance

Martha M. Galvez
Ruth Gourevitch
Benny Docter
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Abstract

This article describes the 39 public housing authorities with Moving to Work (MTW) designation as of 2016 and the households they serve. Together, the MTW agencies served 12 percent of all households assisted by public housing agencies (PHAs) in that year. MTW agencies tend to be larger than traditional PHAs and in more densely populated urban housing markets. Compared with comparably sized traditional PHAs, MTW agencies provide a similar mix of housing assistance, serve similar populations, and assist households in neighborhoods with similar levels of poverty. MTW agencies provide more project-based housing choice voucher (HCV) assistance compared with traditional PHAs and added new households to their assistance portfolios between 2008 and 2016, whereas the traditional agencies did not. The MTW agencies also received increased funding over the 2008–2016 period, whereas traditional agencies did not.

The Moving to Work Demonstration and Moving to Work Agencies

The Moving to Work (MTW) demonstration allows a small group of public housing agencies (PHAs) to design and test innovative strategies for providing housing assistance when those strategies are intended to achieve the demonstration's statutory objectives of cost-effectiveness, self-sufficiency, and housing choice.¹ Congress enacted the demonstration in 1996. As of 2020, 39 PHAs participate in the MTW demonstration.

In this article, the authors describe MTW agencies, the types of housing assistance they provided, and the households the agencies served as of 2016. This article contains the first detailed analysis to be conducted of MTW agencies since the demonstration was launched. It uses

¹ Omnibus Consolidated Rescissions and Appropriations Act of 1996. Pub. L. No. 104-134, tit. II, § 204, 110 Stat. 1321, 1321-281 (codified as amended at 42 U.S.C. § 1437f note).

HUD administrative data spanning 2008 to 2016—including Public and Indian Housing (PIH) Information Center (PIC) data, Voucher Management System (VMS) data, U.S. Census Bureau data, and HUD-provided counts of housing assistance unique to MTW agencies—to contrast the housing assistance provided by MTW agencies to that of comparably sized traditional PHAs.

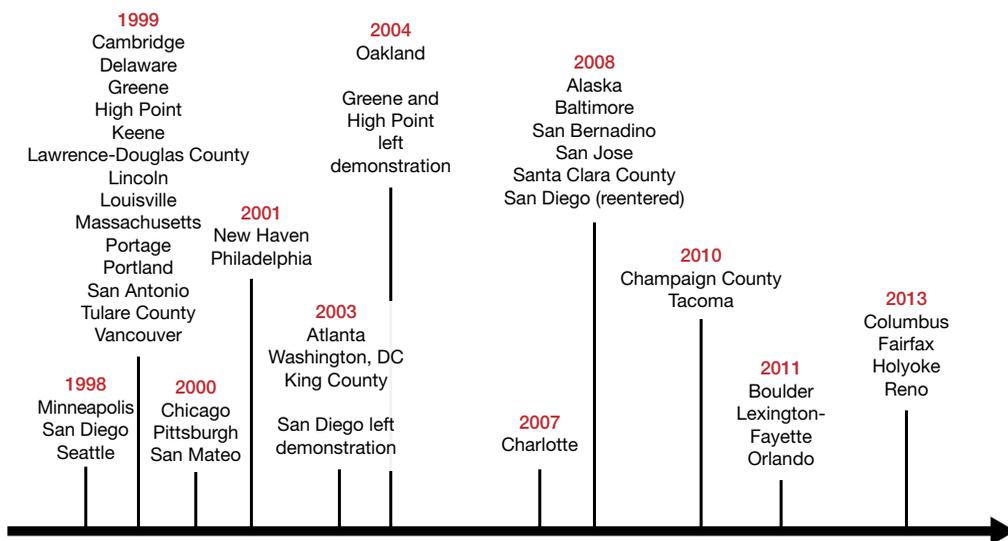
The authors worked closely with HUD throughout the analysis process to understand data quality and coverage and variations in reporting for MTW agencies compared with traditional PHAs. This article is based on the full-length report *A Picture of Moving to Work Agencies' Housing Assistance* (Galvez, Gourevitch, and Docter, forthcoming), which details the data sources used for this study. This article is complemented by an online feature that presents MTW agency-level information for selected measures of housing assistance for each of the 39 agencies and provides access to the data used in this report.²

Moving to Work Agencies

The first three MTW agencies executed contracts with HUD in 1998, and the four newest MTW agencies executed contracts in 2013 (see exhibit 1). One current MTW agency, the San Diego Housing Authority, exited the demonstration in 2003 and reentered in 2008. Two PHAs, the Greene Metropolitan Housing Authority and the High Point Housing Authority, entered and left the demonstration before 2008 and are excluded from this study.

Exhibit 1

Timeline of Moving to Work Agreements



Note: Year shown is the year Moving to Work (MTW) contracts were executed, which may differ from the year agencies were selected for MTW.

Sources: Documents retrieved from HUD's MTW portal, hud.gov/mtw

As a group, the 39 MTW agencies differ from traditional PHAs in several ways. First, most PHAs nationally are in metropolitan areas, but MTW agencies tend to be in densely populated cities as opposed to suburban or exurban areas. Of the 39 MTW agencies, 24 are in the

² The online feature and data are forthcoming at www.urban.org/policy-centers/metropolitan-housing-and-communities-policy-center.

principal city of a Metropolitan Statistical Area (MSA).³ MTW agencies also tend to be in stronger housing markets compared with traditional PHAs, as measured by lower average vacancy rates and higher housing costs (see exhibit 2).

In addition, MTW agencies tend to be larger than the typical PHA. None of the MTW agencies served fewer than 750 households in 2016 (the smallest MTW agency is Keene Housing, in Keene, New Hampshire, which served approximately 780 households that year). In contrast, approximately 80 percent of all traditional PHAs serve fewer than 750 households. Smaller traditional PHAs may face different constraints and costs than larger agencies. For example, Turnham et al. (2015) found that smaller PHAs (with fewer than 500 vouchers) had substantially higher administrative costs per household than did larger PHAs.

Finally, MTW agencies are more likely than traditional PHAs to operate both public housing and HCV programs (see exhibit 3 for an overview of the housing assistance programs that MTW agencies administer). As of 2016, only 7 percent of MTW agencies provided only one of the two main housing assistance programs, compared with 80 percent of all traditional PHAs.

Exhibit 2

Characteristics of Jurisdictions and Portfolios for Moving to Work Agencies, All Traditional Public Housing Agencies, and Comparison Traditional Public Housing Agencies, 2016

	MTW Agencies N = 39	Traditional PHAs (All) N = 3,837	Comparison Traditional PHAs (> 750 HHs) N = 779
Total Assisted Households (2016)	435,205	3,626,708	2,451,254
Characteristics of PHA Jurisdictions (2011–2015, ACS 5-Year Estimates)			
Average Population Density	4,914	1,852	3,548
Average Poverty Rate	16%	17%	17%
Median Rent	\$961	\$612	\$768
Average Percent Rental Housing	39%	30%	35%
Average Vacancy Rate	10%	15%	12%
Average % White, Non-Hispanic/Latino	63%	74%	67%
Average % African-American, Non-Hispanic/Latino	14%	12%	14%
Average % Other Race, Non-Hispanic/Latino	8%	4%	5%
Average % Hispanic/Latino, Any Race	14%	10%	13%
PHA Portfolio Mix (2016)			
Public Housing Only	0%	40%	1%
Housing Choice Vouchers (HCVs) Only	13%	40%	17%
Public Housing and HCVs	87%	20%	82%

ACS = American Community Survey. HH = households. MTW = Moving to Work. PHA = public housing agency.

Notes: Jurisdictions are approximated as the counties containing the largest share of each PHA's assisted households. Population density is the number of people per square mile. "Other" race category includes Asian, Native Hawaiian, and other Pacific Islanders.

Sources: 2011–2015 ACS 5-year data; HUD Public and Indian Housing Information Center data

³ For more information about MSAs and how they are defined, see <https://www.census.gov/programs-surveys/metro-micro/about.html>.

Exhibit 3

Assisted Housing Programs Administered by Moving to Work Agencies

The public housing and the housing choice voucher (HCV) programs are the two largest low-income rental assistance programs administered by public housing agencies (PHAs). In addition, MTW agencies may provide local, non-traditional assistance unique to MTW.

Public Housing. Originating in 1937, public housing is the nation's oldest housing subsidy program. Approximately 1.04 million public housing units are owned and managed by PHAs, and tenants pay rent directly to a PHA each month. Households must have income below 80 percent of the area median income (AMI) to qualify, but PHAs are required to target at least 40 percent of new admissions to households that meet either HUD's definition of extremely low-income, defined as below 30 percent of AMI, or the poverty threshold established by the U.S. Department of Health and Human Services. In addition, housing agencies often give preference to households that are homeless, elderly and/or disabled, or working families. Most families pay 30 percent of their income in rent or a minimum rent of up to \$50 per month.

Housing Choice Vouchers. The HCV program provides rental assistance to approximately 2.3 million low-income households annually. HUD requires that not less than 75 percent of families admitted to a PHA's HCV program in a year have incomes at or below the extremely low-income limit. The program includes tenant- and project-based voucher assistance. For both types of vouchers, households typically pay 30 percent of their income or a minimum rent of up to \$50 per month.

- **Tenant-Based Vouchers (TBVs):** TBVs enable individuals or households to rent privately owned housing. Once a household receives a voucher from the local PHA, it has a minimum of 60 days to find a unit that meets federal quality standards and whose landlord will accept the voucher. When an HCV holder leases a unit, the HCV holder (that is, the tenant) pays a portion of the gross rent (rent plus any tenant-paid utilities), and the PHA pays the remainder. The program allows households to rent housing in any jurisdiction where a PHA administers an HCV program and a landlord will accept a voucher.
- **Project-Based Vouchers (PBVs):** PBVs are attached to specific units and properties through contracts with property managers or owners who rent units to eligible families. The rent is subsidized by the PHA through the PBV program. As with TBVs, the tenant pays a portion of the rent, and the PHA pays the remainder. In some cases, PHAs own the PBV properties.

Local, Non-Traditional (LNT) Programs. LNT assistance is unique to MTW agencies and includes four forms of assistance: rental subsidy programs, including supportive housing; homeownership programs, such as ones in which the PHA acts as a mortgagee; housing development programs, including gap financing and tax credit partnerships; and service provision, wherein the PHA provides access to self-sufficiency or supportive services. All four types of assistance target families with incomes at or below 80 percent of the area median and must meet the MTW program's statutory objectives. LNT assistance is not captured in administrative data systems. HUD's MTW office tracks the total number of households served annually by each MTW agency. For those counts, HUD considers any assistance to be linked to a household regardless of whether the subsidy provided is shallow or deep, property-based or tenant-based, tied to a unit, or an investment in a property.⁴

With the differences between MTW agencies and traditional PHAs in mind, the authors selected a subset of traditional PHAs as a point of comparison for the MTW agencies. This comparison group includes only traditional PHAs that have more than 750 assisted households in any year between 2008 and 2016. These larger traditional PHAs are in slightly more expensive markets and more densely populated counties and are more likely to provide both public housing and HCV assistance than smaller PHAs. Combined, the MTW and comparison PHAs represent about 21 percent of all PHAs nationally but account for three-fourths of all PHA-assisted households in 2016. Exhibit 2 presents selected housing market and housing assistance portfolio characteristics of MTW agencies, all traditional PHAs, and the subset of traditional PHAs with at least 750 households served

⁴ U.S. Department of Housing and Urban Development, Office of Public and Indian Housing (HUD PIH). 2011. PIH Notice 2011-45: Parameters for Local, Non-Traditional Activities under the Moving to Work Demonstration Program. Washington, DC: HUD.

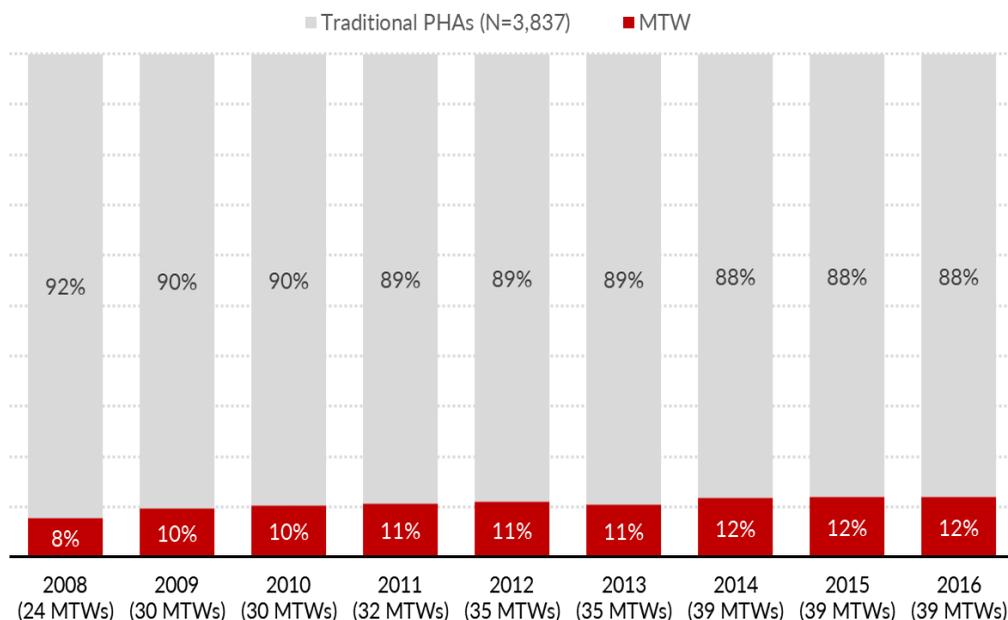
annually that are included in the comparison group. The households counted are housing choice voucher (including special purpose voucher), public housing, and LNT families.⁵

Moving to Work Housing Assistance

In 2016, the 39 MTW agencies accounted for approximately 12 percent of all households assisted by PHAs, reflecting an increase from 8 percent in 2008 (exhibit 4). The increase in the MTW share of all PHA-assisted households reflects a combination of trends over time: increases in the number of agencies with an MTW designation, a slight loss in the number of households served by the traditional PHAs, and a moderate increase in the number of households served by MTW agencies after they joined the demonstration.

Exhibit 4

Share of Assisted Households Served by Moving to Work and Traditional Public Housing Agencies, 2008–2016



MTW = Moving to Work. PHA = public housing agency.

Notes: Includes all households assisted through public housing; housing choice vouchers (including special purpose vouchers); local, non-traditional assistance; and other unspecified program types. PHAs are included as MTW beginning in the first calendar year after contracts are executed.

Sources: Urban Institute analysis of HUD Public and Indian Housing Information Center data; local, non-traditional program data

⁵ See the appendix in Galvez, Gourevitch, and Docter (forthcoming) for details on data underlying this report. There is no unit- or household-level information available for LNT households, so they cannot be included in analyses requiring that information.

Understanding the Increase in the Number of Households Assisted by Moving to Work Agencies

In 2016, the 39 MTW agencies served 435,205 households—an increase of 60 percent, or 163,225 unique households, during the 8-year study period (exhibit 5). Fifteen PHAs joined the MTW demonstration during the study period (six in 2008, two in 2010, three in 2011, and four in 2013; see exhibit 1).

The addition of the 15 new MTW agencies—and the households they served at the point of MTW designation—accounts for roughly three-fourths of the increase in households served during the study period (111,263 households, or 74 percent of total growth). The remaining growth reflects new households added to MTW agencies' assisted housing portfolios between 2008 and 2016. For example, the Atlanta Housing Authority reported an almost 5,000-household increase in assisted households between 2008 and 2016. Other MTW agencies, such as the Housing Authority of Champaign County (Illinois), had more modest increases. Several agencies, however, such as the Housing Authority of Columbus (Georgia), recorded declines in households served after the point of MTW designation. Exhibit 5 shows changes in households served between 2008 and 2016 by MTW agencies, grouped on the basis of when they executed agreements with HUD. The online feature that accompanies this report provides MTW agency-level numbers of households served between 2008 and 2016.⁶

Exhibit 5

Change in Total Households Assisted by Moving to Work Agencies, 2008–2016

Year MTW Contract Executed	MTW Agency (N)	Total Assisted Households the Year MTW Contracts were Executed	Total Assisted Households in 2016	Difference in Households Assisted Between Time Periods	Percentage Change
1998 to 2007	24	271,982*	323,941	51,959	19
2008	6	67,488	77,804	10,316	15
2010	2	6,615	7,302	687	10
2011	3	10,698	11,299	601	6
2013	4	15,404	14,858	-546	-4
Totals	39				

MTW = Moving to Work. PHA = public housing agency.

* For agencies that executed MTW contracts between 1997 and 2007, the "total assisted households the year MTW contracts were executed" column is the number of households assisted in 2008.

Notes: Includes all households assisted through public housing and housing choice vouchers (including special purpose vouchers) and households missing program information. PHAs are included as MTW beginning in the first calendar year after contracts are executed.

Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

⁶ The online feature and data are forthcoming at www.urban.org/policy-centers/metropolitan-housing-and-communities-policy-center.

Relationship Between Funding and Moving to Work Status

As a group, MTW agencies received nearly \$2.3 billion in HUD funding in 2003 and \$4.4 billion in 2017—accounting for 9 and 17 percent, respectively, of all HUD funding to PHAs in those years (exhibit 6).⁷ The total funding provided to MTW agencies increased slightly over time and as a share of all PHA funding. In contrast, funding to traditional PHAs decreased from roughly \$23.1 billion in 2003 to \$21.5 billion in 2017.⁸

Exhibit 6

HUD Funding to Moving to Work and Traditional Public Housing Agencies, 2003–2017

	HUD Funding to MTW Agencies	HUD Funding to All Traditional Agencies	Share of HUD Funding Allocated to MTW Agencies (%)	Number of MTW Agencies
2003	\$2,335,942,273	\$23,125,233,221	9	22
2004	\$2,880,298,542	\$22,968,914,383	11	23
2005	\$3,099,464,306	\$22,282,477,664	12	24
2006	\$3,038,859,385	\$22,349,575,436	12	24
2007	\$3,175,640,215	\$22,149,305,232	13	24
2008	\$3,268,879,633	\$22,084,185,475	13	25
2009	\$3,992,215,337	\$21,925,248,088	15	29
2010	\$4,297,130,473	\$22,919,209,104	16	30
2011	\$4,315,533,967	\$22,164,180,149	16	32
2012	\$4,208,962,565	\$21,057,537,403	17	35
2013	\$4,104,554,510	\$20,892,163,136	16	35
2014	\$4,242,998,614	\$20,739,100,304	17	39
2015	\$4,363,418,112	\$21,115,350,833	17	39
2016	\$4,415,498,374	\$21,592,907,299	17	39
2017	\$4,390,927,949	\$21,473,228,619	17	39

MTW = Moving to Work.

Notes: Agency-level data are adjusted to account for missing data and inflation. HUD funding is defined as all HUD public housing agency (PHA) operating and capital grants for public housing operating fund, public housing capital fund, and housing choice vouchers. The HUD funding metric excludes funding through the special purpose voucher program. Traditional PHAs (N = 3,673) exclude PHAs that joined the MTW demonstration at any time. PHAs are included as MTW agencies in the year their contract is executed.

Source: Urban Institute analysis of HUD Financial Data System data

⁷ Stacy et al. (2020) directly examine the causal relationship between MTW status and the number of assisted households served. The authors of this report use the HUD Financial Data Schedule (FDS) dataset developed for Stacy et al. (2020) to estimate the funding received by all 39 MTW agencies between 2003 and 2017. See Stacy et al. (2020) for a description of how PHA funding levels were identified, but note that their method includes PHAs as MTW agencies in the same year they sign an MTW agreement, as opposed to the following calendar year (the method applied in this report).

⁸ Dollar amounts are stated in 2015 dollars.

Assistance Provided by Moving to Work and Comparison Traditional Public Housing Agencies

In 2016, about three-fourths of all housing assistance provided by the Moving to Work (MTW) and comparison traditional public housing agencies (PHAs) was through housing choice vouchers (including tenant- and project-based vouchers), and the approximately one-fifth remaining was through public housing (exhibit 7).

MTW and comparison traditional PHAs provided similar shares of tenant-based vouchers (TBVs). MTW agencies administered more project-based vouchers (PBVs) compared with traditional PHAs.

Exhibit 7

Share of Households Assisted by Moving to Work and Comparison Traditional Public Housing Agencies by Program, 2016

Program	MTW Agencies N = 39	Comparison Traditional PHAs N = 779
Public Housing (%)	21	27
Tenant-Based Vouchers (%)	66	69
Project-Based Vouchers (%)	12	4

MTW = Moving to Work. PHA = public housing agency.

Notes: The comparison traditional PHA column includes traditional PHAs with >750 assisted households in the year reported. Shares for MTW agencies do not sum to 100 because local, non-traditional housing assistance is excluded.

Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

Between 2008 and 2016, the share of public housing assistance decreased among MTW agencies (from 30 percent to 21 percent), and the share of PBV housing assistance increased (from 4 percent to 12 percent). By comparison, the share of public housing (dropping from 29 to 27 percent) and PBV assistance (rising from 2 to 4 percent) remained fairly steady for the comparison traditional PHAs (exhibit 8).

A portion of the shift to voucher assistance for both MTW and traditional PHAs may be attributable to participation in the Rental Assistance Demonstration (RAD; see exhibit 9). The RAD program, authorized under the Consolidated and Further Continuing Appropriations Act of 2012, allows PHAs to convert units to either PBVs or project-based rental assistance (PBRA).⁹ Between 2013 and 2016, more than 90,000 public housing units converted to PBVs or PBRAs through RAD; MTW agencies converted 11,327 units. Most of the MTW public housing units converted through RAD shifted to PBVs (77 percent). Among comparison traditional PHAs, about one-half of RAD conversions were to PBRAs.¹⁰

⁹ PBVs are part of the HCV program, with voucher funding allocated to specific properties selected through a process managed by individual PHAs. PBRA is a HUD housing program in which HUD contracts with private landlords who provide affordable units to low-income tenants at specific properties. For more information on the PBV program, see https://www.hud.gov/program_offices/public_indian_housing/programs/hcv/project. For more information on PBRA, see <https://www.hud.gov/hudprograms/rs8pbra>.

¹⁰ See Galvez et al. (forthcoming) for a detailed assessment of MTW agencies' use of PBV assistance, including public housing conversions through RAD.

Exhibit 8

Share of Assistance by Program Type and Moving to Work Status, 2008–2016

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Project-based Vouchers									
MTW Agencies (%)	4	4	5	8	8	9	8	11	12
Comparison PHAs (%)	2	2	2	2	3	3	3	4	4
Public Housing									
MTW Agencies (%)	30	26	26	25	25	25	25	23	21
Comparison PHAs (%)	29	28	28	28	28	29	28	27	27
Tenant-based Vouchers									
MTW Agencies (%)	66	70	69	67	66	66	66	66	66
Comparison PHAs (%)	69	70	70	69	69	68	68	68	69

PHA = public housing agency. MTW = Moving to Work.

Note: Numbers may not add to 100 due to rounding.

Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

Exhibit 9

The Rental Assistance Demonstration

Congress authorized the Rental Assistance Demonstration (RAD) in 2012 to stem the loss of public housing units due to lack of funding for repairs to deteriorated properties. RAD allows public housing agencies (PHAs) to convert public housing properties to project-based Section 8 contracts. That provides a more predictable, long-term funding stream and allows PHAs to use a wide range of financing from both public and private sources to pay for rehabilitation of the properties. PHAs using RAD choose Section 8 contracts that are project-based vouchers (PBV) or project-based rental assistance (PBRA). As of this writing, HUD reports that 113,540 public housing units have been converted through RAD, and many more units are in the process of being approved for RAD.

Local, Non-Traditional Program Assistance

MTW agencies can design unique housing assistance models known as local, non-traditional (LNT) programs (see exhibit 3). Traditional PHAs are not permitted to provide those types of assistance. LNT programs may include both tenant- and property-based assistance. Examples include rental subsidies administered through third-party providers, homeownership programs, and services to people eligible for but not receiving public housing or HCV assistance (HUD PIH, 2011).

Both the number of PHAs administering LNT assistance and the number of households receiving this form of assistance have increased over time. As of 2016, 23 MTW agencies served almost 10,000 households through LNT program assistance.

The extent to which MTW agencies use LNT program assistance varies. The Atlanta Housing Authority accounts for between 30 and 40 percent of all LNT assistance. Alternatively, MTW agencies in the District of Columbia and Lincoln, Nebraska, do not provide any LNT assistance.

Characteristics of Moving to Work Households

Moving to Work and the comparison group of traditional public housing agencies serve similar populations, with minimal differences in household characteristics or trends in the types of households served over time. Exhibit 10 presents measures of household composition, head of

household characteristics, income, and rent burdens for households served by MTW agencies and traditional PHAs. In both 2008 and 2016, the two sets of agencies served households of similar size and composition, with similar incomes and similar rent burdens. MTW agencies served larger shares of African-American households and fewer White and Hispanic/Latino households compared with traditional PHAs. Measures are defined and discussed in detail in Galvez, Gourevitch, and Docter (forthcoming).

Exhibit 10

Household Characteristics for Moving to Work and Comparison Traditional Public Housing Agencies, 2008 and 2016

Household Type	MTW Agencies N = 39		Traditional PHAs (>750 Households) N = 779	
	2008	2016	2008	2016
Households with more than one adult and no children	10%	12%	9%	10%
Households with one adult and no children	41%	46%	40%	45%
Households with children	49%	43%	51%	45%
Households with children ages birth–5 years	46%	39%	48%	41%
Households with children ages 6–17 years	44%	37%	43%	38%
Average number of children in households with children	1.3	1.1	1.3	1.1
Households with a disabled head of household	37%	43%	35%	40%
Households headed by an elderly individual (62 or older)	21%	27%	21%	25%
Single-parent households	45%	36%	46%	40%
Households headed by a female	79%	75%	81%	78%
Households headed by a White, non-Hispanic/Latino	20%	19%	30%	28%
Households headed by an African-American, non-Hispanic/Latino	62%	60%	46%	48%
Households headed by an Asian, non-Hispanic/Latino	3%	5%	3%	2%
Households headed by a non-Hispanic/Latino of another race	1%	1%	1%	1%
Households headed by a Hispanic/Latino individual, any race	13%	15%	21%	21%
Work-able head of household	54%	48%	55%	51%
Total average annual income	\$13,093	\$14,394	\$12,935	\$14,412
Households with extremely low incomes (L30)	–	78%	–	74%
Median rent burden	26%	29%	26%	29%

MTW = Moving to Work. PHA = public housing agency.

Notes: Data for households with extremely low incomes using HUD's income standards are available only for 2016 and exclude households that exited housing assistance in 2016. The measure of extremely low income used here is 30 percent of area median income, labeled "L30". See Brandy (2019) for information on definitions of extremely low income.

Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

Household Composition and Characteristics

As shown in exhibit 10, in both 2008 and 2016, the MTW agencies and comparison traditional PHAs served households of similar size and served similar shares of households with children, with a disabled head of household, with a head of household age 62 or older, and with a female head of household. Any differences between MTW agencies and comparison traditional PHAs for those measures in 2008 and 2016 tend to be within 1 to 3 percentage points.

Some changes occurred over time in household characteristics or composition for both sets of PHAs, with similar trends. For example, the shares of households with children declined over time for both MTW agencies and traditional PHAs, by roughly 6 percentage points for each set of agencies. The shares of single-parent households and work-able households also declined over time for both sets of PHAs, with a marginally larger decline in both measures for the MTW agencies. Similarly, the share of households headed by an elderly person increased at a slightly faster rate for MTW agencies between 2008 and 2016 compared with the traditional PHAs but was only 2 percentage points larger for MTW agencies in 2016.

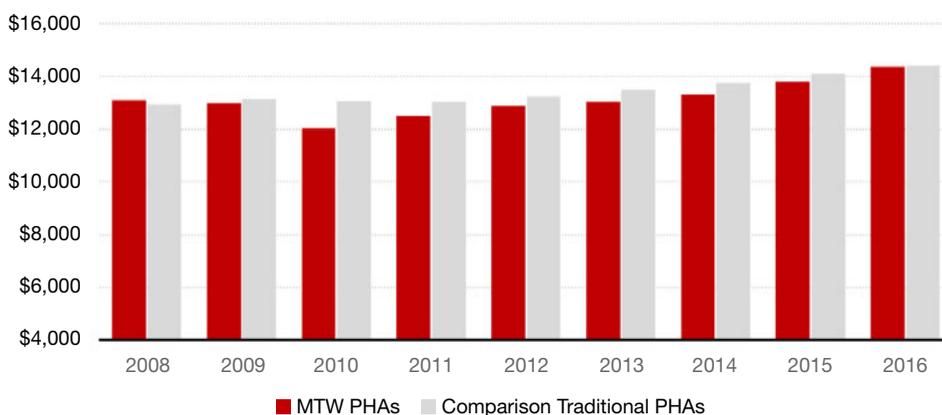
Household Income and Rent Burdens

MTW and comparison traditional PHA households had similar average total (unadjusted) incomes and median rent burdens in 2008 and 2016. The two sets of agencies also served similar shares of extremely low-income households.

Average household income increased over time for each set of agencies. The MTW households' incomes were slightly lower on average than those of the comparison traditional households in nearly every year in the analysis period (see exhibit 11).

Exhibit 11

Average Annual Income of Assisted Households for Moving to Work and Comparison Traditional Public Housing Agencies by Year, 2008–2016



MTW = Moving to Work. PHA = public housing agency.

Notes: MTW agencies: N=39. Traditional PHAs: N=779. Income is total household income.

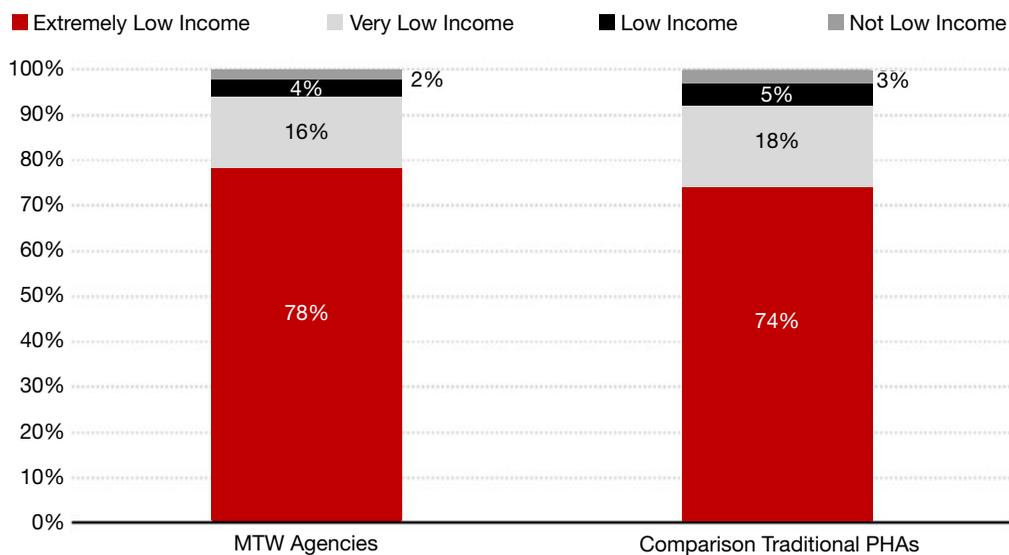
Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

Median rent burden for households served by both the MTW agencies and comparison traditional PHAs was about 29 percent between 2008 and 2016. A larger share of MTW-assisted households had slightly lower rent burdens—between 27 and 29 percent—during that period, whereas a larger share of households served by traditional PHAs had slightly higher rent burdens—between 30 and 32 percent.

HUD calculates income limits annually that determine eligibility for assisted housing programs on the basis of median family income estimates and fair market rent definitions for metropolitan areas and at the county level for nonmetropolitan areas. HUD's PIH (Office of Public and Indian Housing) Information Center (PIC) data indicate whether each assisted family's income meets local income limits of 30, 50, or 80 percent of area median income (AMI). In 2016, both MTW agencies and comparison traditional PHAs served mainly extremely low-income (ELI) households—defined as households with incomes at or below 30 percent of local AMI—with MTW agencies serving a slightly larger share of ELI households compared with traditional PHAs (78 percent and 74 percent, respectively; see exhibit 12). The MTW agencies and traditional PHAs served similar shares of very low-income households (30–50 percent of AMI), low-income households (up to 80 percent of AMI), and households with incomes above 80 percent of AMI.

Exhibit 12

Share of Assisted Households by Income Level for Moving to Work and Comparison Traditional Public Housing Agencies, 2016



MTW = Moving to Work. PHA = public housing agency.

Notes: MTW agencies: N = 39. Traditional PHAs: N = 779. Data exclude households that exited assistance in 2016, as exiting households are missing income limits data. HUD's income limit calculations are based on area median family income estimates (which are area median income estimates adjusted for family size) and Fair Market Rent area definitions at the metropolitan level and at the county level for nonmetropolitan areas. Extremely Low Income = at or below 30 percent of area median income (AMI) or the federal poverty threshold, whichever is greater; Very Low Income = 30 to 50 percent of AMI; Low income = 50 to 80 percent of AMI. Households with incomes above 80 percent of AMI are not considered to be low income. See www.huduser.gov/portal/datasets/il.html and www.huduser.gov/portal/datasets/il/il18/FAQ-18r.pdf for more information on HUD income limits.

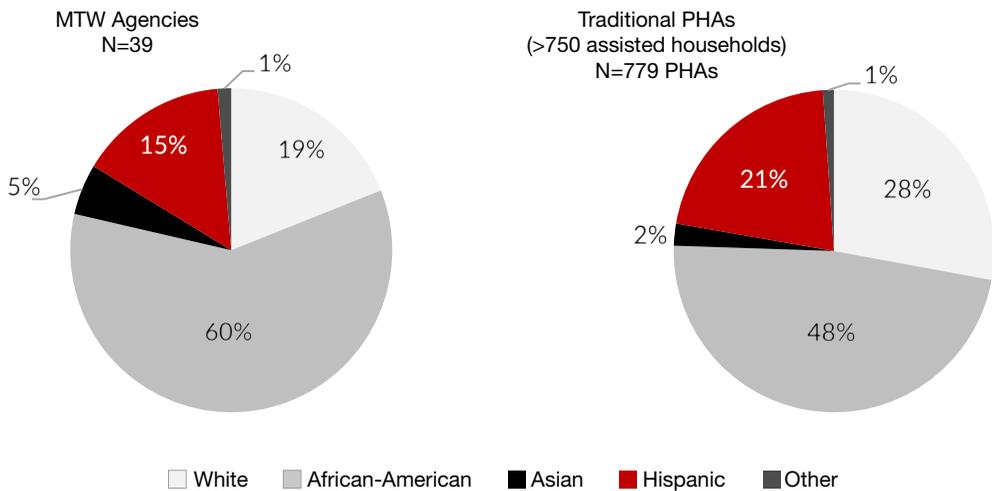
Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

Head of Household Race and Ethnicity

In 2016, more than 80 percent of MTW agencies' heads of household were African-American, Hispanic/Latino, or Asian, with White heads of household representing the remaining approximately 19 percent. For the comparison traditional PHAs, approximately 72 percent of all heads of household were people of color (exhibit 13).

Exhibit 13

Race and Ethnicity of Moving to Work Agency and Comparison Traditional PHA-Assisted Households, 2016



MTW= Moving to Work. PHA = public housing agency.

Notes: Race and ethnicity information corresponds to the head of household. Households are identified in HUD Public and Indian Housing Information Center data as belonging to a single race category. White, African-American, Asian, and other race categories are exclusive of Hispanic/Latino ethnicity. Hispanic/Latino heads of household may be of any race.

Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data.

For both sets of PHAs, African-American households represented the largest proportion of assisted households overall and in each program, although the racial and ethnic composition varied by assistance program (exhibit 14). Within MTW agencies, public housing residents are more likely to be African-American and less likely to be White, compared with the populations of TBV or PBV program participants. For the comparison traditional PHAs, TBV program participants are more likely to be African-American compared with PBV and public housing residents. Public housing residents in traditional PHAs are more likely to be Hispanic/Latino than households served through other assistance programs or compared with MTW-assisted households.

Exhibit 14**Race and Ethnicity by Program Type at Moving to Work and Comparison Traditional Public Housing Agencies, 2016**

Head of Household	Public Housing		Project-Based Vouchers		Tenant-Based Vouchers	
	MTW Agencies	Traditional PHAs	MTW Agencies	Traditional PHAs	MTW Agencies	Traditional PHAs
White, non-Hispanic/Latino (%)	13	21	25	32	20	29
African-American, non-Hispanic/Latino (%)	68	46	55	43	57	50
Asian, non-Hispanic/Latino (%)	4	3	6	3	5	2
Hispanic/Latino individual, any race (%)	13	30	12	20	16	18
Non-Hispanic/Latino of another race (%)	2	1	2	1	1	1

MTW = Moving to Work. PHA = public housing agency.

Notes: MTW agencies: N = 39. Traditional PHAs: N = 779. Race and ethnicity information corresponds to the head of household. Households are identified in HUD Public and Indian Housing Information Center data as belonging to a single race category. White, African-American, Asian, and other race categories are exclusive of Hispanic/Latino ethnicity. Hispanic/Latino heads of household may be of any race.

Source: Urban Institute analysis of HUD Public and Indian Housing Information Center data

Access to Low-Poverty Neighborhoods

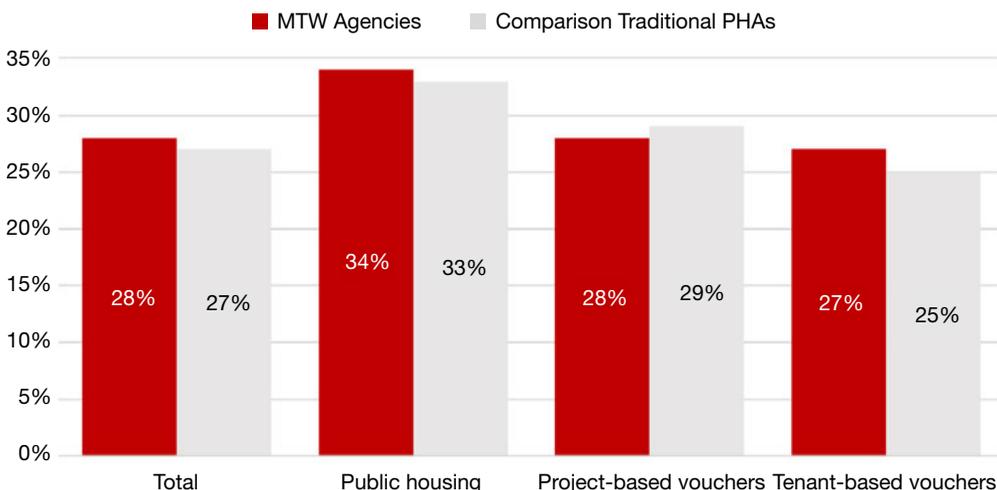
Previous research shows that neighborhoods influence well-being and long-term success (Chetty and Hendren, 2015; Turner and Gourevitch, 2017). To document the extent to which Moving to Work (MTW)-assisted households access low-poverty neighborhoods, the authors looked at their census-tract locations in 2016 and calculated average tract-level poverty rates for all assisted households with 2011–2015 American Community Survey (ACS) data, as a proxy for overall neighborhood quality.

In 2016, households assisted by MTW agencies lived in neighborhoods with an average poverty rate of 28 percent, which was nearly identical to the average for comparison traditional household neighborhoods (see exhibit 15, first column). That poverty rate is lower than the thresholds of 30 or 40 percent for residents living in poverty that the literature typically associates with neighborhood distress but substantially higher than the 10-percent threshold typically considered to offer access to economic or educational opportunities (Galvez, 2010).

Average neighborhood poverty rates for MTW and traditional public housing agency households also were nearly identical for each housing assistance program (exhibit 15). Consistent with the literature on locations of PHA-assisted households (Devine et al., 2003; McClure, Schwartz, and Taghavi, 2015; Pendall, 2000), public housing households lived in higher poverty neighborhoods compared with housing choice voucher recipients (whether project-based vouchers or tenant-based vouchers). That was the case for both MTW agencies and the comparison traditional PHAs.

Exhibit 15

Average Poverty Rate of Census Tracts Containing Assisted Households by Program Type for Moving to Work and Comparison Traditional Public Housing Agencies, 2016



MTW = Moving to Work. PHA = public housing agency.

Notes: MTW Agencies: N = 39. Traditional PHAs: N = 779. Excludes households with missing geographic tract identifiers in HUD Public and Indian Housing Information Center data.

Sources: Urban Institute analysis of HUD Public and Indian Housing Information Center data; 2011–2015 American Community Survey 5-year data

Nearly identical shares of households assisted by MTW and comparison traditional PHAs lived in low-poverty census tracts in 2016, whereas a slightly higher share of MTW-assisted households lived in high-poverty tracts. In 2016, only 15 percent of all MTW-assisted households and 14 percent of comparison traditional PHA-assisted households lived in areas with census-tract poverty rates below 10 percent. Approximately 43 percent of all MTW households and 38 percent of households served by comparison traditional PHAs lived in areas with poverty rates above 30 percent. See exhibit 16 for the shares of MTW and comparison agency households living in low-, moderate-, and high-poverty census tracts.

Exhibit 16

Share of Assisted Households by Census-Tract Poverty Level for Moving to Work and Comparison Traditional Public Housing Agencies, 2016

Household Type	MTW Agencies N = 39	Comparison Traditional PHAs (>750 Households) N = 739
Percent of households in low-poverty census tracts (<10% poverty rate)	14%	15%
Percent of households in low- to moderate-poverty census tracts (10–20% poverty rate)	22%	24%
Percent of households in moderate- to high-poverty census tracts (21–30% rate)	21%	23%
Percent of households in high-poverty census tracts (31–40% poverty rate)	19%	17%
Percent of households in extremely high-poverty census tracts (>40% poverty rate)	24%	21%

MTW = Moving to Work. PHA = public housing agency.

Note: Excludes households that do not have geographic tract identifiers in the HUD Public and Indian Housing Information Center dataset.

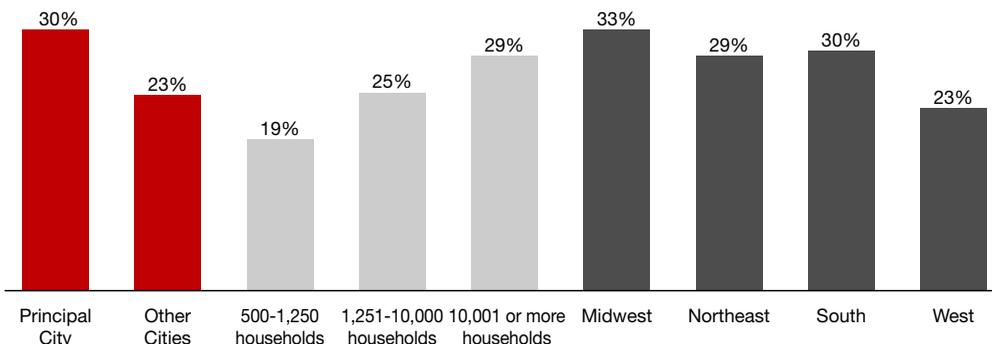
Sources: Urban Institute analysis of HUD Public and Indian Housing Information Center data; 2011–2015 American Community Survey 5-year data

Household Locations by Moving to Work Agency Characteristics

Among MTW-assisted households, residential locations varied based on city type, PHA size, and region of the country (exhibit 17). MTW agencies operating in central cities tended to have households in census tracts with higher average poverty rates compared with other MTW agencies (average poverty rate of 30 percent compared with 23 percent). Large MTW agencies also tended to have households in census tracts with higher average poverty rates compared with smaller MTW agencies (average poverty rate of 29 percent for PHAs with 10,000 or more assisted households annually compared with 19 percent for PHAs with 1,250 or fewer households). MTW-assisted households in the Midwest experienced the highest average neighborhood poverty rates (33 percent on average), whereas MTW households in the West experienced the lowest (23 percent on average).

Exhibit 17

Average Poverty Rate of Census Tracts Containing MTW-Assisted Households by Type of City, Size of Agency, and Region of Country, 2016



MTW = Moving to Work

Notes: Principal city: N = 24; Other cities: N = 14. Size: 500–1,250 households: N = 5; 1,251–10,000 households: N = 19; 10,001 or more households: N = 14. Regional designations are created by the U.S. Census Bureau. Regions: Midwest N = 6; Northeast N = 7; South N = 11; West N = 14. “Principal city” public housing agencies appear as a central city named in the Metropolitan Statistical Area (MSA) name for 2015; “other” cities are smaller, often suburban jurisdictions included but not named in the MSA.

Sources: Urban Institute analysis of HUD Public and Indian Housing Information Center; 2011–2015 American Community Survey 5-year data

Conclusion

This study provides a detailed, descriptive analysis of restricted-use HUD administrative data for 2008 through 2016 to describe the housing assistance provided by the 39 public housing agencies (PHAs) with Moving to Work (MTW) designation as of 2016.

Considered together, the findings show that MTW agencies are larger and more likely to be in dense urban areas than the typical traditional housing authority. When measures of MTW housing assistance are compared with those of a subset of comparably sized traditional PHAs, the MTW agencies seem to provide a similar mix of housing assistance, serve similar populations, and have households in areas with similar levels of poverty. Some characteristics, such as the share of single-adult households and the share of work-able households, have changed over time for both MTW agencies and traditional PHAs. Some differences between MTW agencies and traditional PHAs emerge in the data. MTW agencies provide more project-based HCV assistance compared with traditional PHAs and seem to have added new households to their assistance portfolios between 2008 and 2016, whereas traditional PHAs did not. In addition, the comparison traditional PHAs served a larger proportion of White households compared with the MTW agencies. An accompanying online data feature provides MTW agency-level data for selected measures described in this report.

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Moving to Work Agencies' Use of Funding Flexibility

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Abstract

The Moving to Work (MTW) demonstration allows participating public housing agencies to implement innovative approaches to achieving three statutory objectives: cost-effectiveness, household self-sufficiency, and housing choice. MTW funding flexibility is a cornerstone of agencies' ability to work toward federally required and locally determined objectives. This flexibility allows the current 39 MTW agencies to treat the separate funding streams of public housing operations, capital improvements, and Housing Choice Voucher (HCV) programs as fungible, moving funds among the separate streams and from them into local, non-traditional activities. This article examines how MTW agencies have used funding flexibility and includes a detailed examination of funding shifts from a sample of agencies.

Introduction

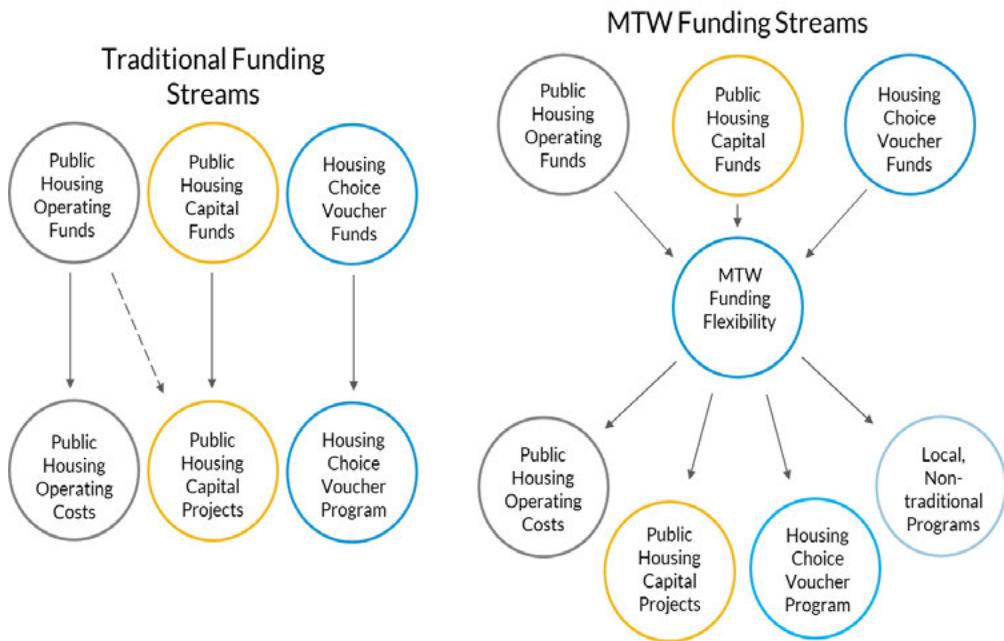
Our analysis indicates that all Moving to Work (MTW) demonstration agencies have used funding flexibility and have undertaken more activities focused on increasing housing choice than on the other statutory objectives. A plurality of agencies has used the flexibility to leverage additional funding for priority activities. Among agencies in the sample, most of the funds shifted came from the housing choice voucher (HCV) program stream, and the majority of shifted funds were used for capital projects. Findings are drawn from a research report produced for the U.S. Department of Housing and Urban Development (HUD)-funded retrospective evaluation of the MTW demonstration (Levy, Long, and Edmonds, 2019). The report includes a comparative analysis of MTW agencies' use of funding flexibility and outcomes associated with the statutory objectives, as well as detailed information on methods used and data produced for this study.

What Is Moving to Work Funding Flexibility?

Public housing agencies receive their annual HUD funding through three distinct revenue streams: operating funds used to operate and maintain public housing units; capital improvement funds for public housing development, rehabilitation, and management improvements; and HCV funds used to administer the voucher program.¹ MTW agencies may apply flexibility to these three funding streams upon receipt or maintain them separately and shift funds from one stream to another, as depicted in the diagrams in exhibit 1.² Whichever approach agencies take, they have greater leeway in how they use federal resources compared with traditional agencies.

Exhibit 1

Traditional and Moving to Work Agencies' Funding Streams and Uses



MTW = Moving to Work.

Source: Moving to Work Standard Agreement Attachment C, "Statement of Authorizations" (modified), retrieved from HUD's MTW portal. https://www.hud.gov/program_offices/public_indian_housing/programs/ph/mtw/mtwsa

Agencies that undertake activities with funding flexibility can do so with this flexibility alone or combined with waivers of HUD regulations granted to MTW participants.³ Examples of activities that require a waiver include changing the minimum rent and changing housing inspection procedures.

¹ PHAs may also receive funds from other sources, such as HUD grants and voucher awards, and from states, localities, and foundations.

² Traditional agencies may use up to 20 percent of their public housing operating funds annually for capital projects, as indicated by the dashed line in exhibit 1. This flexibility was extended to traditional agencies by the Housing Opportunity Through Modernization Act of 2016.

³ For details on waivers, see www.hud.gov/program_offices/public_indian_housing/programs/ph/mtw.

There are constraints on MTW agencies' use of funding flexibility. The agencies must abide by the statutes and regulations governing all public housing agencies except those for which an agency has received waivers. Agencies must document the activities that use funding flexibility alone and those that use the flexibility along with waivers. Also, agencies are required to serve substantially the same number and income mix of households as they would serve in the absence of funding flexibility. In addition, since 2010, the use of funding flexibility to support local, non-traditional forms of assistance⁴ is allowed only if the activity serves eligible households and pursues one or more of MTW's three statutory objectives.

These features of funding flexibility lead to questions about MTW agencies' actual use of it. What type of and how many activities do agencies undertake with shifted funds? Do the activities address some or all of the three statutory objectives? How and to what extent do agencies use funding flexibility with waivers? What are the dollar amounts of shifted funds? Furthermore, are funds shifted more or less from each traditional funding stream?

Research on Moving to Work Funding Flexibility

During the first few years of MTW, agencies used funding flexibility to address financial challenges, free resources for purposes already allowed, and increase the supply of affordable housing by developing new public housing units or adding vouchers. MTW agencies often were cautious and made modest changes to their funding use, such as using funding flexibility to address budget shortfalls. Some agencies used funding flexibility more intensively to pursue agency priorities by, for example, increasing resident services or providing additional affordable housing (Abravanel et al., 2004). Agencies were found to value funding flexibility because it enabled them to use funds to leverage financing for construction projects that otherwise would not have been possible (Brick and McCarty, 2012). Subsequent research further documented the activities MTW agencies take and considered the role funding flexibility plays in carrying them out, but research focused on funding flexibility has been limited (Brick and McCarty, 2012; Khadduri et al., 2014; Webb, Frescoln, and Rohe, 2015).

We know little about differences in agencies' use of funding flexibility alone compared with their use of the flexibility combined with waivers. The use of waivers has been discussed in descriptions of agencies' activities but not studied systematically (Khadduri et al., 2014). Similarly, we know little about funding shifts that involve funds freed up through cost savings. Research has documented that agencies use funds accrued through administrative cost savings for various purposes, but we do not know how frequently such actions are taken (Khadduri et al., 2014). Neither do we know the dollar amounts associated with funding flexibility. There is no published

⁴ Local, non-traditional activities use MTW funds for activities outside of the HCV and public housing programs, as set out in sections 8 and 9 of the U.S. Housing Act of 1937. Non-traditional activities fall into one of four categories: (1) rental subsidy programs that provide a subsidy to a third-party for supportive housing, transitional housing, and other programs; (2) homeownership programs that allow an agency to act as a mortgager to provide homeownership assistance; (3) housing development programs that acquire, renovate, or build units that are not public housing or HCV units; and (4) service provision activities, such as self-sufficiency or supportive services, that are not permitted under the Housing Act and regulations or are provided to eligible individuals who do not receive public housing or HCV assistance (PIH Notice 2011-45).

evidence on the estimated dollar amounts of funds shifted across traditional funding streams or funds accrued from cost savings or leveraging activities.

Research Questions and Challenges

We set out to systematically study agencies' uses of funding flexibility to determine what they have done with the flexibility and for what purposes, how they have used it alone or with waivers, and the dollar amounts agencies shift among the traditional funding streams. MTW activities have been documented, but we sought to go beyond existing documentation of MTW activities by identifying those undertaken with funding flexibility alone and with a waiver, and associating each activity with an MTW statutory objective. Our aim was to develop a more complete understanding of the uses of funding flexibility and its importance related to meeting local and federal goals. We also set out to detail how agencies use funding flexibility to shift funds, looking into data on funds shifted from one traditional funding stream to another stream or to local, non-traditional efforts, examining how agencies accrue savings and use those funds, and how the flexibility has been used to leverage additional resources. Finally, we wanted to examine dollar amounts of shifted funds. There has been no prior examination of the evidence on direct shifts of funds across traditional funding streams or on the use of funding available through cost savings.

Challenges emerged early in designing the study. We first grappled with how to describe funding flexibility. The conceptual diagram in exhibit 1 depicts straightforward shifts across the traditional funding streams. Our initial examination of agencies' annual reports, along with reviews of past research, made clear that funding flexibility also involves activities undertaken with waivers that result in savings, which can be used later to fund activities in the same or different streams. It became clear that a discussion of funding flexibility must include what we came to call indirect shifts.

Identifying shifts in funds presented another challenge. MTW agencies report direct shifts of funds and how the funds were used in their annual reports, but funds freed for use because of savings are difficult to identify because they might not be used immediately. Instead, these freed funds are placed in reserves for later use for an activity that may or may not be associated with the same funding stream in which the savings occurred. When there is evidence of using these freed funds, it may not be possible to identify the original funding stream from which they derived because, at the time of use, they are drawn from reserves. Once funds are pooled, the connection to the original stream can be broken. Difficulties specifying funding shifts and uses of funds were highlighted in the U.S. Government Accountability Office's (GAO's) MTW review that found HUD's financial data system could not be used to determine how agencies used funding they transferred from a traditional funding stream (GAO, 2018).⁵ Nevertheless, understanding funding flexibility requires more than tracking direct shifts. Fund accruals and uses of these funds are an important part of funding flexibility.

We also faced the challenge common to studies of the MTW demonstration: how to pursue research across 39 agencies when the agencies act in accordance with local priorities. There was variation as well in agencies' reporting practices, with some providing more complete and descriptive information in their annual reports than others.

⁵ According to HUD staff, HUD acknowledges this finding and has agreed to continuing the conversation with GAO in an effort to reach a mutually agreeable resolution.

Methods

In this section, we describe our approach to studying funding flexibility, including how we tried to mitigate the design and research challenges.

Data and Measures

We compiled data on funding flexibility from a review of all 39 MTW agencies' 2015 annual reports and 2016 annual plans submitted to HUD.⁶ The reports and plans include information on activities being implemented and closed out since each agency joined the MTW demonstration, which enabled us to identify a comprehensive list of funding flexibility-related activities through 2015. Data come from two sections of Form 50900 of the annual reports: section IV, approved MTW activities, which includes activity descriptions, whether an activity includes the use of a waiver, and whether it frees resources or uses resources; and section V, sources and uses of funds which includes descriptions of activities undertaken with funding flexibility only. To gauge the completeness and accuracy of data drawn from agencies' annual reports, we compared these data from a sample of agencies with data from HUD's Financial Data Schedule (FDS). FDS contains the annual financial statements submitted by public housing agencies. The FDS variables we looked at differed by agency. For example, we looked at line 70710 (management fee) to help identify freed resources for several agencies whose annual reports showed management fees that were higher than related expenses. We looked at line 92100 (resident services) for several agencies to confirm the uses of shifted funds for self-sufficiency and other programs.

We distinguished between direct and indirect shifts of funds to capture the range of agencies' use of funding flexibility. Direct shifts are shifts of funds from one traditional HUD funding stream to another or to local, non-traditional activities to cover costs for a specific activity. These shifts reflect budgetary decisions. Agencies report direct shifts of funds in section V (Form 50900) of their annual reports, though they do not consistently report all small direct shifts or provide full information on dollar amounts shifted. Agencies report direct shifts of funds in relation to the activities to be supported as "activities that used only MTW single fund flexibility." We refer to such initiatives as funding-flexibility-only activities. Indirect shifts result from policy decisions that free resources in one funding stream for spending in other streams or within the same stream for different purposes. Funds are accumulated over time through MTW activities that result in cost savings, new revenue, or unit cost reductions. These activities involve the use of regulatory waivers to change policy or practice. The freed resources may or may not be shifted during the same accounting period—they may be placed in operating reserves for future use, which may or may not involve a shift across revenue streams when the funds in reserve are eventually spent. For these reasons, it is difficult to track indirect shifts of funding. The potential for indirect shifts of funding to occur or to have occurred is inferred from information about whether an activity saved costs, generated new revenue, reduced unit costs, or used resources. We identified potential shifts from the information agencies reported under "implemented MTW activities" in section IV of Form 50900 in annual reports. We validated indirect shifts through interviews in a sample of agencies.

⁶ This method did not use data from HUD program and financial systems such as the Line of Credit Control System, Voucher Management System, HUD Central Accounting Program System, or the Public and Indian Housing Information Center.

We identified activities implemented with funding flexibility, with and without a waiver, based on information drawn from Form 50900 in MTW agencies' annual reports. Activities described in section IV of Form 50900 in the annual reports usually are clear about the use of waivers and the freeing or use of resources because HUD guidelines for completing this section are specific. The activities described in section V of the form are often not as clear; guidelines only say to "describe activities that use only single fund flexibility," without guidance on what descriptions should include.

We used these data to create accounts of activities that relied in whole or in part on funding flexibility.⁷ For each activity identified in the reports and plans as using funding flexibility, the accounts include a brief description and information on activity dates and type, whether resources were leveraged, whether the activity is intended to respond to local needs, involves a local, non-traditional program, has outcomes related to the statutory objectives, and involves direct or potential indirect shifts in resources.

We conducted in-depth interviews with leaders from eight MTW agencies, including executive directors and the finance director or director of public housing or voucher programs. We used these discussions to confirm the information we drew from the annual reports and plans and to gather details on leveraged resources. Interviews also explored agencies' purposes for using funding flexibility and whether funding flexibility has influenced how the agencies respond to local needs. Finally, the discussions included staff perspectives on the effect of flexibility on statutory objectives. A comparison of information from the interviews with annual reports for the eight agencies confirmed that the activities reported as using large amounts of shifted funding did occur and that the funding amounts were reported accurately, though not always in enough detail to tie dollar amounts of shifted funds to specific activities.⁸ We also reviewed potential uses of indirectly shifted funds we identified in agency reports to determine whether the activities occurred. We also interviewed five HUD MTW coordinators responsible for oversight of the agencies in the sample of eight. These interviews explored coordinators' perspectives on funding flexibility and agencies' leveraging activities.

Sampling

Descriptive analyses of activities implemented with funding flexibility—with and without waivers—and analyses on funding shifts use data from all 39 MTW agencies. To examine details of agencies' funding shifts, and to explore agencies' perspectives on funding flexibility, we drew a purposive sample of eight agencies based on information compiled in the accounts. Agencies sampled included the Housing Authority of Baltimore City (HABC), Cambridge Housing Authority (CHA), King County Housing Authority (KCHA), Lawrence-Douglas County Housing Authority (LDCHA), Lexington-Fayette Urban County Housing Authority (LFUCHA), Minneapolis Public Housing Authority (MPHA), Housing Authority of the City of Pittsburgh (HACP), and Home Forward Portland. These agencies are diverse in size and geographic location, the number and type of funding flexibility activities, and the purposes for which activities were pursued as identified by these agencies in their annual reports.

⁷ The 39 accounts will be accessible on [HUDUSER.gov](https://www.huduser.gov) through the website for the MTW Retrospective Evaluation.

⁸ Documented direct funding shifts were reported accurately though some agencies did not include the dollar amount of the shifts. Some relatively smaller shifts discussed during interviews had not been included in annual reports.

Analysis

Once data and information on the 39 MTW agencies' activities using funding flexibility were tabulated in the accounts, we grouped activities associated with an objective into activity categories so that similar activities could be examined together. We used the account and FDS data to produce descriptions, in numbers and percentages, of agencies' uses of funding flexibility and leveraging activities. We then compared direct and indirect shifts in funds with data from annual reports and FDS to assess how agencies shifted funds across programs. Analysis of qualitative data from interviews with HUD staff and staff from the sample of eight agencies for which we completed validation of direct and indirect shifts provided additional insights into the use of funding flexibility, including how agencies use leveraging.

Uses of Moving to Work Funding Flexibility

MTW agencies use funding flexibility alone and with waivers to pursue HUD's statutory objectives and local priorities. Analysis of the agencies' 2015 annual reports finds that all 39 agencies used funding flexibility to undertake a diversity of activities related to each of the three MTW statutory objectives. Most of the agencies reported using funding flexibility to access external resources. The flexibility helped agencies secure favorable financing terms and amounts for major projects, meet a funder's matching requirement, and partner with other organizations to provide resident services more easily.

Use of Funding Flexibility by Statutory Objectives

All 39 MTW agencies have used funding flexibility, alone or with waivers, to pursue each of the statutory objectives—to increase cost-effectiveness, self-sufficiency, and housing choice. (See appendix A for the number of activities using funding flexibility by objective in fiscal year 2015.) All but four of the agencies have engaged in at least 10 funding flexibility activities. Three of the four exceptions—Champaign County, Columbus, and Holyoke—had been in MTW for a relatively short time. Overall, agencies pursued more activities associated with increasing housing choice (41 percent of all activities using funding flexibility) than those associated with increasing cost-effectiveness or self-sufficiency (30 and 29 percent, respectively). This focus on housing choice aligns with what staff from the sample of agencies identified as priorities—increasing the number of households served and increasing the number of affordable housing units.

Exhibit 2 lists the types of activities the 39 agencies have pursued with funding flexibility and whether the activities freed funds or used resources. Nearly all activities pursuing cost-effectiveness involve potential cost savings, which frees resources for other uses. In some cases, these activities may use resources in the short term, for example, to fund additional staff training to achieve longer-term savings. Every MTW agency engaged in cost-effectiveness activities. Most of the agencies changed their household certification and housing inspection processes, and more than one-half modified other processes.

Exhibit 2

Features and Funding Flexibility Aspects of Moving to Work Activities (1 of 2)

Objective	Activity Category	Included Activities	Activities Free or Use Resources	% of Agencies with These Activities
Cost-Effectiveness	Household Certification Process	Certification Schedule	Free (most activities produce cost savings)	95
		Income Deductions, Exclusions, Verification		
		Asset Exclusions and Verification		
	Housing Inspection Process	Inspection Schedule	Free (most activities produce cost savings)	90
		Self-Certification		
		PHA Inspection		
Inspection Rules				
Other Procedures	Rent Payment System	Utility Allowances	Free (most activities produce cost savings)	59
		Rent Reasonableness	Use (some activities have short-term expenses)	
	Waiting List Management			
	Referral System			
	Eligibility Rules			
	Administration/Training/Accounting			
Self-Sufficiency	Rent Calculation	Minimum Rent	Free (most activities increase revenue or produce cost savings)	95
		Flat Subsidy		
		Rent Reform		
		Other Calculation Changes		
	Additional Services	Self-Sufficiency Services	Free (some activities increase revenue or produce cost savings)	93
		Resident Services		
		Education		
		Case Management		
		Family Self-Sufficiency (FSS) Program		
	Requirements & Limits	FSS Escrow Policies		
		Work Requirements	Free (most activities increase revenue or produce cost savings)	54
		Service Use Mandates		
Exemptions/Work-Able Definitions				
Housing Assistance Time Limits and Restrictions	Use (some activities have short- and longer-term expenses)			

Exhibit 2

Features and Funding Flexibility Aspects of Moving to Work Activities (2 of 2)

Objective	Activity Category	Included Activities	Activities Free or Use Resources	% of Agencies with These Activities
Housing Choice	Development & Renovation	Modernization/Revitalization	Free (some debt payment activities produce cost savings) Use (most activities have short- and longer-term expenses)	54
		Shifts to Capital Fund/Capital Fund Expenditures		
		Debt Payment for Capital Fund Expenditures		
	Project Basing Vouchers	Repairs/Improvements	Free (some activities produce cost savings) Use (some activities have short-term expenses)	77
		Cap on Voucher Funds that Can Be Project-Based		
		Cap on PBV Units in a Development		
Affordable Housing	PBV Assignment	Use (most activities have short- and longer-term expenses)	77	
	PBV Rules, including PBV in PHA-Owned Units			
	Non-Traditional Housing (excluding PBVs)			
	Housing with No Subsidies			
Landlord Participation	Non-PHA Housing Developments	Use (most activities have short- and longer-term expenses)	23	
	Home Ownership			
	Pertinent Property Acquisition			
Targeted Populations	Landlord Recruitment and Retention	Use (most activities have short- and longer-term expenses)	77	
	Landlord Incentives and Payments			
	Landlord Outreach			
		Housing for Targeted Households (for example, domestic abuse victims)		
		Services for Targeted Households		
		Supportive Housing and Sponsor-Based Vouchers		

MTW = Moving to Work. PBV = Project-Based Voucher. PHA = public housing agency.

Source: MTW funding flexibility accounts prepared by Urban Institute based on data collected from review of MTW 2015 annual reports, sections IV and V.

Most funding flexibility activities that pursued cost-effectiveness involved streamlining procedures, and nearly all required waivers from federal regulations. There is a marked similarity in agencies' approaches to streamlining, with many agencies making the same changes in the frequency and provisions of certifications and inspections. Examples of commonly made changes include revisions to the Housing Quality Standards (HQS) certification process, in cases of minor deficiencies, to allow landlords to self-certify that they have made required corrections, thereby reducing the number of housing inspections performed by agency staff and expanding the time between household recertifications, especially for elderly and disabled households. Other process changes agencies made include combining waitlists across public housing and HCV programs, simplifying or eliminating utility allowance policies, merging public housing and HCV program

administration, and upgrading information technology systems. Streamlining activities reduced the costs of the procedures, as documented by agencies in their annual reports, thereby freeing resources for other uses. Exhibit 3 includes agency-specific examples of cost-effectiveness activities.

Exhibit 3

Examples of Cost-Effectiveness Activities

After joining Moving to Work (MTW) in 2013, the Fairfax County Redevelopment and Housing Authority streamlined its household recertification process by reducing the frequency of reexaminations from once a year to every 2 years for work-able families and to every 3 years for non-working families. The agency also streamlined its processes for inspecting housing units rented by housing choice voucher (HCV) households. Consistent with the experience of other agencies, both activities achieved cost savings.

Lawrence-Douglas County Housing Authority was one of the first MTW agencies to combine its public housing and HCV programs into a single entity, called General Housing. This action created one waitlist for both types of housing assistance and a single organizational structure for program operations. The agency has reported cost savings from this change for nearly 20 years.

In contrast to the similarity of activities intended to improve cost-effectiveness, the activities designed to improve self-sufficiency are diverse. Some agencies have sought to motivate self-sufficiency through changing rent policies in ways that increase tenants' payments, establishing work requirements, setting time limits for assistance, and offering services to residents.⁹ Even among agencies pursuing similar activities, such as changing rent calculations or establishing work requirements, details of the approaches vary widely. Exhibit 4 includes examples of agencies' activities to encourage increased work effort using rent policy and service-provision activities.

Exhibit 4

Examples of Self-Sufficiency Activities

Lincoln Housing Authority includes a minimum earned income amount for work-able adults when calculating income to determine a household's rent contribution—whether or not a family member is working. Based on 25 hours of work per week at the minimum wage, the amount serves as a *de facto* work requirement. The agency has reported substantial additional revenue from the policy, reducing the net subsidy cost of housing assistance and freeing resources for other uses.

Home Forward, the agency in Portland, Oregon, is part of the Action for Prosperity partnership, which includes Worksystems, Inc., the Multnomah County Anti-Poverty system, and the State Department of Human Services. Each partner delivers the core services in which it specializes. Home Forward households receive employment and training assistance, childcare, and other services through this arrangement. The agency provides financial support for Action for Prosperity with funding shifted from the housing choice voucher funding stream.

Activities that agencies pursue to increase housing choice also vary. Some agencies, including those in Pittsburgh, Baltimore, and Minneapolis, have prioritized improvements to existing public housing properties using funds shifted from the HCV and public housing operating funding streams for capital improvements. For example, Baltimore used funding flexibility to shift resources from the HCV funding stream to help cover the costs of rehabilitating units. Other agencies used funding flexibility to leverage financing for the development of new housing units. For example,

⁹ A requirement for agencies participating in MTW is developing a "reasonable rent policy" that "encourages employment and self-sufficiency by participating families" (Public Law 104-134, 110 Stat 1321). The requirement is noteworthy in part because agencies report in their 2015 annual report that these activities free money that can be used for other purposes.

Lawrence-Douglas matched MTW funds with the city's affordable housing trust funds to build eight units of American Disabilities Act (ADA)-compliant housing in 2007. King County also shifted funds from its HCV funding stream to purchase older buildings for redevelopment in opportunity areas. Based on interviews with the sample of agencies, those located in areas with strong housing markets marked by rapidly rising housing costs, such as Cambridge, Portland, and King County, have prioritized alternative housing arrangements. The alternatives vary across agencies, reflecting local real estate opportunities (such as acquiring newly available properties) and partnering opportunities (such as working with community-based organizations to provide housing and intensive services for target populations). Agencies noted that partnerships allowed them to increase the number of households served and increase households' access to needed services.

While the approaches to increasing housing choice are diverse, staff from all eight agencies emphasized the importance of funding flexibility to preserve and develop affordable housing. For some agencies, this meant shifting funding to increase the capital available for rehabilitating aging housing stock, which they said they would not have been able to do without funding flexibility unless other funding sources became available. Exhibit 5 includes examples of agencies' efforts to increase affordable housing options and to address homelessness.

Exhibit 5

Examples of Housing Choice Activities

Housing Authority of the City of Pittsburgh shifted millions of dollars from its Housing Choice Voucher and public housing programs in 2015 to support two scattered-site housing development deals—at Northview Mid-Rise and Larimer—and to fund various public housing modernization projects.

King County Housing Authority partnered with the Highline school district to pilot a rapid re-housing approach for addressing the growing number of homeless students in the county's public schools. Through 2015, the program provided short-term rental assistance to re-house 44 homeless families with 108 children and included wrap-around services.

The way activities engage funding flexibility differs across the three objectives in terms of whether they free or use funding, as shown in exhibit 2. All activities addressing cost-effectiveness, and some activities pursuing self-sufficiency, make resources available, while many self-sufficiency and housing choice activities use some of these resources. Exhibit 6 visually depicts the relationship between funding flexibility activities and shifts in resources. Most direct shifts of funds involve moving money from the HCV funding stream and using it for other purposes. This is indicated by the dark shading of the cell in the second column (Direct Fund Shifts) and the row for Existing Vouchers. Less often, agencies make direct shifts of funds from the public housing operations funding stream, which is indicated by the light shading. Indirect shifts of funds made available by changes in agency policies and practices that lead to cost savings or additional revenues, or that come from leveraged resources, are shown in the next three columns. Most cost savings come from cost-effectiveness activities that change certification and other processes and change rent calculations. Additional revenues mostly come from rent calculations and occupancy terms and requirements, with less coming from existing properties. Leveraging reflects the resources agencies accessed from external sources for services and housing choice activities. The last column depicts activities that use resources that were shifted, or potentially shifted, from one funding stream to serve a purpose outside of that funding stream or within the same funding stream at a later time.

Exhibit 6

Sources and Uses of Funds Directly and Indirectly Shifted by Type of Activity, Fiscal Year 2015

Objective/Activity Category	Relative Use of Activities with these Features				
	Activities that Freed Resources				Activities that Used Resources
	Direct Fund Shifts	Cost Savings	Additional Revenues	Leveraging	
Cost-Effectiveness					
Housing Certifications & Housing Inspections Processes		Dark			
Other Procedures		Dark			Light
Self-Sufficiency					
Rent Calculation		Dark	Dark		Light
Additional Services			Dark		
Requirements & Limits			Dark		
Housing Choice					
Existing Properties (Affordable Housing, Development & Renovation)	Light		Light	Dark	Dark
Existing Vouchers (Landlord Participation, Affordable Housing)	Dark				
Alternative Housing Options (Project-Based Vouchers, Targeted Populations)				Dark	Dark

Notes: Dark shaded cells indicate relatively more engagement of activities that directly or indirectly shift resources or that used shifted resources. Light shaded cells indicate relatively less engagement. Activity categories in parentheses under Housing Choice match the categories with those shown in exhibit 4.

Sources: Moving to Work funding flexibility accounts prepared by Urban Institute based on data collected from review of the 39 Moving to Work agencies' 2015 annual reports, sections IV and V

The activities intended to advance household self-sufficiency both freed and used resources. Activities such as rent reform initiatives freed resources, most often by increasing tenants' rent contributions. Activities used resources most often for services to help tenants prepare for, obtain, and retain employment.

Most of the activities intended to increase housing choice used resources. Public housing renovations and the acquisition and development of affordable housing used substantial amounts of freed resources, sometimes over the course of several years. A few activities in this category also freed resources: Activities that used funding flexibility to pay down debt on housing investments or to improve the terms of debt freed funding that otherwise would have gone toward debt service.

Leveraging Activities

For purposes of this study, "leveraging" refers to an agency's use of funding flexibility to increase access to external funding and other resources for programs and activities. In the more traditional use of the term, agencies have used funding flexibility to improve their position when seeking

capital to finance large projects. Agencies also have used funding flexibility to secure grants or enter cost-sharing arrangements with foundations, nonprofit organizations, and other public agencies.

According to MTW agency staff, funding flexibility increases their ability to access resources because they can more easily bring money to the table compared with traditional housing agencies that operate without funding flexibility. Staff from agencies using the flexibility to access funding said they have been able to negotiate better financing deals for capital projects that might not have been possible otherwise because they can provide their own gap financing for a construction or renovation project, which makes them more attractive to equity financiers. They also said they can access funding more easily from foundations that require matched contributions toward the funding of resident services because of their ability to shift funds.

Among the 39 MTW agencies, 26 reported that funding flexibility helped them access external funds during 2015. We gathered detailed information on leveraging from the sample of agencies. Resources came from several sources—financial institutions, private companies, other public agencies, and nonprofit organizations—and the funds obtained were used for a variety of purposes. Loans from private lenders tended to be used for renovating or building public housing units, project-based voucher (PBV) conversions, and other affordable housing projects. For example, Baltimore shifted \$7.6 million into a capital project, which helped secure \$15.6 million from other sources, including a private loan, Low-Income Housing Tax Credit (LIHTC) program funding, and deferred development fees, for a total of \$23.2 million for the redevelopment of the O'Donnell Heights public housing development. Minneapolis supported its rent-to-own initiative with funds leveraged from nonprofit and public sources, including an American Recovery and Reinvestment Act (ARRA) grant. The agency shifted funds as part of an initiative involving the purchase of a 20-unit development. Staff believed the ability to shift funds was one factor in the agency's receipt of the ARRA grant, though the role played by the funding shifts is difficult to pin down. The additional funding supported the redevelopment of housing units for families.

Agency staff also said they used funding flexibility to shift resources to meet foundation and public agency matching requirements, thereby increasing access to grants and services and to provide base funding for initiatives on which other funding can be built. Lawrence-Douglas County, for example, shifted \$111,518 from HCV funds to increase funding for resident services. This shift to services helped secure an additional \$7,230 in grants for services from philanthropies, including the Blue Cross Blue Shield Foundation.

Agencies documented in their annual reports and confirmed during interviews that they had increased access to external funding, at least in part because of funding flexibility. We do not know the exact contribution funding flexibility makes for leveraging efforts, however. Leveraging is different from other agency efforts to use funding flexibility. When an MTW agency reports achieving cost savings or additional revenue, its estimate of the dollar amount is a reasonable approximation of the net value attributable to its MTW status. For example, a cost saving is generally measured as the cost of a program or administrative function in the reporting year compared with the cost in the baseline year. When an agency reports leveraging, it reports the gross dollar amount of resources secured in the reporting year; no net value estimate can be made because there is no baseline value to subtract.

Shift in Funds

Previous sections of this article have focused on shifts in funds documented in agencies' 2015 annual reports. To gather detailed information to quantify direct and indirect shifts in funds across the statutory funding streams, we reviewed data from their annual reports and interviews with staff from eight MTW agencies. Each agency provided additional detail on their use of funding flexibility and updated data on the amounts shifted. Although the resulting estimates of shifts in funds cannot be generalized to all 39 MTW agencies, these estimates offer insights regarding funding shifts.

Most of the shifts among the eight agencies moved funds from the HCV revenue stream for activities covered by the public housing operations and capital improvements funding streams for which additional funding was needed. Three agencies also shifted funds from the public housing operations stream to help fund capital projects.

Funding Shifts by Eight Agencies

The eight sampled agencies shifted roughly \$81 million in 2015, as shown in exhibit 7. Baltimore, the agency in our sample with the largest budget and most households served, shifted the largest amount, \$39.2 million, and Lawrence-Douglas County, with the smallest budget and fewest households served, shifted the smallest amount, \$714,000. Expressed as a percent of its overall revenue, including HUD funding and income from rents, Pittsburgh shifted 17 percent, the highest percentage shift among these agencies.

Agencies receive more funding for their HCV program than for the other two funding streams, and the voucher program is the source for most of the funds shifted. Agencies shifted approximately \$62 million from this stream in 2015. Two agencies, Baltimore and Pittsburgh, account for most of this shift, having moved approximately \$22 million and \$18 million, respectively. The amount of funds shifted from the HCV funding stream makes up between 5 and 37 percent of the agencies' HCV budgets for the year. Pittsburgh shifted the highest percentage of its HCV funding.

None of the agencies shifted funds from their public housing capital funding stream. Three agencies shifted a total of about \$19 million from the public housing operating stream. Baltimore shifted nearly \$18 million of this amount. Pittsburgh shifted \$1.4 million, and Lawrence-Douglas County shifted \$19,000. The other five agencies all freed some public housing operating resources through cost savings and new revenues, but they used those resources on public housing, so no shifts resulted.

The largest share of shifted funds, roughly \$58 million across seven of the eight agencies, was used for capital projects. As presented in the detailed shifts by agencies displayed below, these funds supported improvements made to public housing properties and modifications to newly acquired properties to provide local, non-traditional affordable housing. Four agencies shifted close to \$12 million into public housing operations to support the public housing budget generally (that is, to fill gaps) or to pay for specific items, such as housing security systems. Six agencies shifted about \$7 million for local initiatives, most of which involved resident services and local, non-traditional housing assistance, and two agencies shifted a total of less than \$4 million for HCV administrative

purposes.¹⁰ Where agencies discussed the use of reserve funds, we include details in the description of their funding flexibility activities.

Not all potential shifts identified in agencies' information on activities that freed resources or used freed funds happened, even if the activity itself occurred. That is, an agency's accounting indicated that an activity was funded with resources available within the pertinent budget category, rather than with funds freed from another budget category using funding flexibility, or did not need the amount of funding expected. For example, some changes in resident services or administrative procedures identified as requiring additional resources were funded with resources available within the respective funding streams. According to agency staff, some of the activities involving project-based voucher conversions did not require the level of capital improvements agencies anticipated based on past conversions, so the costs were lower. Similarly, some activities that agencies undertook with partners appeared at first to need funds shifted directly or indirectly from the public housing operations revenue stream, such as the provision of housing assistance with services through project-based or sponsor-based developments. When the deal was finalized, however, the services turned out to be covered entirely by partner organizations.

¹⁰ Additional spending on HCV administration technically is not a shift in funds—spending more money on administration and less on subsidy does not move money from the HCV funding stream. Staff from the two agencies, Baltimore and Minneapolis, however, identified their shifts in this way. In some cases, the additional administrative expense is associated with other shifts in which the agency engaged. For example, Baltimore incurred additional costs in connection with the Rental Assistance Demonstration, which involved significant capital improvements supported with funding shifts.

Exhibit 7

Funding Shifts at Eight Moving to Work Agencies, Fiscal Year 2015

Funding Categories	Sample of Eight MTW Agencies								Total	
	Housing Authority of Baltimore City	Cambridge Housing Authority	King County Housing Authority	Lawrence-Douglas County Housing Authority	Lexington-Fayette Urban County Housing Authority	Minneapolis Public Housing Authority	Housing Authority of the City of Pittsburgh	Home Forward (Portland)		
2015 HUD Funding:^a										
Public Housing Operating Fund	\$85,156,754	\$13,314,663	\$7,141,415	\$736,594	\$3,866,086	\$19,497,294	\$45,096,283	\$12,495,874	\$187,304,963	
Public Housing Capital Fund	\$18,091,497	\$2,228,415	\$6,900,870	\$415,931	\$1,765,495	\$10,916,192	\$17,804,045	\$4,434,494	\$62,556,939	
Housing Choice Vouchers Funding	\$203,682,985	\$44,943,879	\$105,009,772	\$5,412,378	\$14,213,504	\$44,840,800	\$48,509,366	\$66,329,260	\$532,941,944	
Total from Statutory Funding Streams	\$306,931,236	\$60,486,957	\$119,052,057	\$6,564,903	\$19,845,085	\$75,254,286	\$111,409,694	\$83,259,628	\$782,803,846	
Shifted from:^b										
HCV Subsidy (includes administrative fee)	\$21,596,271	\$3,297,758	\$8,743,403	\$694,645	\$744,000	\$6,065,463	\$17,910,174	\$2,535,006	\$61,586,720	
PH Capital										
PH Operating	\$17,600,000			\$19,350			\$1,422,291		\$19,041,641	
Total Funds Shifted	\$39,196,271	\$3,297,758	\$8,743,403	\$713,995	\$744,000	\$6,065,463	\$19,332,465	\$2,535,006	\$80,628,361	
Percent of Total Funds	13%	5%	7%	11%	4%	8%	17%	3%		
HCV Funds Shifted as Percent of HCV Funds	11%	7%	8%	13%	5%	14%	37%	4%		
Shifted to:^b										
HCV Administration	\$2,213,745					\$1,309,039			\$3,522,784	
PH Capital	\$34,768,781	\$2,418,230	\$4,893,495	\$599,707	\$744,000	\$3,786,199	\$11,170,477		\$58,380,889	
PH Operating	\$2,213,745		\$2,599,306			\$925,853	\$6,214,730		\$11,953,634	
MTW Local Initiatives		\$879,528	\$1,250,602	\$114,288		\$44,372	\$1,947,258	\$2,535,006	\$6,771,054	
Total Funds Received	\$39,196,271	\$3,297,758	\$8,743,403	\$713,995	\$744,000	\$6,065,463	\$19,332,465	\$2,535,006	\$80,628,361	

HCV = Housing Choice Voucher; MTW = Moving to Work; PH = public housing.

^aFunding data comes from information agencies reported in the 2015 annual report, HUD Form 50900, item_70000 (14-OPS, 14-CFP, and 14-HCV).

^bData on the value and source of funds shifted comes from HUD Form 50900 and from detailed information provided by each agency. We were unable to schedule a follow-up discussion of funding flexibility details with Lexington, so we have less information for that agency.

Source: Financial data supplied by the sample of eight MTW housing agencies

Funding Shifts by Individual Agencies in 2015

A more detailed look at the experiences of the eight agencies shows how resources are shifted, directly and indirectly, and used in local, high-priority initiatives. All shifts and uses of funds presented here occurred in 2015. The funding that was shifted could have accumulated in reserve over multiple years, though it was shifted in the agencies' accounting in 2015. The activities could extend over multiple years, though the expenditures included here were for 2015. The 39 accounts with information on specific activities will be on HUDUser.gov, accessible through the website for the MTW retrospective evaluation.

Housing Authority of Baltimore City. Baltimore shifted nearly \$40 million from its HCV and public housing operating streams—about 13 percent of its overall funding—into capital expenditures and other initiatives. Nearly all of this total constitutes direct shifts (for additional details, see HABC Funding Flexibility Account Activities A, B, C, and D in appendix B of the research report), and the majority of the shifted funds were devoted to capital improvements at eight developments. The redevelopment of O'Donnell Heights, a public housing development built in 1942, was the largest of these projects. The remainder of the shifted funds were spent on an administrative change related to the agency's participation in the Rental Assistance Demonstration.¹¹

Cambridge Housing Authority (CHA). Cambridge spent \$34 million of its \$37.3 million HCV funding in 2015 for HCV subsidies and administration, leaving \$3.3 million for other uses. Despite spending less than its full allotment, the agency spent more of the funding for HCV subsidies and administration and provided voucher assistance to more households in 2015 than it did in the previous year. The shifted funds were used for housing development and rehabilitation activities, support of public housing operations, and local MTW initiatives. Most of the development and rehabilitation in 2015 involved conversions to PBVs (see CHA Funding Flexibility Account, activity A, in appendix B). About two-thirds of the local initiatives involved resident services (see CHA Funding Flexibility Account, activities 1 and 4, in appendix B), and the remainder paid for Cambridge's Policy + Technology Lab and other endeavors.

King County Housing Authority (KCHA). King County shifted \$8.7 million from its HCV budget and, like Cambridge, still provided more households with voucher assistance than it did the previous year. Much of the subsidy fund movement in this and previous years was made possible by the rent payment standards changes it made more than a decade ago (KCHA Funding Flexibility Account, activity 15, appendix B). Also, the agency's actual administrative costs were lower than the embedded fees, in part due to several cost-saving measures (see, for example, KCHA Funding Flexibility Account, activity 10, appendix B) making HCV administrative funds available. King County also shifted money from its operating reserves, which accumulated based on shifts from HCV in previous years. The public housing operating budget in 2015 faced a deficit, so the agency moved funds previously reserved to fill the gap. The agency elected to use funding previously shifted from the HCV program to reserves in lieu of capital funds for some of its public housing capital improvement work. The capital fund has a longer spending horizon than MTW

¹¹ This refers to an expenditure on the agency's Voluntary Retirement Program (VRP), required for staff realignment due to the agency's participation in the demonstration. In exhibit 13, the expenditure has been divided between HCV administration and public housing (PH) operation.

funds and is not subject to possible recapture. This allowed KCHA to retain capital funds for spending on projects extending beyond 2015. King County's activities using funding flexibility included local, non-traditional rental subsidy programs, support of public housing community facilities, and facilitation of a loan for construction of a public housing senior building.

Lawrence-Douglas County Housing Authority. Lawrence shifted about \$655,000 from its operating reserves, which accumulated from direct shifts from the HCV revenue stream and resources freed through administrative costs savings from the HCV and public housing programs in 2015 and previous years (see Lawrence-Douglas County Funding Flexibility Account, activities 1, 2, 4, 6, 13, and 14, appendix B). Most of these funds were shifted into capital improvements in Clinton Place (a development for the elderly) and the purchase of a property for affordable housing. The funds shifted to local initiatives were spent on resident services (staff working on the Resident Opportunity and Self-Sufficiency [ROSS] and Family Self-Sufficiency [FSS] programs and for the youth program operated jointly with Douglas County Housing Incorporated) and assistance (for vehicle repairs and GED fees).

Lexington-Fayette Urban County Housing Authority. Lexington shifted funds from its HCV allotment to partially repay a subordinated loan for development costs of Centre Meadows. This development was rehabilitated as part of the Rental Assistance Demonstration. Centre Meadows provides project-based vouchers to more than 200 households.

Minneapolis Public Housing Authority (MPHA). Minneapolis moved \$6 million from its HCV budget, with much of the shift enabled by other, previous activities, such as the agency's rent reform initiative, which produced cost savings (see MPHA Funding Flexibility Account, activities 1 and 10, appendix B). The funds shifted into HCV administration supported the HCV mobility program (Funding Flexibility Account activity 9, encouraging families to move to areas of opportunity), creation of an interactive HQS enforcement reporting system, a supportive housing initiative for youth, and a shelter-to-housing initiative for the homeless. The HCV funds moved to support capital improvements were spent on the rehabilitation of public housing units. The funds shifted into public housing operations were mostly spent on security systems (staff and equipment) in public housing properties. The funds spent on resident services were used chiefly for counseling and job training.

Housing Authority of the City of Pittsburgh (HACP). Pittsburgh shifted \$17.9 million from HCV and \$1.4 million from public housing operating funds. A large share of these funds was shifted to the capital fund to support development deals at Northview Mid-Rise and Larimer developments (\$8,080,784) and various modernization projects (\$3,089,693). Funds were shifted into public housing operating funds to support an energy performance contract, extraordinary expenses, and administrative costs (\$3,038,882), and to pay for protective services (\$3,175,848). Finally, \$1,947,258 was shifted for local non-traditional activities to support resident services.

Home Forward (Portland). Home Forward shifted \$2.5 million from HCV for several local initiatives. Approximately one-half of the shifted funds were used for the agency's local blended subsidy initiative (see Portland Fund Flexibility Account, activities K and 3, appendix B). The blended subsidy used HCV and public housing operating funds to subsidize rent for households at

or below 80 percent of area median income to increase the number of public housing units. It used nearly \$729,000 for three short-term rental assistance programs, including the “I Have a Dream” program, which provides individualized social, emotional, and academic support to young people from low-income communities.¹² The agency also used about \$59,000 of shifted funds for the Veterans Affairs Supportive Housing deposit program (see Portland Funding Flexibility Account, activity G, appendix B), \$46,000 for the landlord retention program (see Portland Funding Flexibility Account, activity 7, appendix B), and \$268,000 for the rent assistance component of the Action for Prosperity program (see Portland Funding Flexibility Account, activity B, appendix B). It used \$32,000 for the Fast Track and Aging in Place programs (see Portland Funding Flexibility Account, activity D, appendix B), more than \$52,000 for resident services in the Aging in Place and Neighbor to Neighbor programs (see Portland Funding Flexibility Account, activities D and F, appendix B), \$19,000 for the Families Forward program (see Portland Funding Flexibility Account Locally defined goals, activity C, appendix B), and \$39,000 on the Family Unification program.

Factors Motivating the Use of Funding Flexibility

We identified three key factors that affect agencies' use of funding flexibility from the analysis of activities and interviews with staff from the sample of agencies: (1) reduced appropriation funding by Congress for housing authorities; (2) local market and community conditions; and (3) HUD statutory and other requirements. Staff identified funding reductions as a key driver of their funding flexibility use. Specifically, staff talked about shifting funds from the HCV revenue stream to cover costs associated with public housing capital improvements, maintenance, and security measures that became increasingly challenging to cover. For example, the Minneapolis agency faced a \$2 million a year funding gap for security services in its public housing developments. The agency had covered security costs with funding received through a City of Minneapolis property tax levy, which was eliminated in 2010. It now uses funding initially received in the HCV revenue stream to supplement funds from the public housing operations funding stream.

The strength of local housing markets also strongly influenced the activities agencies undertook with funding flexibility. Staff from five agencies said strong housing markets, with increasing housing costs and lack of a sufficient quantity of affordable housing units, motivated their use of funding flexibility. Agencies made direct and indirect shifts of funds for efforts to preserve existing public housing units and develop new affordable housing. For example, the CHA moved funds to support initial rents during the first phase of a conversion of public housing under HUD's Rental Assistance Demonstration, thereby satisfying financial requirements and allowing the agency to secure larger loans. In its 2015 report, the agency reported using \$2.4 million in funds for initial rents, which supported over \$45 million in additional debt. As of the spring of 2018, the agency had leveraged \$400 million to preserve 1,200 existing public housing units and develop 325 new housing units. Agencies also have used funding flexibility to support RAD conversions of public housing to PBV properties to ensure the ongoing existence of hard units in decent repair.

Local labor market conditions influenced the Lawrence-Douglas County agency's decision to implement a work requirement. Staff said that having a strong work requirement was possible

¹² <https://www.ihaveadreamfoundation.org/>

because jobs were available for which residents could successfully apply. The agency uses funding flexibility to provide enhanced self-sufficiency related services in support of residents' employment efforts.

All eight agencies talked about the need to respond to housing insecurity among specific populations as motivating their use of funding flexibility. Agencies worked with partners to offer housing through project-based vouchers or non-traditional affordable housing strategies, such as sponsor-based voucher housing, for people who are homeless, survivors of domestic violence, or young adults exiting the foster care system. Funds were shifted, directly or indirectly, in pursuit of the strategies. For example, King County shifted money directly into local, non-traditional rental subsidy programs; Portland shifted funds directly into its Action for Prosperity program (providing rent assistance and project-based vouchers packaged with extensive services) and indirectly into its local blended-subsidy programs. Organizations partnering with the agencies to offer targeted housing also offered services to households to increase their housing stability and overall well-being. For example, Portland partnered with Worksystems, Inc. and the Multnomah County Anti-Poverty system in implementing Action for Prosperity, leveraging its investment in housing assistance (using shifted funds) to bring intensive self-sufficiency services to those receiving assistance.

Statutes and regulations combined with budget cuts limit agencies' use of funding flexibility. Agency staff especially noted constraints stemming from the statutory requirement to assist substantially the same number of low-income households and maintain a similar household mix as they served before entering their MTW agreement. Meeting this maintenance of effort requirement with reduced revenues limited, according to staff, their ability to use funding flexibility for other purposes.

Discussion

This study examines how Moving to Work (MTW) agencies use the flexibility to shift funds across the statutorily separate funding streams. Using information drawn from agencies' 2015 annual reports and 2016 annual plans and other sources, we identified all activities that involved a direct shift in funds across funding streams, and those that involved actual or potential indirect shifts, by accruing funds from cost savings or resource leveraging. As we have defined the term, all indirect shifts rely on the combination of funding flexibility and regulatory waivers.

All 39 MTW agencies have used funding flexibility to undertake a variety of activities. More activities focused on increasing housing choice than on agencies' cost-effectiveness or residents' self-sufficiency.

The 39 agencies made use of funding flexibility with waivers, and the majority pursued activities with funding flexibility alone. All 39 pursued activities related to cost-effectiveness, and about one-third of the documented activities focus on this objective. These activities typically involve funding flexibility with waivers. Examples include expanding the number of years between household recertifications and reducing the frequency of housing inspections for landlords with a history of strong inspections. Streamlining recertification and inspection processes reduced the associated administrative costs, which freed resources for flexible use.

About one-third of the documented activities focused on increasing households' self-sufficiency, and all 39 agencies used funding flexibility to pursue this objective. Agencies used accrued cost savings from changes made to rent calculations and other policy changes, and they leveraged resources for resident services associated with improving self-sufficiency. About two-fifths of the documented activities focused on increasing residents' housing choice, and all 39 agencies used funding flexibility to pursue this objective. Agencies shifted resources directly, leveraged new resources, and potentially used funds accrued from cost savings to improve existing properties, create new housing options, or increase housing choice in other ways.

Agencies have used funding flexibility to improve their access to financing with favorable terms and to meet matching requirements of funders or partners.

Based on the information from agencies' reports to HUD, 26 agencies leveraged funds in 2015. In general, agencies shifted funds from the public housing operations or the HCV program streams to close project financing deals with larger loans and better terms than they otherwise would receive. They used funds leveraged from private lenders to renovate or build public housing units, convert properties to project-based voucher units, or pursue other affordable housing activities. Agencies shifted funds to meet a funder's matching requirement or to provide base funding for initiatives to attract other funders. They used funds leveraged from private companies and public and nonprofit organizations to support tenant services.

Analysis of direct and indirect shifts of funds completed for eight agencies showed that most funding was shifted out of the HCV program and shifted into capital projects, with smaller amounts going to public housing operations, to support local initiatives, and for HCV administrative purposes.

The analysis of verifiable shifts of funds in 2015, direct and indirect for the sample of eight agencies, found that the agencies shifted about \$81 million, most of which, \$58 million, was used for capital projects. Of the remaining amount, \$12 million was used for public housing operations, \$7 million was used to support local initiatives such as resident services and non-traditional housing assistance, and about \$4 million was used for HCV administrative purposes.

Most of the shifted funds, \$62 million, came from the HCV program funding stream; all eight agencies tapped that stream. Three agencies shifted a total of approximately \$19 million from the public housing operations stream, while none of the agencies shifted funds from the capital improvement stream.

Funding flexibility is credited with enabling agencies to act more quickly than otherwise would be possible, to undertake a greater range of activities, and to work toward longer-term outcomes.

Agency staff expressed the importance of funding flexibility for improving their ability to take actions related to local goals and statutory objectives within a context of reduced funding. They reported being better able to preserve and develop affordable housing and to develop partnerships with nonprofit and for-profit entities around activities related to self-sufficiency and housing

choice. Agencies said that funding flexibility made some activities easier to accomplish or allowed them to pursue activities more quickly than they could have done otherwise, though they could have undertaken the activities without the flexibility. For other activities, especially efforts to make housing improvements, agencies identified funding flexibility as critical. Staff from several agencies summed up the overall effect of funding flexibility as enabling them to become more entrepreneurial—to act more strategically and with longer-term outcomes in mind.

Limitations

This study's primary limitation concerns the completeness and accuracy of data available from MTW agencies' 2015 annual reports. Two sections of these reports, sections IV and V, were the primary data sources used to create the 39 activity accounts. Review of reports, especially section V of Form 50900 that describes funding-flexibility-only activities, found variation across agencies in the completeness and consistency of information. In some cases, the list of flexibility-only activities is incomplete, partly because the pertinent reporting requirements are not as demanding as those for activities described in section IV of the reports¹³ and because of the difficulty some agencies have in identifying such activities. Some agencies do not maintain an accounting of direct shifts. Even for agencies that do track these shifts, tracking funding first shifted to operating reserves and used later to fund multiple activities is challenging.

To address this data limitation, we used other data sources to assess the quality of annual report data and to complete data for analyses where possible. Sources include agencies' 2016 annual plans, FDS data, and discussions with staff from eight MTW agencies. A comparison of the qualitative data collected from the sample of agencies with the data and information from the same agencies' annual reports confirmed that the report data were incomplete and, in some instances, inaccurate. The data inconsistencies, though relatively small, raise questions about the completeness and accuracy of information drawn from the reports of the other 31 agencies, but we were not able to gather data from the other agencies in a similar way.

For the analysis of funding shifts, we conducted detailed analysis only for the eight agencies in our sample because agency staff corrected information we drew from their respective annual reports and filled in gaps. For the other 31 agencies, we looked at any funding they reported as having been used for funding flexibility activities in their 2015 Annual MTW report, including accumulated reserve funds, which represent potential funding shifts.

Conclusion

This study is the first to examine in detail MTW funding flexibility, the ability of MTW agencies to shift funds across the traditional funding streams of public housing operations, capital improvements, and HCV programs and from the streams to local, non-traditional activities. We expand the definition of funding flexibility to include activities conducted with waivers that lead

¹³ Guidance provided to agencies for completing section V of Form 50900 is sparse, stating that agencies are to "provide a thorough narrative of each activity that uses Single Fund Flexibility in the body of the Plan ... [and they] are encouraged to provide metrics to track the outcomes of these programs or activities." Agencies have not completed this section of the form uniformly. Guidance is more detailed for completing section IV of the form, which includes benchmarks, outcomes to be tracked, and other details.

to cost savings and additional revenue, thereby increasing funds available for use toward other activities. Including these indirect shifts as well as direct shifts from one traditional funding stream to another allowed us to better capture MTW agencies' use of funding flexibility to meet statutory objectives.

Agencies have used the flexibility broadly, pursuing activities related to each of the three statutory objectives. They have paid particular attention to increasing housing choice, though they have also sought to improve agencies' cost-effectiveness and residents' self-sufficiency. Though we cannot generalize from the sample of eight agencies, those agencies shifted most funding from the HCV program to support capital projects. A majority of the agencies have been able to improve their access to financing and other funder support by using funds from the traditional streams to close short-term project gaps, provide base funding for activities, or otherwise shore up their position, making them an attractive investment.

The sample of agencies credit funding flexibility for improving their ability to take locally appropriate actions to meet MTW objectives, especially within the context of reduced funding. Staff say that with funding flexibility, they can work more quickly to make decisions on the use of funding and are better able to plan and implement activities geared toward longer-term outcomes. The number and range of activities the agencies pursue, and the benefits attributed to funding flexibility, suggest it is an important tool for agencies' pursuit of policy and programmatic goals.

Appendix A: Activities Using Funding Flexibility by Objective, Fiscal Year 2015

MTW Agency	Year Executed MTW Agreement	Total Number of Funding Flexibility Activities ^a	Number of Activities by Objective		
			Cost-Effectiveness	Self-Sufficiency	Housing Choice
Cambridge Housing Authority	1999	13	1	4	8
Delaware State Housing Authority	1999	10	2	7	1
Keene Housing	1999	20	6	8	6
Lawrence-Douglas County Housing Authority	1999	25	6	13	6
Lincoln Housing Authority	1999	12	5	4	3
Louisville Metropolitan Housing Authority	1999	18	3	8	7
Massachusetts Department of Housing and Community Development	1999	15	8	3	4
Minneapolis Public Housing Authority	1998	10	4	2	4
Portage Metropolitan Housing Authority	1999	13	3	7	3
Home Forward (Portland)	1999	22	6	8	8
San Antonio Housing Authority	1999	18	5	7	6
Housing Authority of the County of San Mateo	2000	31	11	3	17
Seattle Housing Authority	1998	13	4	1	8
Tulare County Housing Authority	1999	5	2	2	1
Vancouver Housing Authority	1999	23	7	7	9
Atlanta Housing Authority	2003	25	5	6	14
Chicago Housing Authority	2000	36	2	21	13
District of Columbia Housing Authority	2003	21	8	4	9
King County Housing Authority	2003	29	8	3	18
Housing Authority of the City of New Haven	2001	16	6	1	9
Oakland Housing Authority	2004	19	6	2	11

MTW Agency	Year Executed MTW Agreement	Total Number of Funding Flexibility Activities ^a	Number of Activities by Objective		
			Cost-Effectiveness	Self-Sufficiency	Housing Choice
Philadelphia Housing Authority	2002	12	4	1	7
Housing Authority of the City of Pittsburgh	2000	14	1	3	10
Alaska Housing Finance Corporation	2008	19	6	3	10
Housing Authority of Baltimore City	2008	15	4	3	8
Boulder Housing Partners	2011	15	5	6	4
Housing Authority of Champaign County	2010	9	2	2	5
Charlotte Housing Authority	2007	14	4	5	5
Housing Authority of Columbus, GA	2013	7	4	1	2
Fairfax County Redevelopment and Housing Authority	2013	10	4	2	4
Holyoke Housing Authority	2013	8	5	2	1
Lexington-Fayette Urban County Housing Authority	2011	11	3	5	3
Orlando Housing Authority	2011	14	4	4	6
Housing Authority of the City of Reno	2013	12	4	4	4
Housing Authority of the County of San Bernardino	2008	23	4	11	8
San Diego Housing Commission	2009	25	11	6	8
Housing Authority of the County of Santa Clara and the City of San Jose	2008	24	12	3	9
Tacoma Housing Authority	2010	21	7	6	8
Total / Percent		647	192 (30%)	188 (29%)	267 (41%)

MTW = Moving to Work.

^a The count of activities includes only those we identified as using funding flexibility, whether funded by direct or indirect shifts and undertaken with or without waivers.

Source: MTW funding flexibility accounts prepared by Urban Institute based on data collected from review of MTW 2015 annual reports, sections IV and V

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Moving to Work Agencies' Use of Project-Based Voucher Assistance

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Abstract

The Moving to Work (MTW) demonstration gives selected public housing agencies greater flexibility with their spending and the ability to provide innovative housing assistance to low-income households. This paper explores multiple aspects of MTW agencies' use of project-based voucher (PBV) assistance, including the share of assistance and Housing Choice Voucher budget authority devoted to PBVs, the relationships between PBVs and the Low-Income Housing Tax Credit (LIHTC) and Rental Assistance Demonstration (RAD), the locations of PBV-assisted units, and motivations for using PBVs through case studies of three MTW agencies. We use a combination of HUD administrative data, publicly available neighborhood-level data, MTW plans and reports, and qualitative data. Our findings show that MTW agencies are more likely to use PBVs and RAD than traditional agencies, and that PBVs are used more in tighter housing markets and have a significant overlap with LIHTC properties. The study also finds that there is little evidence that PBVs reach lower-poverty, opportunity-rich neighborhoods. Three case studies underscore the diverse ways that MTW agencies use PBVs to pursue the MTW program's statutory objectives and highlight the importance of local contexts and priorities in agency decisionmaking about PBV use.

Introduction

The Housing Choice Voucher (HCV) program is the largest federal housing assistance program, serving more than 2.3 million households (HUD, 2019). Through the HCV program, the U.S. Department of Housing and Urban Development (HUD) funds both tenant-based vouchers (TBVs) and project-based vouchers (PBVs). With either voucher type, households pay up to 30 percent of their income towards rent and utilities, and the voucher covers the difference. In either case, at least 75 percent of participants must have extremely low incomes, using HUD's income limits, when they are admitted to the program. Unlike TBVs, however, PBVs are attached to specific housing units or properties and are administered through contracts with property owners for

specified periods of time. When a household moves out of a PBV unit, the assistance remains with the unit for the length of the PBV contract.

Systematic research of Moving to Work (MTW) agencies' PBV-use—and PBV-use by traditional public housing authorities (PHAs)—is relevant to HUD and policymakers for several reasons. First, PBVs have become more available to traditional PHAs. The introduction of the Rental Assistance Demonstration (RAD) and other pieces of legislation (discussed below) allow traditional PHAs to designate more vouchers as project-based than was previously permitted and also ease some of the challenges to using PBVs. Second, in some markets, PBVs may be appealing because portable TBVs are difficult to use—whether due to tight rental markets or landlords refusing to accept them. It is difficult to predict, however, whether PHAs will shift from TBVs to PBVs and what the implications of that shift might be. Notably, PBVs limit neighborhood choice, raising concerns about PBV households' exposure to high-poverty neighborhoods. MTW agencies' PBV activities and locations can shed light on potential challenges, opportunities, and tradeoffs of expanded PBV-use. Lastly, documenting the extent to which PBVs are tied to RAD or the Low-Income Housing Tax Credit (LIHTC) program can help policymakers and practitioners understand potential constraints on PBV locations.

This study explores PBV use at MTW agencies through a mixed-methods approach. We examine several questions about PBV locations and the roles of RAD and LIHTC in the PBV program. We use a combination of HUD administrative data, document review, and interviews with staff at three MTW agencies. We focus on MTW PHAs but also examine PBV use among comparably sized traditional PHAs. This article summarizes the research report “Moving to Work Agencies' Use of Project-Based Voucher Assistance” (Galvez et al., forthcoming), which includes additional detail on the research methods and findings.

Background and Literature Review

Why and How Agencies use Project-Based Vouchers

There are several reasons that PHAs might choose to convert a portion of their TBV assistance to PBVs (CBPP, 2017; Cunningham and Scott, 2010). PBVs might be attractive to PHAs in tight or expensive markets and offer more predictable rent costs compared with TBVs. For example, long-term PBV contracts set rent increases over time, even in places where private market rents are rising rapidly.

PBVs may also be a promising option in places where voucher holders have difficulty finding voucher-affordable units or landlords that will accept vouchers—recent research suggests that landlords commonly refuse to rent to TBV holders (Cunningham et al., 2018). PBVs may also allow agencies to serve higher-need households by co-locating supportive services.

They may provide a consistent revenue stream to help agencies finance new housing or rehabilitate existing affordable housing—including through the RAD program, which allows PHAs to renovate and preserve public housing units by converting them to PBVs or Project-Based Section 8 Rental

Assistance (PBRA).¹ Finally, PHAs might view PBVs as an opportunity to create or preserve affordable housing in high-opportunity neighborhoods. As discussed below, HUD provides incentives to traditional PHAs for project-basing in lower-poverty areas.

There are several constraints on the use of PBVs by traditional PHAs.² First, PHAs may not allocate more than 20 percent of their total authorized number of HCVs to PBVs. Second, no more than 25 units or 25 percent of all units in a development (whichever is greater) may be assisted through PBVs unless the property is in a census tract with a poverty rate below 20 percent (in which case the cap is 40 percent of all units). Third, the maximum PBV contract term is capped at 20 years, with the option to renew for an additional 20 years. Finally, to retain neighborhood and housing choice for families in the PBV program, HUD's Family Right to Move requirement allows households to request a TBV once they have lived in their PBV unit for 1 year.³ PHAs must provide the family with the next available TBV.

Constraints differ somewhat for units converted from public housing through the RAD program. RAD PBVs are not included in the 20-percent cap, and agencies can project-base an additional 10 percent of vouchers if they are connected to supportive services or serve vulnerable populations. Additionally, RAD contracts are renewed indefinitely, and residents living in RAD-converted units have a right to choice mobility, which is similar to HUD's Family Right to Move requirement.⁴

MTW agencies have greater flexibility in their use of PBVs, conditional upon approval from HUD's MTW program office. With approval, MTW agencies may devote more than 20 percent of HCV program funds or allocations to PBVs; devote more than 25 percent of the units in a single project to PBVs; create initial PBV contract terms that extend beyond 20 years; establish a "local MTW PBV program,"⁵ including project-basing units at properties owned by the agency (directly or indirectly) and using simplified or existing local property selection processes for project-basing units; and waive or revise the Family Right to Move requirement.

Additional HCV program flexibilities available to MTW agencies include the ability to waive or revise operational policies and procedures, such as the terms of Housing Assistance Payment (HAP) contracts and portability processes; rent policies and term limits; income verification procedures; waitlist policies, such as procedures for maintaining waiting lists, and tenant selection procedures

¹ The Office of Multi-Family Housing Program's Section 8 Project-Based Rental Assistance (PBRA) provides long-term contracts to private for-profit or non-profit owners (including PHA owners) who rent some or all the units in the properties to low-income families. Costs of maintaining and operating the units with low-income tenants are covered by a monthly Section 8 PBRA payment to the private owner. This study does not include PBRA units in its analyses.

² Some of the current restrictions were revised or relaxed from previous program regulations through the Housing Opportunity Through Modernization Act of 2016 (HOTMA). For more information, see <https://nlihc.org/resource/ HUD-provides-guidance-implementing-hotma-project-based-voucher-provisions>. The data used in this study come from before HOTMA's implementation in 2017.

³ See 24 CFR 983.261 for more information on the Family Right to Move provision: <https://www.govinfo.gov/content/pkg/CFR-2017-title24-vol4/pdf/CFR-2017-title24-vol4-part983.pdf>.

⁴ All properties that convert assistance using RAD must provide residents the choice of moving with continuing tenant-based rental assistance using a Housing Choice Voucher (HCV) within an established time after conversion, which is 1 year for PBVs. Unlike the Family Right to Move Requirement, MTW PHAs are not able to waive or modify this provision.

⁵ For more information on the creation of an agency MTW Section 8 project-based program, see Section D.7, Attachment C, of the Standard MTW agreement (https://www.hud.gov/sites/documents/DOC_10242.PDF).

and criteria; Housing Quality Standards (HQS) certification and inspection procedures; and processes to determine what types of funds may be used to rehabilitate or construct units, and changes to procedures to determine a unit's eligibility for PBVs.

MTW agencies document their activities and use of MTW flexibilities in annual plans and reports, but reporting and the level of detail vary by agency, and agencies may bundle activities for the purpose of reporting. For example, Boulder Housing Partners has implemented one activity that covers eight elements of their PBV program and uses a combination of PBV-specific and broader HCV authorizations. The flexibilities include waiving the 20-percent PBV cap on their HCV-authorized units; using a local definition of exception units; waiving the competitive bidding process; establishing local rent limits and reasonableness; allowing owners or service providers to hold the waitlist for their property; allowing Boulder Housing Partners staff to conduct their HQS inspections rather than a third party; and allowing tenants not receiving a subsidy to retain their voucher.

Existing Evidence on Project-Based Voucher Assistance

Prior research has established that MTW agencies use PBVs more than traditional agencies (Galvez, Gourevitch, and Docter, forthcoming; Mast and Hardiman, 2017). Galvez, Simington, and Treskon's (2017) review of MTW agency plans and reports found that nearly all (36 of the 39) MTW PHAs were engaged in at least one PBV activity as of 2015. In 2016, PBVs represented about 12 percent of all assisted units at MTW agencies compared with about 4 percent of all assisted units at comparable traditional PHAs (those serving 750 or more households annually) (Galvez, Gourevitch, and Docter, forthcoming). The share of MTW PBV assistance increased by roughly 8 percentage points from 2008 to 2016 (from about 4 to 12 percent), while the share of PBVs at traditional PHAs increased by only 2 percentage points over the same period (from about 2 to 4 percent). Mast and Hardiman (2017) had similar findings and attributed MTW agencies' more frequent use of PBVs to their ability to use their MTW flexibilities.

Although the rate of PBV usage differs between MTW and traditional agencies, prior research suggests that both types of agencies serve similar populations through their PBV programs, with negligible differences in terms of the share of work-able household heads, head of household average age, household composition and size, and the share of households headed by a person with disabilities. PBVs at both MTW and traditional agencies tend to serve more elderly households and fewer disabled households or households with children compared with TBVs or public housing (Galvez, Gourevitch, and Docter, forthcoming; Mast and Hardiman, 2017). At both MTW and traditional agencies, PBV-assisted household heads were slightly more likely to be White and to be male, and slightly less likely to be work-able than public housing or TBV-assisted household heads (Galvez, Gourevitch, and Docter, forthcoming).

There is no systematic evidence on how PHAs make decisions about PBV use. Prior literature suggests PHAs may use PBVs to preserve or finance new affordable housing stock, to overcome challenges finding landlords that will accept TBVs, or to pair housing with supportive services (CBPP, 2017). No research has directly examined what generally motivates PHAs, or MTW agencies specifically, to use PBVs.

There is a limited body of research on the geographic distribution of PBVs. One study finds that, on average, PBVs tend to be in higher-poverty neighborhoods and are less dispersed than TBVs, although they tend to be in lower-poverty neighborhoods and less concentrated than public housing units (Devine et al., 2003; McClure, Schwartz, and Taghavi, 2015). Looking specifically at households with children, Mast and Hardiman (2017) find the median poverty rate for tracts with PBVs was marginally higher than the median for TBVs (28 percent for PBVs versus 24 percent for TBVs). Similarly, Galvez, Gourevitch, and Docter (forthcoming) find that MTW PBVs and TBVs were in neighborhoods with nearly identical poverty rates. There is limited evidence on MTW agencies' efforts to use PBVs in high-opportunity neighborhoods, but Galvez, Simington, and Treskon (2017) did find that only four MTW agencies—Cambridge, Holyoke, Reno, and King County—were intentionally using MTW flexibilities to reach low-poverty or high-opportunity areas with PBVs.

None of these analyses examine PBV location patterns by race or ethnicity to determine if PBVs may offer different neighborhood opportunities for Black or Latino households compared with TBVs or public housing. Furthermore, no prior analyses examine the role of public housing conversions in PBV locations (as discussed in the following discussion) or the types of neighborhoods in which those conversions are occurring. In tighter or more racially segregated housing markets, it may be challenging for low-income or non-White households to find housing that will accept vouchers outside of high-poverty neighborhoods. PBVs could provide a mechanism for PHAs to identify more promising location options than might be feasible with TBVs. PBVs that originate through RAD public housing conversions, however, will likely resemble the higher-poverty locations of public housing.

Interaction with the Rental Assistance Demonstration and the Low-Income Housing Tax Credit

The potential interaction between RAD unit conversions and the use of LIHTC should be considered when examining PBV use, particularly as they relate to PBV locations. Both RAD conversion and LIHTC-supported rehabilitation and new construction projects typically involve layering PBVs onto new or existing affordable housing properties. There is no research, however, documenting the extent to which PBVs are connected to RAD conversions or are co-located in LIHTC properties.⁶

RAD was authorized under the Consolidated and Further Continuing Appropriations Act of 2012 to help PHAs preserve and improve public housing in need of major rehabilitation. Through RAD, PHAs can convert public housing to either PBVs or PBRA. Because RAD is a housing preservation program, HUD waives the PBV program's poverty deconcentration goal. RAD was initially authorized up to 60,000 units for conversion, and Congress has gradually raised the cap to 455,000 units as of 2019. The uptake by PHAs has followed this expansion. An interim evaluation published in 2016 identified 39,042 RAD conversions in 359 projects (Econometrica, Inc., 2016), a number that has grown to approximately 135,210 as of July 2020. For both MTW and traditional

⁶ HUD's RAD Resource Desk provides project-level information on RAD projects, including the number of units converted, whether the conversion used tax credits, and whether the conversion used PBVs or PBRA. For more information or to download the data, see: https://www.radresource.net/pha_data.cfm.

PHAs, the extent to which PBV-assisted units are in converted public housing properties may be important in explaining PBV locations. If a large proportion of PBV units nationally are in former public housing properties, PBV locations will very likely resemble public housing locations.

LIHTC gives private investors a federal income tax credit in return for making equity investments in affordable rental housing.⁷ State policies for awarding tax credits vary widely and may include additional tax credits awarded to projects in high opportunity neighborhoods as well as areas with a higher poverty rate, a large number of low-income households, or with particularly high development costs (Ellen et al., 2015; Scally, Gold, and DuBois, 2018). Research and anecdotal evidence suggest there is considerable overlap between LIHTC and the HCV program (Climaco et al., 2009; O'Regan and Horn, 2013), although no data source comprehensively overlays voucher and LIHTC assistance or differentiates TBVs from PBVs.⁸ Prior research also shows that LIHTC properties are more likely to be found in suburban areas compared with HCVs (Ellen, O'Regan, and Voicu, 2009; Freeman, 2004; McClure, 2006). As with RAD, the degree of overlap between the PBV and LIHTC programs could have implications for PBV neighborhood locations, but it is difficult to estimate whether the co-location of PBV units in LIHTC properties might expand or impede access to lower-poverty neighborhoods.

Research Approach

The remainder of this article explores five research questions, detailed below.

Research Question 1: How extensively do Moving to Work agencies use project-based vouchers?

The first research question quantifies MTW agencies' PBV activity using 2016 HUD administrative data from the Public and Indian Housing Information Center (PIC), the Voucher Management System (VMS), the RAD Resource Desk, and a database of MTW activities developed for the evaluation. Specifically, we examine:

- How many MTW agencies report PBV-assisted households in HUD administrative data?
- Which MTW agencies have the most active PBV programs?
- How frequently do MTW agencies use their PBV flexibilities?

We identify four measures of PBV activity as of 2016. For the measures calculated using HUD administrative data, we contrast PBV use by MTW agencies to that of the comparison group of similarly large traditional PHAs. The four measures are:

1. The number and percent of MTW agencies with PBV-assisted households.
2. The number and percent of all MTW-assisted households served through PBVs.

⁷ See Scally, Gold, and DuBois (2018) for information on the LIHTC program.

⁸ For example, O'Regan and Horn (2013) had access to subsidy information for LIHTC properties in one state and estimated that roughly 23 to 26 percent of households in LIHTC properties had vouchers.

3. The percent of HCV budget authority that MTW agencies devoted to PBVs.
4. The number and percent of agencies that used their MTW flexibilities to exceed the cap of 20 percent of HCV budget authority allocated to PBVs.⁹

Research Question 2: What factors are associated with Moving to Work and traditional agencies' use of project-based voucher assistance?

We use linear regression to explore factors associated with PBV use. To increase our sample size and statistical power, the regression model is estimated using a sample of MTW agencies only (N=34) as well as a larger sample that includes large PHAs and MTW agencies (N=446).¹⁰ We use data from PIC, the American Community Survey (ACS), HUD's Affirmatively Furthering Fair Housing (AFFH) database, Real Estate Assessment Center (REAC) Physical Assessment Subsystem (PASS), and the Zillow Rent Index (ZRI).

The model uses the linear form:

$$\text{Percent PBV}_{2016} = \alpha + \beta_1 * x_1 + \beta_2 * x_2 + \dots + \beta_n * x_n + \gamma * \text{PercentPBV}_{2009} + \epsilon \quad (1)$$

to estimate the relationship between the *share of assisted households reported in PIC that were assisted through PBVs in 2016* ($\text{Percent PBV}_{2016}$) and several factors (x_1 to x_n) that might motivate PHAs to expand their use of PBVs, while accounting for a baseline level of PBV use (PercentPBV_{2009}). Specifically, we examine the following motivating factors. First, we include logged average rental prices measured with ZRI¹¹ in 2016 and percent change in rents between 2011 and 2016 to determine if agencies in tight, competitive housing markets, where it may be harder to use TBVs, have a greater incentive to use PBVs. In addition, we measure public housing distress prior to the RAD launch in 2012, using REAC PASS scores from 2008, and include the share of assisted households that lived in public housing in 2009, since we expect that PHAs with more distressed public housing would be more motivated to take advantage of HUD programs such as RAD or Section 18 Demolition and Disposition that would allow them to improve and convert their public housing stock and transition units to PBVs. Finally, the model includes indicator variables for U.S. Census Bureau regions. The model also includes a regression constant, α , and heteroskedastic error term, ϵ .

Research Question 3: To what extent are Moving to Work agencies' project-based vouchers located in Rental Assistance Demonstration or Low-Income Housing Tax Credit properties?

Three measures capture the extent to which MTW agencies' PBV programs interact with RAD and LIHTC as of 2016:

⁹ Prior to 2017, traditional PHAs were able to allocate 20 percent of their budget authority to PBVs. HOTMA shifted the formula and cap to 20 percent of agencies' voucher allocations.

¹⁰ The full sample of 39 MTW agencies with MTW designation as of 2019 is reduced to 34 agencies because of a combination of data limitations. The housing authorities of the County of Santa Clara and the City of San Jose report data jointly into PIC and were entered into our analysis as a single PHA. Missing PASS and Zillow data required removing four PHAs. The analysis includes 412 comparison PHAs for whom PIC, PASS, and Zillow data were available.

¹¹ ZRI and Zillow Home Value Index data were acquired from www.zillow.com/data on November 28, 2018. Aggregated data on this page is made freely available by Zillow for non-commercial use.

1. The number and share of each MTW and traditional agency's PBV units that were former public housing units converted to PBVs through RAD (regardless of occupancy status) as of 2016.
2. The number and share of each MTW agency's PBV-assisted households living in former public housing units converted to PBVs through RAD as of 2016.
3. The number and share of each MTW agency's PBV-assisted households living in LIHTC properties in 2016.

We use 2016 data from PIC, the RAD Resource Desk, and the National Housing Preservation Database.

HUD administrative data does not directly identify which PBV units were converted from public housing, so it is necessary to use a combination of administrative data sets to differentiate the RAD-converted PBVs from other vouchers and to identify households living in those units in 2016. We first identified all MTW agency public housing addresses reported in PIC in 2012 through 2016 to create an inventory of properties in existence immediately prior to the availability of RAD (which was enacted in 2012). We then matched the MTW public housing addresses to RAD "First Component" address data¹² for more than 44,000 units converted and "closed" through 2016 to identify the properties converted during the first 4 years of the program. We then use 2016 PIC data to identify all households reported as living in PBV-assisted units and to identify those in PBVs that were converted through RAD.

To identify the overlap between PBVs and LIHTC properties, we used ArcGIS to map the addresses of all MTW PBV-assisted households in 2016 PIC data, and all LIHTC properties active as of 2015 in the National Housing Preservation Database.^{13, 14} We drew a radius of 200 feet around each LIHTC property—the equivalent of about one city block—and defined all PBV addresses that fell within that radius as located in the LIHTC property.¹⁵ We then determined the share of each MTW agency's PBV-assisted households located in LIHTC properties. We repeated this analysis for MTW TBV-assisted households for comparison.

Research Question 4: Are Moving to Work agency project-based vouchers in lower-poverty, higher-quality neighborhoods, and do project-based voucher locations vary by household race or ethnicity?

To answer these questions, we first assess whether PBV-assisted households are in higher- or lower-poverty neighborhoods (census tract) relative to three comparison points: (1) other neighborhoods in their same housing markets; (2) households assisted by the same PHA but with TBVs or living

¹² RAD's First Component allows PHAs to convert public housing properties to either PBVs or PBRA (see PIH Notice 2012-32).

¹³ We use all properties placed in service between 1987 and 2015 with active LIHTCs as of 2015.

¹⁴ This method was chosen after preliminary analysis showed that issues with data quality, changes in street addresses after redevelopment, and differences in coordinate precision and formats prevented exact location matching between PIC, the RAD Resource Desk, and the National Housing Preservation Database.

¹⁵ City block sizes vary widely across the country (Handy, Butler, and Paterson, 2003), and can be as small as 200 feet to 800 feet or more. We use a radius of 200 feet since existing studies treat 200 feet as a lower bound for the size of an average city block (Galvez et al., 2014). We conducted a sensitivity analysis using varying radii for the LIHTC matching, which we include in appendix G of the full report (Galvez et al., forthcoming).

in public housing; and (3) the locations of PBV units at traditional agencies. We also compare differences in neighborhood characteristics for PBV, TBV, and public housing locations by the race and ethnicity of the assisted households.

To account for regional variation, we construct indicators of neighborhood quality that are normalized by county, which allow us to compare location outcomes across MTW agencies while accounting for the poverty levels or other characteristics of the housing markets that each agency serves. The county-normalized neighborhood poverty rate of each household is calculated by dividing the poverty rate of the household's census tract by the county poverty rate, using estimates from the 2012–2016 ACS 5-year sample.

The average county-normalized neighborhood poverty rate for MTW PBV households is then compared with that of households assisted through TBVs by the same MTW agency and households in public housing assisted by the same MTW agency. We then compare the following: the county-normalized neighborhood poverty levels of MTW PBV locations to that of comparison traditional PHAs' PBV locations; the difference between PBV and TBV county-normalized neighborhood poverty levels for MTW agencies and that of the group of comparison traditional PHAs; and the difference between PBV and public housing county-normalized neighborhood poverty levels at MTW agencies with that of comparison traditional PHAs.

Each comparison is repeated using six additional county-normalized measures of neighborhood (census tract) quality drawn from a combination of ACS and AFFH data. The measures are labor force participation rate (2012–2016 ACS 5-year estimates); the percent of adults with a bachelor's degree (2012–2016 ACS 5-year estimates); Labor Market Engagement Index (HUD AFFH data); Environmental Health Index (HUD AFFH data); School Proficiency Index (HUD AFFH data); and Low Transportation Cost Index (HUD AFFH data).

The AFFH labor market engagement, environmental health, and low-cost transportation indices are percentile ranks, nationally. The school proficiency index is a percentage rank by state. For all four indices, a higher score represents a more desirable or higher-quality area. That is, higher values mean more labor market engagement, fewer environmental hazards, better schools, or lower transportation costs. A county-normalized value of 1 means that the assisted households are in neighborhoods that are typical for the county.

We then examine locations for Black or African-American (non-Hispanic/Latino), Hispanic/Latino, and White households. These analyses allow us to examine whether assisted households' race or ethnicity is associated with differential access to lower-poverty, higher-quality neighborhoods, depending on the form of housing assistance.

Research Question 5: What are the agencies' motivations for project-based voucher use?

Based on our initial data collection and analysis for this study, we select three agencies with extensive or innovative PBV programs: Boulder Housing Partners, the Cambridge Housing Authority, and the Seattle Housing Authority. These agencies are among the highest users of PBVs among all PHAs nationally; the average MTW agency with any PBV units devotes approximately 13

percent of their HCV budget authority to PBVs, while these three agencies, on average, devote 47 percent. These case studies are not exhaustive, but they identify common themes across a subset of agencies with substantial PBV use.

To understand the agencies' PBV efforts, we reviewed publicly available documents such as MTW annual reports and plans¹⁶ and agency strategic or administrative plans. Each of the PHAs reviewed and verified PIC data summarizing their PBV use. We also conducted group phone interviews with three to four people in senior leadership roles at each agency who were knowledgeable about the origin and priorities of the agencies' PBV programs. These group phone interviews included executive directors, HCV program directors, asset management directors, or policy staff.

Six interviews and follow-up calls were conducted with MTW agency staff in fall 2018. Interview topics focused on an overview of the agencies' PBV programs, agencies' motivations and goals for using PBVs, benefits and tradeoffs of PBV use, and how PBVs help meet MTW statutory objectives or other goals. We also discussed the specific MTW PBV flexibilities that were the most useful and local partnerships that involve PBVs.

Findings

Research Question 1: How extensively do Moving to Work agencies use project-based vouchers?

MTW agencies are more likely to administer PBVs compared with traditional PHAs and, on average, dedicate a larger share of their housing assistance to PBVs (exhibit 1). Nearly all MTW PHAs reported at least one PBV-assisted household in PIC in 2016, versus 56 percent of the comparison traditional PHAs. MTW agencies served more than 41,000 PBV households that year, representing almost 1 in 10 MTW-assisted households. The group of comparison traditional agencies served slightly more than 105,000 PBV households that year, accounting for about 4 percent of their overall housing assistance.

On average, the MTW agencies devoted 13 percent of their budget authority to PBVs, compared with 5 percent at comparison traditional PHAs. Nevertheless, most MTW agencies' PBV use falls below the 20-percent budget authority cap applied to traditional PHAs, and extensive use of PBVs among MTW agencies was rare. As of January 2017, only 9 of the 39 MTW agencies devoted more than 20 percent of their budget authority to PBVs.

¹⁶ MTW housing authority plans and reports are available on HUD's website. See "Moving to Work (MTW)–Participating Sites," HUD, http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/ph/mtw/mtwsites.

Exhibit 1

Project-Based Voucher Use at Moving to Work Agencies and Comparison Traditional Public Housing Authorities

Measures	MTW Agencies	Comparison Traditional PHAs
Total PBV households (2016)	41,270	105,669
Percent PBV assisted households (2016)	9.7%	4.0%
Percent of PHAs with any PBVs (2016)	92.1%	56.1%
Average budget authority to PBVs (January 2017)	13.1%	5.4%

MTW = Moving to Work. PBV = project-based voucher. PHAs = public housing agencies.

Notes: We exclude Moderate Rehabilitation units. Comparison of traditional PHAs served more than 750 total households in 2016. The average percent of budget authority devoted to PBVs includes agencies with zero budget authority devoted to PBVs.

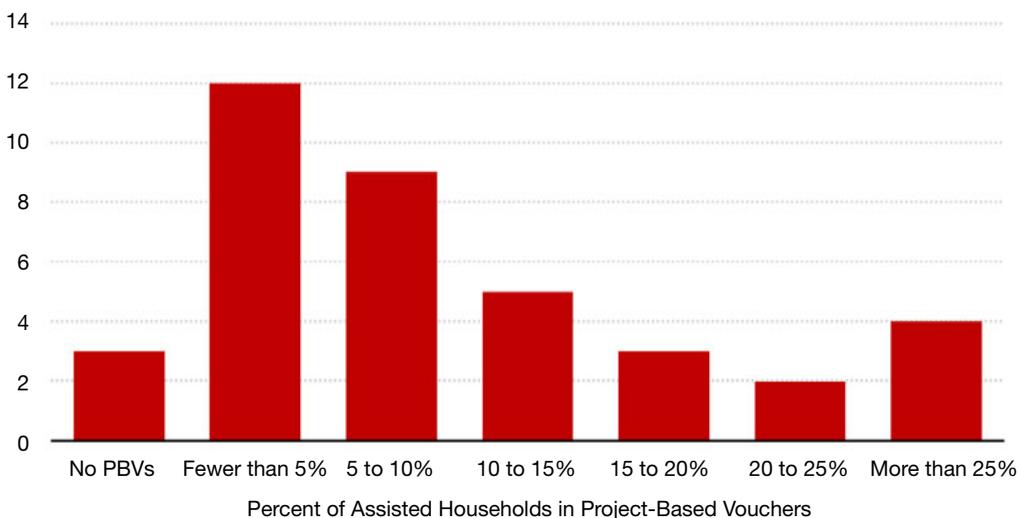
Sources: 2016 HUD Public and Indian Housing Information Center data; January 2017 Voucher Management System data; 2015 Moving to Work Annual Plans

There is considerable variation in PBV use across MTW agencies. In 2016, 12 MTW agencies used PBVs relatively sparingly (fewer than 5 percent of their assisted households), and three MTW agencies had no PBV-assisted units (exhibit 2). At the other extreme, four MTW PHAs— Cambridge Housing Authority, Keene Housing, Boulder Housing Partners, and the Atlanta Housing Authority—served more than one-fourth of their assisted households through PBVs. These four agencies combined represent 9,554 units, or 23 percent, of all MTW PBVs. Additionally, the MTW agencies with larger shares of households assisted with PBVs also devoted greater shares of their HCV budget authority to PBVs.

Exhibit 2

Moving to Work Agencies' Project-Based Vouchers as Percent of Assisted Households, 2016

Number of Moving to Work Agencies



PBV = project-based vouchers

Notes: Sample excludes Moderate Rehabilitation and includes only project-based vouchers. The Housing Authority of the County of Santa Clara and the Housing Authority of the City of San Jose jointly report data into HUD Public and Indian Housing Information Center (PIC) (for a total of 38 Moving to Work observations).

Source: Urban Institute analysis of 2016 HUD PIC data

Research Question 2: What factors are associated with Moving to Work and traditional agencies' use of project-based voucher assistance?

MTW agencies' use of PBVs grew substantially between 2009 and 2016, from about 3 percent of their total assisted households to 11 percent.¹⁷ During this time, 10 additional MTW agencies began offering PBV units. Among the group of comparison traditional PHAs, the increase in PBV use was more modest: from about 1 percent of all assisted households in 2009 to approximately 4 percent in 2016. Additional summary statistics are presented in Galvez et al. (forthcoming).

Linear regression clarifies which factors are associated with the growth in PBV use across agencies. The model predicts PBV use in 2016 using the agency's region, the quality and size of the agency's public housing stock in 2008 and 2009, the extent of PBV use in 2009, the level of rents in the agency's service area in 2016, and the growth of rents between 2011 and 2016.

Using a sample of both MTW and comparison traditional PHAs (exhibit 3, column 1), we find that PHAs with more distressed public housing in 2008 used more PBVs in 2016. The model shows that receiving five fewer points on a PASS score in 2008 is associated with having an additional 0.7 percent of households in PBV units 8 years later. Although that is a small percentage of total assisted households, considering that the average large PHA (MTW or traditional) relied on PBVs to support only 4 percent of households, it represents a nearly 18 percent increase in PBV units.

Exhibit 3

Model Results: Factors Related to the Percent of Assisted Households Assisted by Project-Based Vouchers in 2016 (1 of 2)

	MTW and Comparison Traditional PHAs	MTW PHAs
Percent Public Housing (2009)	-0.011 (0.018)	-0.019 (0.232)
REAC PASS Score (2008)	-0.002* (0.001)	0.000 (0.006)
Rent Index (2016)	0.040*** (0.013)	0.093 (0.091)
Change in Rents (2011 to 2016)	-0.036 (0.028)	-0.264 (0.206)
South	-0.009 (0.010)	-0.169* (0.093)
Midwest	-0.008 (0.010)	-0.173* (0.100)

¹⁷ We use a different calculation of total PBV use for the regression analysis compared with the assessment of MTW agencies' PBV use in research question 1, resulting in a slightly different share of PBV use. For the regression analyses, we calculate an average of the percent PBV use at each MTW PHA.

Exhibit 3

Model Results: Factors Related to the Percent of Assisted Households Assisted by Project-Based Vouchers in 2016 (2 of 2)

	MTW and Comparison Traditional PHAs	MTW PHAs
West	-0.000 (0.011)	-0.131 (0.113)
Percent of HHs in PBVs in 2009	1.181*** (0.143)	1.019*** (0.365)
Constant	-0.027 (0.033)	0.001 (0.300)
Observations	446	34

HHs = households. MTW = Moving to Work. PBV = project-based voucher. PHAs = public housing agencies. REAC = real estate assessment. PASS = physical assessment.

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

Notes: Samples include MTW PHAs and traditional PHAs with at least 750 households in 2016 and for which both REAC and Zillow data were available. For MTW PHAs, this excludes four PHAs. Housing Authority of the City of San Jose and Housing Authority of the County of Santa Clara household counts in HUD Public and Indian Housing Information Center (PIC) are reported jointly and listed here as a single PHA. Standard errors are heteroskedastic robust and displayed in parentheses.

Sources: Urban Institute analysis of 2016 PIC data, 2011 and 2016 Zillow Rent Index data, and 2008 Real Estate Assessment Center Physical Assessment Subsystem data

We also find that agencies in cities with higher rents use PBVs more extensively. Even after controlling for geographic region and the rate at which rents are rising, we find that a 10-percent difference in the price of rent is associated with a 0.4-percentage-point difference in the share of households served with PBVs (exhibit 3). Our analysis does not identify a relationship between the percent of assisted households in public housing in 2009 and the percent in PBVs in 2016 or any regional differences in the expansion of PBV use between 2009 and 2016.

The regression model lacks precision when it uses the smaller sample of only MTW agencies (exhibit 3, column 2). It is unable to determine whether the estimated relationships between PBV use and public housing quality and the cost of rent are applicable to MTW agencies specifically. Yet, the model shows that, among MTW agencies, PBVs are used more extensively in the Northeast than in the South or the Midwest, with smaller differences between the Northeast and the West.

Research Question 3: To what extent are Moving to Work agencies' project-based vouchers located in Rental Assistance Demonstration or Low-Income Housing Tax Credit properties?

MTW agencies frequently use RAD, and there is considerable overlap between MTW agencies' PBVs and LIHTC properties. In 2016, almost 40 percent of all occupied PBV units at MTW agencies, representing 16,331 households, were former public housing units converted through RAD or located at LIHTC properties. The remaining 60 percent of PBVs (24,939 households) were not associated with RAD or LIHTC properties.

By the end of 2016, 15 MTW agencies (39 percent) converted 11,272 public housing units through RAD, compared with 32,996 units converted by 97 of the traditional PHAs in our comparison group (12 percent of 788 PHAs). MTW RAD conversions represented over one-fourth of all RAD conversions among our sample of PHAs. In total, in 2016, about 14 percent of all MTW PBV-assisted households reported in PIC were living in former public housing developments converted through RAD (about 5,700 MTW PBV-assisted households).¹⁸

The MTW agencies were more likely than the traditional PHAs to convert units to PBVs than to PBRA. MTW agencies converted about 77 percent of their RAD units to PBVs, whereas traditional agencies converted 55 percent of their RAD units to PBVs. The average number of units per RAD property converted to PBVs was similar for MTW agencies and the group of comparison traditional PHAs (105 units on average versus 107).

Differences in RAD use remain if conversions that are still in progress as of March 2018 are included in the analysis: 22 of the 39 MTW agencies (about 56 percent) had RAD projects in progress or completed as of March 2018, compared with 183 of the 788 traditional PHAs (23 percent).

LIHTC properties accounted for more than one-fourth of all MTW agencies' PBVs (about 27 percent, or 10,984 households) in 2016, using addresses within 200 feet of a LIHTC property address as a proxy for co-location. The share was substantially smaller for TBVs: about 8 percent of MTW TBVs, or 21,334 households, were in LIHTC properties.

A small number of the MTW agency PBVs (387 of all PBVs, or about 1 percent) were RAD-converted units that include LIHTC. Some anecdotal evidence suggests the RAD process can be difficult to coordinate with LIHTC, which may explain the low overlap of RAD and LIHTC in the relatively early years of the RAD program.¹⁹

RAD use and the extent of overlap between the PBV and RAD or LIHTC programs varied considerably across MTW agencies. Among the MTW agencies with closed RAD PBV units by the end of 2016, the total number of units ranged from 88 to 2,083. Twenty-four of the 35 MTW agencies with any PBV-assisted households reported in 2016 had PBVs located in properties with LIHTC. The overlap ranged from 3 percent of their PBV-assisted households to 65 percent. All MTW agencies had at least some TBVs located in properties with LIHTC, ranging from about 0.3 percent of all TBV units to slightly more than one-fourth.

Research Question 4: Are Moving to Work agency project-based vouchers in lower-poverty, higher-quality neighborhoods, and do project-based voucher locations vary by household race or ethnicity?

Our analysis finds that MTW agency PBV-assisted households lived in neighborhoods with higher poverty rates, lower levels of educational attainment, lower labor market engagement, lower environmental quality (more potential exposure to environmental toxins), and lower performing

¹⁸ A small number of MTW RAD units were identified in PIC data as TBVs, likely due to PIC data entry or reporting errors. We omit these units from our analyses.

¹⁹ See, for example, Lessons from RAD <https://www.huduser.gov/portal/pdredge/pdr-edge-featd-article-010818.html>.

schools compared with the county average (exhibit 4). The comparative analysis with TBV and public housing shows mixed results, however.

Unlike the national measures, county-normalized measures account for differences in cost of living, access to education, and labor markets across regions. For context, the average county poverty rate across the sample is about 15 percent, and 90 percent of PHAs are in counties with poverty rates between 10 and 23 percent (using data from 2016). The average poverty rate for neighborhoods with PBV households at MTW agencies is 28 percent—about 85 percent higher than if PBV units were distributed evenly across richer and poorer neighborhoods.

Exhibit 4 shows a comparison between PBV locations and the locations of TBVs or public housing at the same MTW PHA. This analysis shows that PBVs are in tracts with higher poverty rates than TBVs. The average difference in county-normalized poverty rates between PBV and TBV tracts is 27 percent of the county poverty rate (exhibit 4). This difference is statistically significant ($p=0.001$). MTW agencies' PBVs are in neighborhoods with similar poverty rates as public housing neighborhoods. Although public housing neighborhoods have higher poverty rates than PBV neighborhoods (an average of 2.0 times the county average compared with 1.85 for PBVs), the difference is not statistically significant (exhibit 4).

We found that PBV households at MTW agencies live in neighborhoods with higher educational attainment and lower transportation costs in comparison to both TBV and public housing households. The average MTW PBV household lives in a neighborhood in which the share of adults with a bachelor's degree is 17 percent below the county average. Yet, the typical MTW household assisted with TBVs is in a neighborhood in which the share of adults with a bachelor's degree is 26 percent below the county average, and the typical MTW household in public housing lives in a neighborhood in which the share of adults with a bachelor's degree is 29 percent below the county average. Lower transportation costs were expected because census-tract poverty rates and the transportation cost index are inversely correlated.

Exhibit 4**County-Normalized Measures of Neighborhood Quality for Assisted Households at Moving to Work Agencies by Program, Averages and Differences, 2016**

Neighborhood Quality Measures	Means		Differences (p. value)	Means		Differences (p. value)
	PBV	TBV	PBV – TBV	PBV	PH	PBV – PH
Poverty Rate	1.85	1.58	0.27*** (0.001)	1.87	2.03	-0.16 (0.124)
Percent with Bachelor's Degree	0.83	0.74	0.10** (0.029)	0.82	0.71	0.11 (0.064)
Labor Force Participation	0.96	0.97	-0.02 (0.123)	0.96	0.94	0.01 (0.334)
Labor Market Engagement Index	0.67	0.69	-0.01 (0.729)	0.66	0.60	0.05 (0.202)
Environmental Health Index	0.61	0.77	-0.15*** (0)	0.60	0.64	-0.05 (0.383)
School Proficiency Index	0.71	0.67	0.03 (0.232)	0.69	0.66	0.03 (0.416)
Transportation Cost Index	1.24	1.14	0.10*** (0.001)	1.23	1.22	0.02 (0.58)
Observations	35			32		

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

MTW = Moving to Work. PBV = project-based voucher. TBV = tenant-based voucher.

Notes: All statistics are normalized to the county mean. Raw values for the labor market engagement index, environmental health index, and transportation cost index are national percentile ranks with higher values signifying better outcomes. School proficiency index is percentile-ranked at the state level. This exhibit excludes Delaware State Housing Authority, Lawrence-Douglas County Housing Authority, and Home Forward (Portland, Oregon), which do not have any PBV units. The Housing Authority of the City of San Jose and Housing Authority of the County of Santa Clara household counts in the HUD Office of Public and Indian Housing Information Center data are reported jointly; they are listed here as a single public housing agency.

Sources: Urban Institute analysis of 2016 PIC data, 2012–2016 American Communities Survey 5-year estimates, and HUD AFFH data

Comparisons between PBV households at MTW agencies and at traditional agencies are an important component of this analysis. Exhibit 5 compares the neighborhoods of MTW PBV households to the neighborhoods of PBV households at traditional PHAs. Both sets of PBVs are in neighborhoods with higher poverty relative to the average for their counties. Moreover, at both MTW and comparison PHAs, the average PBV-assisted household lives in a neighborhood with a higher poverty rate than TBV-assisted households and a lower poverty rate than public housing residents.

Both MTW and traditional agencies' PBVs are in neighborhoods that score lower on the AFFH Environmental Health Index than the county average, but after accounting for regional differences, MTW PBVs are in neighborhoods with poorer air quality than PBVs at traditional PHAs. The index ranks census tracts based on potential exposure to harmful toxins as measured in the 2005 National Air Toxins Assessment. At comparison agencies, the typical PBV household lives in a

neighborhood that ranks 23 percent lower than the county as a whole. At MTW agencies, the typical PBV household lives in a neighborhood that ranks 39 percent lower than the national average. The gap in normalized measures of environmental health between MTW and comparison agencies is statistically significant.

Exhibit 5

County-Normalized Measures of Neighborhood Quality for Project-Based Vouchers at Moving to Work and Traditional Public Housing Agencies, 2016

Neighborhood Quality Measures	Means		Difference (p-value)
	MTW PBV	Traditional PBV	MTW PBV – Traditional PBV
Poverty Rate	1.85	1.67	0.17 (0.175)
Percent with Bachelor's Degree	0.83	0.74	0.05 (0.424)
Labor Force Participation	0.96	0.97	0.00 (0.855)
Labor Market Engagement Index	0.67	0.69	-0.02 (0.768)
Environmental Health Index	0.61	0.77	-0.16*** (0.003)
School Proficiency Index	0.71	0.67	-0.01 (0.856)
Transportation Cost Index	1.24	1.14	-0.03 (0.604)
Observations	35	Varies with Measure	

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

MTW = Moving to Work. PBV = project-based voucher.

Notes: All statistics are normalized to the county mean. Raw values for the labor market engagement index, environmental health index, and transportation cost index are national percentile ranks with higher values signifying better outcomes. School proficiency index is percentile ranked at the state level. Among MTW agencies, this exhibit excludes Delaware State Housing Authority, Lawrence-Douglas County Housing Authority, and Home Forward (Portland, Oregon), who do not have any PBV units. Housing Authority of the City of San Jose and Housing Authority of the County of Santa Clara household counts in Public and Indian Housing Information Center are reported jointly; they are listed here as a single PHA. Poverty Rate, Percent with a Bachelor's Degree, and Labor Force Participation were available for 417 traditional PHAs. Labor Market Engagement was available for only 413 traditional PHAs; Environmental Health Index was available for only 396 traditional PHAs, School Proficiency index was available for 409 traditional PHAs; and Transportation Cost Index was available for 413 traditional PHAs.

Sources: Urban Institute analysis of 2016 PIC data, 2012–2016 American Communities Survey 5-year estimates, and HUD AFFH data

The second part of research question 4 asks about the relationship between PBV usage and race or ethnicity. Exhibit 6 shows differences in the county normalized poverty rate for neighborhoods accessed by Black (non-Hispanic/Latino), Hispanic/Latino, and White (non-Hispanic/Latino) households. With each type of assistance, households headed by a non-Hispanic, White person reach lower-poverty neighborhoods than those with a Black or Hispanic/Latino household head, and differences between housing types are relatively consistent for Black, White, and Hispanic/

Latino-headed households. Results using the other five measures of neighborhood quality can be found in Galvez et al. (forthcoming). In sum, we find that historical patterns of segregation and concentration of minorities in neighborhoods with poor environmental conditions, fewer amenities, and higher poverty rates are unchallenged by the use of PBVs.

Exhibit 6

County-Normalized Neighborhood Poverty Rate for Assisted Households at Moving to Work Agencies by Program and Race/Ethnicity, 2016

	Means			Differences	Observations	Means			Observations
	PBV	TBV	PBV-TBV			PBV	PH	PBV-PH	
Black (non-Hispanic)	1.88	1.61	0.27***		35	1.92	2.10	-0.18	31
Hispanic	1.81	1.53	0.29***		34	1.81	1.97	-0.16	31
White (non-Hispanic)	1.70	1.43	0.27***		33	1.72	1.80	-0.08	30

* $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$.

MTW = Moving to Work. PBV = project-based voucher. PH = public housing. TBV = tenant-based voucher.

Notes: All statistics are normalized to the county mean. Additional measures appear in appendix B (Galvez et al., forthcoming). This exhibit excludes Delaware State Housing Authority, Lawrence-Douglas County Housing Authority, and Home Forward (Portland, Oregon), who do not have any PBV units. Housing Authority of the City of San Jose and Housing Authority of the County of Santa Clara household counts in Public and Indian Housing Information Center are reported jointly; they are listed here as a single public housing agency.

Sources: Urban Institute analysis of 2016 PIC data and 2012–2016 American Communities Survey 5-year estimates

RAD and LIHTC are also major considerations for us in looking at differences between PBV and TBV. Additional analysis in Galvez et al. (forthcoming) found no statistically significant differences in neighborhood quality measures between RAD and non-RAD PBV units. MTW households in RAD and LIHTC-financed PBV properties live in similar neighborhoods to households in other PBV properties. Among the MTW agencies with LIHTC-financed PBV properties, only two measures showed statistically significant differences: households in LIHTC-financed PBV properties live in neighborhoods with somewhat better access to transportation and somewhat worse air quality. Otherwise, PBVs in LIHTC-financed properties were in similar neighborhoods as other PBV households with regards to poverty, educational attainment, labor force participation, and school proficiency.

Case Studies of Three Moving to Work Agencies' Project-Based Voucher Use

In this section, we summarize findings from our review of three PHAs' PBV programs. The three agencies included are Boulder Housing Partners, Cambridge Housing Authority, and the Seattle Housing Authority. We first discuss common themes that emerged from the interviews with the three agencies about how and why they use PBV assistance. We then present summaries of each agency's PBV activities along with additional detail on each agency.

Common Perspectives on Project-Based Voucher Use

Several common themes emerged about how and why the three agencies use PBV assistance.

The three PHAs maximize their MTW flexibilities to pursue MTW housing choice and cost-effectiveness objectives. All three agencies included in our case studies use at least two of the five

main PBV flexibilities available to MTW agencies (summarized in the background section above), combined with flexibilities available for HCV program administration generally. In MTW plans and reports, all three agencies tie their PBV activities and waivers to the housing choice and cost-effectiveness objectives—although each agency noted in interviews that PBVs can also indirectly impact the MTW self-sufficiency objective.

Specifically, all three agencies waive the cap on the share of HCV budget authority that may be applied to PBVs and the cap on the number of PBV units that may be in a single property. Among the three agencies, the share of budget authority applied to PBVs in 2016 was the lowest for Seattle (31 percent) and highest for Cambridge (67 percent). Each of the agencies subsidizes properties that are 100 percent PBVs. Each of the agencies also applies additional HCV program flexibilities to their PBVs, and each retains partial or full ownership in at least one property with PBVs.

Agencies use PBVs to facilitate partnerships. Each of the three PHAs described PBVs as facilitating a variety of partnerships with community stakeholders to further local affordable housing priorities or initiatives. For example, this included a longstanding partnership between the Seattle Housing Authority and the city of Seattle to use PBVs to augment local Housing Tax Levy funds to address homelessness. The ability to pursue common goals with local partners and be responsive to local housing needs was noted as a key motivation for all three agencies' PBV use.

PBVs allow the PHAs to be more effective in tight housing markets. Each of the three agencies is in expensive housing markets with low vacancy rates. Agency staff noted advantages to PBVs compared with TBVs in such market contexts. For example, all three noted that PBVs provide opportunities to preserve or secure affordable units in areas with high or rapidly rising rents, whereas TBV families have difficulty finding voucher-affordable housing or landlords that accept vouchers.

Staff from each of the agencies also said that year-to-year increases in housing assistance payment costs could be more predictable for PBVs compared with TBVs in areas where rents are rising quickly. Whereas individual landlords may raise rents substantially at the end of a lease period, PBV HAPs and annual increases are established in PBV contracts. This allows agencies to build increases in their longer-term financial planning.

PBVs offer opportunities for administrative efficiency. Agency staff said the MTW PBV flexibilities offered opportunities for administrative efficiencies—and subsequent cost offsets for the agencies—that TBVs do not. For example, Boulder Housing Partners' staff discussed site-based waiting lists administered by individual property owners and managers as allowing the PHA to free up staff time for other tasks, in addition to helping the agency efficiently connect households to suitable units and properties. The Seattle Housing Authority staff also noted that conducting inspections at properties with multiple PBV-assisted units is more efficient than inspecting geographically dispersed units or units that require interacting and coordinating with multiple owners or managers. In addition, by allowing owners to conduct their own turnover inspections for mid-year vacancies, the Seattle Housing Authority reduced the number of annual staff hours spent conducting inspections.

Maintaining a balance of TBVs and PBVs. Each of the PHAs discussed the need to maintain a portfolio of TBVs, as well as PBVs, and the limitations on PBV use. None expected to transition to 100 percent PBVs, and all acknowledged the importance of maintaining the residential mobility opportunities that TBVs offer. Agency leadership said they periodically discuss the appropriate balance of HCV use and whether to expand PBVs.

Project-Based Vouchers and Neighborhood Location

None of the three agencies explicitly use PBVs to target low-poverty or high-opportunity neighborhoods. Each of the agencies, however, tied their PBV activities to a broad definition of housing choice—emphasizing that PBVs increase local affordable housing options for low-income people citywide and the benefits associated with their current PBV locations.

For example, the Cambridge Housing Authority and Boulder Housing Partners described their jurisdictions as generally wealthy and opportunity-rich. The Cambridge Housing Authority staff viewed the city as a whole as a resource-rich environment that is difficult for TBV holders to access. This characterization of their PBV efforts as generally offering access to opportunity areas is reflected in the MTW activities reported to HUD. Boulder Housing Partners similarly highlighted the city’s relatively low-poverty rates as a reason for not explicitly prioritizing low-poverty neighborhood locations.

The Seattle Housing Authority staff noted the city’s downtown area, where many of their PBV units are located, was identified as an opportunity area by a Kirwan Institute and Puget Sound Regional Council analysis—in part because of the proximity to public transportation and social services.^{20, 21} For formerly homeless PBV residents, who account for most of their PBV occupants, access to these resources can be essential to helping them be successful.

Boulder Housing Partners: Public Housing Conversion and Local Partnerships

“They’re bringing their services and we’re bringing the housing, so it’s a match made in heaven.”

—*Boulder Housing Partners*

Since receiving MTW designation in 2011, the Boulder Housing Partners has focused their PBV efforts on converting their public housing stock to PBVs and transitioning fully to HCV assistance. They also have partnered with local housing and service providers to pursue a comprehensive place-based education initiative, and in their 2015 MTW plan, they committed to contributing 2,000 new affordable units to Boulder’s permanently affordable inventory by 2025.

Staff said in interviews that MTW PBV flexibilities were a motivation for pursuing MTW status. MTW status generally, and MTW PBV flexibilities specifically, are central to pursuing the agency’s

²⁰ For more information, see the Puget Sound Regional Council’s “Opportunity Mapping”: <https://www.psrc.org/opportunity-mapping>.

²¹ Seattle Housing Authority is also piloting a neighborhood mobility program using TBVs to support moves to opportunity-rich neighborhoods. For more information, see: <https://www.seattlehousing.org/creating-moves-to-opportunity-seattle-king-county-pilot-project-fact-sheet>.

goals. Waivers to the PBV budget authority and units per property caps were included in the agency's first MTW Annual Plan after receiving MTW designation (BHP Annual Plan, 2012). The Boulder Housing Partners formally ties its PBV use to the housing choice and cost-effectiveness MTW statutory objectives, although staff said in interviews that their PBV program also addresses family self-sufficiency. In 2018, the agency consolidated MTW activities enacted in previous years into a single PBV program activity. In addition to waiving the PBV caps, the activity allows Boulder Housing Partners to project-base 100 percent of units in a single project and to use site-based waitlists. The activity also modifies several administrative policies for their HCV program, including local rent reasonableness tests, rent limits, Housing Quality Standards inspections, and income requirements.

Staff described how PBVs and the combination of PBV flexibilities help the agency impact the MTW statutory objectives. For example, site-based waiting lists can help the agency more efficiently place households into properties and units that meet their needs and offer more housing choices. Staff said that converting units to PBVs as opposed to TBVs also allowed Boulder Housing Partners to maintain the same demographic mix in their properties as in their traditional public housing. The Bringing School Home initiative, located at five former public housing communities that were converted to 100 percent PBVs, is intended to help close gaps in educational achievement for low-income children and support long-term economic self-sufficiency.

Agency staff identified three specific programmatic efforts, which they believe have been supported by MTW PBV flexibilities.

Partnerships. Strong partnerships with local service providers are central to Boulder Housing Partner's organizational goals. Staff noted that the re-naming of the organization in 2001 from the Housing Authority of the City of Boulder to Boulder Housing Partners reflects a longstanding emphasis on service partnerships that predates their MTW status. These partnerships do not usually come with additional service dollars attached; rather, staff emphasized that both the Boulder Housing Partners and their affiliates see the value in connecting families already receiving services to Boulder Housing Partners-assisted units. For example, Boulder Housing Partners joins with the Boulder Shelter for the Homeless, which provides case management for homeless individuals and families and helps them transition into PBV-assisted housing.

Project Renovate. Completed in 2017, Project Renovate converted 279 public housing units in six properties to PBV units using RAD and Section 18 Demolition and Disposition. Boulder Housing Partners converted units to PBVs instead of PBRA through RAD to retain the use of MTW PBV flexibility for these units. Staff said that a goal for the conversions was to retain the same households, demographic mix, and level of affordability for the converted properties as in their original public housing portfolio. The housing authority has converted 135 units to PBVs through RAD, amounting to about 33 percent of their PBV-assisted units. Two additional PBV public housing property conversions have been completed through the Section 18 Demolition and Disposition program (2018 annual report).

Bringing School Home. Bringing School Home is a place-based initiative currently operating in five former public housing properties that were converted to 100 percent PBVs. Local partners

manage the PBV communities and provide a variety of on-site services for children up to 6 years old through a variety of educational and enrichment supports for them and their families. The Emergency Family Assistance Association manages the waitlist for these properties and is responsible for the screening and admission. An example of services offered to residents includes the “I Have a Dream” Foundation’s programming. The program seeks to reduce the gap in educational outcomes between low-income students and their peers by maximizing the amount of time children spend in educationally enriching activities.²²

Cambridge Housing Authority: Preserving Affordable Housing with Project-Based Vouchers

“The Project-Based Voucher (PBV) Program is considered a community resource, both to support and preserve existing housing, and to expand affordable housing development in Cambridge.”

—*Administrative Plan for the Federal HCV Program*
Cambridge Housing Authority (2013)

Rapidly rising rents, and extreme pressure on the affordable housing stock in and around the city of Cambridge, provides the motivating context for the PHA’s MTW and PBV program priorities. In 2014, only 54 units of housing were available to every 100 extremely low-income households in Middlesex County; 35 of these units were HUD-subsidized (Poethig et al., 2017). Approximately 30 percent of Cambridge’s population is students, which places additional demands on the lower end of the rental housing market.²³ Rents have been rising rapidly in the Cambridge area since 1994 when rent control ended in the state of Massachusetts.

The housing authority’s MTW and PBV programs center on creating and preserving affordable units in Cambridge. In interviews, staff emphasized that TBVs are difficult to use locally, with 47 percent of TBVs porting out of the jurisdiction. TBV holders who remain in Cambridge may face annual rent increases beyond the TBV voucher payment standard—set at 126 percent of fair market rent—potentially triggering a move, higher HAPs, or additional rental costs and higher rent burdens for assisted households.

Agency staff identified three specific programmatic efforts that they believe are facilitated by MTW PBV flexibilities.

The Expiring-Use Preservation Program. About one-half of the Cambridge Housing Authority PBVs—about 1,800 vouchers in 18 properties—were issued through the Expiring-Use Preservation Program, which focuses on preserving units in and around Cambridge. Through this program, the Cambridge Housing Authority identifies units in the private rental market with an existing subsidy that are nearing their expiration date (for example, HUD legacy programs like the Rent Supplement program and Rental Assistance Payment). Upon expiration of these subsidies, eligible residents may

²² For more information about the Bringing School Home program, see: <https://boulderhousing.org/bringing-school-home>.

²³ “Demographics and Statistics FAQ.” Cambridge Development Department, accessed February 2019, <https://www.cambridgema.gov/CDD/factsandmaps/demographicfaq>.

receive an Enhanced Voucher,²⁴ which allows them to remain in their unit; however, if the resident leaves their original unit, the Enhanced Voucher converts to a mobile voucher, and the original unit becomes unsubsidized and likely converted to a market-rate unit. Through the Expiring-Use Preservation Program and their MTW authority, the Cambridge Housing Authority is able to work with the owner to preserve the tenancies of the existing residents in addition to preserving the long-term affordability of these units.

Public housing conversion through RAD. Just under 30 percent of the agency's PBV-assisted units are in former public housing properties converted through RAD. The Cambridge Housing Authority converted units to PBVs rather than PBRA to retain MTW flexibilities for rent simplification and to retain voucher administrative fees, providing additional cash flow to leverage debt for capital improvements. Staff asserted that it was a priority to retain the same assisted households through the conversion and avoid disrupting their experience with the housing authority. According to agency staff, few residents, if any, have taken advantage of Choice Mobility²⁵ TBVs because of the challenges of finding housing with a mobile voucher in Cambridge.

Partnerships. The Cambridge Housing Authority has several partnerships with service providers and housing developers that incorporate PBV assistance to develop or preserve affordable units. Many of these partners provide services on-site in PBV-assisted properties. For example, the Cambridge Housing Authority partners with Just-A-Start to place their PBV-assisted units. As a community development corporation, Just-A-Start provides resident services in all their affordable rental developments, including supportive services and education programs.²⁶ The Cambridge Housing Authority noted that their development partners can access properties or neighborhoods that the housing authority may not be able to access alone. They also stated that most of their partnerships are long-standing, formalized through Memoranda of Understanding, and were formed when organizations approached the PHA with collaboration ideas.

Seattle Housing Authority: Using Project-Based Vouchers to Serve People Exiting Homelessness

“Our primary interest in the project-based voucher has been in the population that it serves and the services that come with it.”

—*Seattle Housing Authority*

Since the early 2000s, the Seattle Housing Authority has partnered closely with the city, county, and local service providers to address homelessness and support service-enriched housing for high-need populations. Most of the Seattle Housing Authority's 3,600 PBVs are connected to these efforts, with a small share going to replacement vouchers in their HOPE VI communities. The

²⁴ For more information about HUD's Enhanced Vouchers, see: https://www.hud.gov/sites/documents/ENHANCED_VOUCHERS_ENG.PDF.

²⁵ Residents living in RAD-converted units have a right to choice mobility, which is similar to HUD's Family Right to Move requirement. All properties that convert assistance must provide residents the choice of moving with continuing tenant-based rental assistance using an HCV within an established time after conversion, which is 1 year for PBVs. Unlike the Family Right to Move Requirement, MTW PHAs are not able to waive or modify this provision.

²⁶ For more information on Just-A-Start, see: <https://www.justastart.org/>.

Seattle Housing Authority staff stated that to date, their use of PBVs has, in large part, been guided by community priorities identified by local partners.

A tradeoff discussed by the Seattle Housing Authority staff of the focus on homeless and high-need households is that the Seattle Housing Authority's PBVs disproportionately house White, single adult men compared with their TBV program. The PBV population mix is driven by priorities set through the city's Housing Tax Levy efforts and the county's 10-Year Plan to End Homelessness, and not by explicit Seattle Housing Authority targets. Although staff said that single adults can inherently carry some cost efficiencies because they tend to live in studios that have lower HAP costs than larger units, it has also meant serving fewer families than might be expected through the TBV program. Unlike the PBV population, staff said, roughly half of the TBV waiting list tends to be families with children.

Agency staff identified two main programmatic efforts as facilitated by MTW PBV flexibilities.

Local partnerships to end homelessness. Two main partnerships were discussed as driving the Seattle Housing Authority PBV use: the Seattle Housing Tax Levy and the King County 10-Year Plan to End Homelessness.²⁷ The Housing Tax Levy raises funds to support affordable housing creation and preservation. The first levy was passed in 1986, and Seattle residents vote every 7 years to provide funding to create and preserve affordable housing. The Seattle Housing Authority leadership said that for each levy process, they determine whether to participate and at what scale. The Seattle Housing Authority has contributed PBVs to each of the levies passed since they received MTW status—in 2002, 2009, and 2016—committing 500, 500, and 300 new PBVs, respectively. In total, roughly one-half of the Seattle Housing Authority PBVs are units connected to the levy.

Staff said that prior to the Tax Levy collaboration and through approximately 2009, additional ad hoc partnerships were formed that account for the balance of the Seattle Housing Authority PBV units. Many centered on the county's Plan to End Homelessness and efforts to braid housing assistance with service dollars from the county or other sources to serve high-need populations.

Cost-effectiveness through PBVs. The Seattle Housing Authority has made several efforts to pursue efficiencies through its PBV program specifically and HCV program generally. Staff highlighted two PBV flexibilities as particularly useful to sustaining service-enriched housing: waiving the PBV exit voucher requirements (or the "Family Right to Move") and site-based waiting lists. Waiving exit vouchers was described as allowing continuity and predictability for service partners and removing pressure from the TBV waitlist to absorb households exiting PBV units. Staff said that site-based waiting lists allowed high-need populations to be connected to properties that offered appropriate services. Additionally, the Seattle Housing Authority has implemented combined program management, which enables the Seattle Housing Authority to streamline management and policies for PBV and public housing units that are co-located at the same property and to ensure that their residents do not see a difference in their services or program management, no matter what kind of assistance they receive.

²⁷ For more information on the Seattle Housing Levy, see: <https://www.seattle.gov/housing/levy>. For more information on the King County 10-year Plan to End Homelessness, see: <http://www.cehkc.org/plan.html>.

Discussion

This study documents various aspects of PBV use for MTW agencies and a group of comparably sized traditional agencies using administrative data and case studies of three MTW agencies with large PBV portfolios.

PBV use is more common among MTW agencies than among traditional PHAs, but extensive PBV use is not the norm. Most MTW agencies used PBVs to some extent as of 2016 and reported activities requiring MTW PBV flexibilities. Yet, only nine agencies exceeded the 20-percent budget authority cap on PBV use in 2016, and only four of those agencies used PBVs for more than 25 percent of the assisted housing they provided. More MTW agencies used PBVs and their flexibilities sparingly. Even among the three case study agencies with extensive PBV use, operating in markets where TBVs are challenging to use, staff discussed the importance of maintaining a portfolio of TBVs and the residential mobility opportunities they offer.

Local housing markets play an important role in PBV use and agency decisions, which was evident in both the quantitative and qualitative findings. Across MTW agencies, PBV use increased more in the Northeast than in the South and Midwest. Furthermore, our analysis of MTW and traditional PHAs shows that agencies in areas with higher rents increased their PBV use more than agencies in more affordable markets. Staff at the three case study agencies stated that PBV costs are more predictable than TBV costs when rents are rising quickly. All three agencies discussed the challenges TBV holders face finding private market housing citywide or in specific submarkets as motivating their PBV use.

Our results also show a relationship between distressed public housing and PBV use. MTW and traditional agencies with lower-quality public housing in 2008 (measured as PASS scores) were more likely to increase their PBV use by the end of our study period (2016). The MTW agencies were more likely than the traditional agencies to use RAD to convert public housing and convert to PBVs. This may reflect MTW agencies' ability to use funding or other flexibilities to navigate the RAD conversion process, and that MTW agencies can retain their funding and other flexibilities for converted PBV units (but not for PBRA).

We find no evidence that PBVs are used as a tool to improve access to low-poverty or opportunity-rich neighborhoods by MTW agencies or our sample of traditional PHAs. For both sets of agencies, PBVs are in more distressed neighborhoods compared with TBVs and tend to be in areas that more closely resemble public housing neighborhoods. Also, on average, both MTW and traditional PHAs' PBV-assisted households live in more distressed neighborhoods than the typical neighborhood in their counties.

Results were similar across neighborhood quality measures, with two exceptions. MTW PBVs were in neighborhoods with better access to affordable transportation compared with the average for their counties, most likely because MTW agencies tend to serve dense central cities with better public transportation compared with other parts of their counties. Moreover, MTW agencies' PBVs are in neighborhoods with higher educational attainment than TBVs or public housing.

We did not find any differences in location patterns by race or ethnicity for PBVs compared with other assistance programs. As is the case for the TBV program, non-White PBV-assisted households tend to live in higher-poverty, more distressed neighborhoods than White PBV-assisted households. We found that MTW agencies in more racially segregated areas are more likely to have PBV units in higher-poverty neighborhoods. Notably, PBV locations appeared more sensitive to racial segregation than TBVs in the same jurisdictions. It may be that, in highly segregated cities, developing PBV properties outside of high-poverty neighborhoods is more difficult than renting in those same neighborhoods with a TBV.

The case study agencies, although not representative of all MTW agencies, did not approach PBVs as a tool to create housing in opportunity-rich neighborhoods. The agencies' primary PBV goals were to preserve and expand housing opportunities more broadly and to improve cost efficiency—and PBV use tended to be tied to specific local priorities, partnerships, target populations, and market considerations. The agencies discussed their PBV use as consistent with neighborhood choice goals in that PBVs were in areas that likely offered tangible benefits to assisted households. The three case studies underscore the diverse and creative ways that MTW agencies may use PBVs to pursue the MTW program's statutory objectives and the importance of local contexts and priorities in agency decisionmaking.

Limitations

A significant limitation of this study is that it does not examine the extent to which PBVs are combined with supportive services or used to house high-need households. MTW agencies have unique opportunities to provide supportive services by making creative use of funding or policy flexibilities—and staff from the case study agencies discussed tying supportive services to PBV properties for veterans, people experiencing homelessness, and others. HUD also encourages traditional PHAs to use PBVs to provide supportive services and serve “hard to house” families. No data source documents whether PBVs house high-need families or are linked to services. MTW annual plans and reports provide some relevant information, but the scale or nature of services cannot be determined consistently.

Our analysis of the relationships between the PBV and LIHTC programs was also limited by available data. Administrative data do not identify vouchers used in LIHTC properties, and issues with data quality, changes in street addresses after redevelopment, and differences in coordinate precision and formats prevented exact location matching between PIC and the National Housing Preservation Database. We estimate the intersection of these programs for MTW agencies based on addresses, but these estimates are sensitive to assumptions about property and block sizes and could be improved by adjusting for local contexts.

The small number of MTW agencies itself was a limiting factor for cross-agency analysis of PBV use or locations. We include comparison traditional PHAs in regression analyses to increase our sample sizes and our ability to detect statistical relationships. As a result, the extent to which the estimated relationships between motivating factors and PBV use are representative of MTW agencies, specifically, could not be determined. Similarly, we include case studies of just three MTW agencies that are not typical of the average PHA because they are the highest PBV users among all PHAs

nationally and in some of the nation's most competitive rental markets. Their insights are useful to understand the benefits of PBVs in tight markets and ways that PBVs can be used to facilitate partnerships or increase administrative efficiencies—but they tell us little about PBV use in weaker markets or decisionmaking among agencies that do not use PBVs.

Policy Implications and Future Research

Our findings suggest some cause for concern about PBV locations and PBV-assisted households' access to low-poverty, opportunity-rich neighborhoods. More research is needed to understand ways to improve PBV neighborhood locations, including the mechanisms driving PBV location options and MTW agency decisionmaking. For example, more qualitative research with MTW and traditional agencies could shed light on how agencies select PBV properties and identify opportunities for HUD to encourage improved locations. More work is also needed to examine the relationship between PBV locations and racial segregation—for example, to understand whether local opposition to affordable housing development contributes to PBVs' concentration in high-poverty areas. Finally, research is needed to fully document how often MTW agencies waive or revise the PBV Family Right to Move requirement, the agencies' reasons for doing so, and ways to make it more feasible for agencies to implement it in the way HUD intends.

Second, the case studies identified examples of unique approaches to PBV use and productive local partnerships from three high-capacity agencies, but a rigorous investigation of promising MTW agency activities was not possible. More information about innovative practices and partnerships from a diversity of agencies could help identify replicable models. Future case studies or qualitative work should include a range of PHA sizes, local market characteristics, and agencies with different levels of PBV use to understand the challenges and opportunities that PBVs present to pursue MTW's objectives.

Third, our analyses begin to document the relationships between the HCV program and LIHTC properties, but more work is needed to fully understand the extent to which the HCV and LIHTC programs are mutually dependent. A more precise estimate of PBV and TBV co-location in LIHTC properties at both MTW and traditional PHAs would shed light on the role that LIHTC properties play in the HCV program.

Finally, future work should examine the extent to which MTW agencies and traditional PHAs combine PBVs with supportive services or use PBVs to support high-need households. HUD should consider ways to strengthen data and reporting from both MTW and traditional agencies, to support research on the availability of supportive services and examine outcomes for households with access to services.

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The Effects of Increasing the Tenant Rent Contribution in the Housing Choice Voucher Program

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Abstract

This study examines the effects of a rent reform in the Santa Clara County Housing Authority (SCCHA) on Housing Choice Voucher (HCV) program residents' employment rates, average earnings, and housing subsidies using a quasi-experimental design. In the face of federal budget cuts to the HCV program in 2013, SCCHA reduced subsidies for all households rather than cutting some households from the program. The primary component of its rent reform was to increase the tenant rent contribution rate from 30 percent of adjusted income (equivalent to about 27 percent of gross income) to 35 percent of gross income (eliminating all deductions and allowances) for all subsidy households. A risk was that if tenants reduced their earnings in response to the higher "tax" rate (since they keep a smaller portion of their earnings under the new policy), their subsidies would increase, counteracting the housing agency's expected savings from increasing tenant rent contributions. A second rent reform component changed the voucher size policy, which resulted in a smaller voucher size (fewer bedrooms) for some households. The findings indicate that, on average, the SCCHA rent reform did not affect residents' employment rates and average earnings throughout the 4 years following the implementation of the rent reform. Thus, the rent reform reduced households' average housing subsidies as intended, and SCCHA was able to meet its projected savings. Since households did not increase their earnings to compensate for the reduction in their subsidies, these findings suggest that households absorbed their increased housing costs; however, whether they did so by reducing spending on necessary goods or by increasing debt and whether they experienced increased material hardship is unknown.

Introduction

This study contributes to an emerging body of evidence on the effects of alternative rent policies in subsidized housing by evaluating the impact of a rent reform at the Santa Clara County Housing Authority (SCCHA). In 2013, federal budget cuts significantly reduced the SCCHA budget for housing choice vouchers (HCVs), and SCCHA no longer had sufficient funds to continue subsidies

to all households at the same level as before. To avoid ending subsidies for some households, SCCCHA chose to increase the tenant rent contribution rate from 30 percent of household adjusted income to 35 percent of gross income.¹ It also changed the voucher size policy—the rules used to determine the number of bedrooms on which a household’s subsidy is based—which resulted in a smaller voucher size for 17 percent of all SCCCHA’s HCV households and 23 percent of SCCCHA’s nonelderly, nondisabled households, the SCCCHA households included in the study cohort.²

A central question of this study is how the rent reform implemented by SCCCHA affected households’ employment and earnings. There were three possible effects of the rent reform: (1) the increased tenant contribution rate would act as a disincentive that would cause households to decrease their earnings; (2) households would increase earnings to cover their increased housing costs; or (3) there would be no effect on earnings or employment because households would adjust spending in other areas to cover their higher housing costs, increase their debt, or experience increased material hardship. If there had been a reduction in household earnings, it would have led to an increase in housing subsidy amounts, counteracting the intended savings from the increase in the tenant contribution rate. These policy changes affected all HCV households, regardless of elderly or disability status, but the study focuses on nonelderly, nondisabled households because elderly and disabled households would not have had the same flexibility to change their work behavior in response to the policy changes.

The present study found no evidence that these policy changes had any effects, on average, with respect to the employment and earnings of nonelderly, nondisabled SCCCHA residents. Because households’ earnings did not decrease in response to the policy change, SCCCHA realized its projected savings. Nonelderly, nondisabled households received approximately \$1,600 less in housing subsidies, on average, during the first year, \$1,550 less in the second, and \$1,330 less in the third year after the rent reform than they would have received without the rent reform. There was also no evidence that the rent reform caused households to lose their housing subsidies, on average.

This article summarizes the study’s rationale, research questions, analytic approach, and findings. A longer report published earlier this year, “Evaluating the Effects of Santa Clara County Housing Authority’s Rent Reform,” includes a more comprehensive discussion of the methodology, comparison group selection, and additional sensitivity analyses (Castells, 2020).

Background

The HUD HCV program is the nation’s primary rental subsidy program, assisting approximately 2.2 million low-income households in paying for housing in the private rental market. HCV households generally pay 30 percent of their income toward rent, and HUD subsidizes the remaining amount of the households’ rent up to the payment standard, a threshold based on area housing costs. This rent policy aims to protect assisted households from excessive rent burden, but critics of the policy argue that pegging tenant contributions to income can disincentivize work.

¹ This change was tempered in 2014 when the rate was reduced to 32 percent of gross income, although this is still substantially higher than the previous rate.

² HUD defines an elderly household as one where the head of household, spouse, or co-head is at least 62 years old, and a disabled household as a household where the head of household, spouse, or co-head is a person with a disability (Code of Federal Regulations, 24 CFR 5.403).

Launched in 1996, HUD's Moving to Work (MTW) demonstration grants selected public housing agencies (PHAs) special statutory authority to change many HCV program rules, including rent rules.³ As an MTW agency, SCCCHA could respond to budget cuts by increasing the proportion of income that HCV households paid toward their rent.

HCV is a housing subsidy paid directly to the landlord by the agency on behalf of the participating household. The subsidy amount is called the Housing Assistance Payment (HAP) and is equal to the difference between the Total Tenant Payment (TTP) and the payment standard. TTP is typically 30 percent of the household's adjusted income, after accounting for various allowable deductions. The household is responsible for their TTP, plus any amount by which the gross rent exceeds the local payment standard.^{4,5} As a result, when tenants' earnings increase, their share of the rent is increased by 30 percent of the additional amount they earn.

Exhibit 1

Definitions of Housing Subsidy Terms

Adjusted Income: A household's gross income minus deductions for the following: allowances for dependents, status as an elderly family or family with members with disabilities; unreimbursed childcare expenses; unreimbursed medical expenses (for elderly families and families with members with disabilities only); and unreimbursed disability assistance expenses.

Fair Market Rent (FMR): HUD publishes, annually, an FMR schedule for the FMR area in which the PHA has jurisdiction. FMRs are based on the 40th percentile of rents charged for standard rental housing in the FMR area.

Gross Income: A household's total income before taxes and other deductions, received by all members of the household. It includes total income from wages, social security payments, retirement benefits, military and veteran's disability payments, unemployment benefits, welfare benefits, and asset income. It excludes certain forms of income, such as earnings from minors and income from live-in aides.

Gross Rent: The total contract rent paid to the landlord plus any utility allowances.

Payment Standard: Payment standards are used to calculate the housing assistance payment (HAP) that the PHA pays to the owner on behalf of the family leasing the unit. Each PHA has latitude in establishing its schedule of payment standard amounts by bedroom size. A PHA may set its payment standard amounts from 90 percent to 110 percent of the published FMRs for the area and may set them higher or lower with HUD approval.

Port-Out: A household relocating to a unit within another PHA jurisdiction.

Utility Allowance: The utility allowance is an estimate of the amount needed for a household to cover its reasonable utility costs, based on the unit's number of bedrooms, which utilities the tenant is responsible for outside the contract rent, the type of utilities (for example, gas versus oil heat), and other unit characteristics such as structure type.

Voucher Size: The number of bedrooms on a household's voucher, calculated based on the household composition. For determining the payment standard applicable to the household, the HCV program uses the lower of (1) the number of bedrooms on a household's voucher, or (2) the number of bedrooms of the actual unit rented.

Minimum Rent: The minimum amount set by the PHA that households must contribute towards rent and utilities.

³ Subject to public notification, approval of each PHA's Board of Directors, and HUD approval.

⁴ The payment standard is the maximum subsidy a PHA can pay on behalf of a household, and payment standards are set by the PHA between 90 and 110 percent of the area's fair market rents (FMRs). HUD sets FMRs annually at the 40th percentile of gross rents in the area.

⁵ See exhibit 1 for definitions of relevant housing subsidy terms.

The rule that households pay 30 percent of adjusted income pre-dates the Section 8 program's enactment in 1974 and was based on a judgment about reasonable housing cost burden at the time (Schwartz and Wilson, 2008). It was initially set at 25 percent by the 1969 Brooke Amendment to the 1968 Housing and Urban Development Act and was raised to 30 percent in 1981. This 30-percent-of-income rule is also now known as the Brooke Rent.⁶ Variations of this tenant contribution rate—such as the one implemented by SCCCHA—have so far not been rigorously tested. If increasing the tenant portion of rent does not affect households' employment decisions and does not significantly increase tenants' material hardship, but does succeed in reducing HAP expenditures, this could be one way of providing housing assistance to more families within a fixed budget amount.

Exhibit 2

General Housing Policy Terms

Brooke Amendment: The Brooke Amendment to the 1968 Housing and Urban Development Act was enacted in 1969. It amends the United States Housing Act of 1937 to cap subsidy households' tenant rent share at 25 percent of their adjusted income. This percentage was raised to 30 percent in 1981.

Brooke Rent: Thirty percent of adjusted income that households pay toward their gross rent.

Section 8 Housing Choice Voucher Program (HCV): The HCV program is the federal government's primary rental subsidy program, assisting approximately 2.2 million low-income households in paying for housing in the private rental market. HCV households generally pay 30 percent of their income toward rent, and HUD subsidizes the remaining amount of the households' rent up to a certain threshold based on area housing costs. The HCV program was enacted as Section 8 of the United States Housing Act of 1974.

The Santa Clara County Housing Authority Rent Reform

Until September 2013, SCCCHA required its tenants to pay 30 percent of adjusted income for rent (plus any amount over the payment standard). Then, in response to federal budget cuts resulting from the sequestration in March of that year, SCCCHA increased tenants' share to 35 percent of gross income. Under traditional rent rules, income is first adjusted by subtracting various allowances and deductions—including dependent and childcare allowances and deductions for medical expenses—and then multiplying the adjusted income by 30 percent to arrive at the TTP. Under the new rules, TTP was a flat 35 percent of the household's gross income with no allowances or deductions.⁷ SCCCHA estimated that this changed households' rent contributions from 27 to 35 percent of gross income (HACSC, 2013). In addition to eliminating deductions and allowances, SCCCHA also eliminated utility allowances, so that households do not receive an extra subsidy for utilities that are not included in their contract rent.⁸ In effect, those households were paying more than 35 percent of their gross income. In September 2014, when the budget situation improved,

⁶ See exhibit 2 for definitions of general housing policy terms used in this report.

⁷ SCCCHA has a minimum tenant rent contribution of \$50 that was in place before the rent reform (and before the beginning of the study period). Under both traditional and new rent rules, the tenant rent share is the greater of the calculated percentage of income or the \$50 minimum rent.

⁸ Under the traditional rent rules, for units where utilities are not included as part of the contract rent, a utility allowance is added to the contract rent amount to calculate the gross rent. The HAP calculation is then based on this gross rent amount rather than the contract rent amount and equals the gross rent minus the household's TTP (assuming the unit does not exceed the payment standard). Using the new rent calculation rules, HAP is calculated as the contract rent minus the household's TTP (again, assuming the unit does not exceed the payment standard).

the percentage of gross income to be contributed was reduced from 35 to 32 percent. As a result of the policy change, therefore, the overall tenant contribution was drastically increased in 2013, then slightly decreased a year later.

Exhibit 3 shows TTP as a percentage of gross income in the last month before the policy change and over the followup period for the study cohort (all nonelderly, nondisabled households), which is the measure that most directly reflects the rent policy changes over time.⁹ This measure reflects the *treatment* whose effects are evaluated in this study. In the month before the rent reform was implemented, the 30 percent of adjusted income that households were paying toward rent (up to the unit's payment standard) under the traditional rent rules translated, on average, to 27 percent of gross income. The actual percentage during this month was 30.6 percent because this average includes households for whom 30 percent of adjusted income (or 10 percent of gross income) is less than the PHA's minimum rent. At the end of the first year after rent reform, tenants' TTP was on average equal to 37.8 percent of their gross income.¹⁰ It decreased slightly to 35.1 percent in Year 2 because of the reduction in TTP from 35 to 32 percent of gross income 1 year after the rent reform was first implemented.

Exhibit 3

Total Tenant Payment as a Percentage of Monthly Gross Income Among Nonelderly, Nondisabled Households Receiving Subsidies 2013 to 2016

TTP Among Households Receiving Subsidies (% of Monthly Gross Income)	SCCHA
Last Month of Baseline	30.6
Last Month of Year 1	37.8
Last Month of Year 2	35.1
Last Month of Year 3	34.3
Sample Size	7,109

SCCHA = Santa Clara County Housing Authority. TTP = total tenant payment.

Notes: Samples consist of households headed by adults who were not elderly or adults with disabilities. Sample sizes may vary by year because of missing values. TTP is the minimum amount a family must contribute toward rent. Outcomes shown describe only those households receiving any housing subsidies in the specified month.

Source: MDRC calculations using HUD Public and Indian Housing Information Center data

While SCCHA increased the tenant contribution rate, it also changed its policy for determining a household's voucher size. The new policy allocated one room for the head of household (with spouse or partner) plus one additional bedroom for every two persons regardless of age, generation, relationship, or gender. Before this policy change, the household members of different generations (such as grandparents and their grandchildren), of the opposite sex over the age of 5, and unrelated adults (other than significant others) were allocated separate bedrooms. For example, a household that included a household head, her 7-year-old daughter, and her 9-year-old son would have had a voucher size of three bedrooms using the old rule and a voucher size of

⁹ This measure is only available for households in the study cohort who are receiving subsidies at the time.

¹⁰ Again, this percentage is higher than 35 percent because for some households, 35 percent of gross income was below the minimum rent.

two bedrooms under the new policy. This policy change decreased the voucher size for 23 percent of nonelderly, nondisabled households served by SCCCHA. In other words, under the new policy, 23 percent of the study cohort's voucher households were housed in a unit where the number of bedrooms exceeded the number of bedrooms on their vouchers. For these households, if they did not move before the effective date of the new policy, their expected tenant contribution would sharply increase because their subsidy was now based on the fair market rent (FMR) for a smaller unit than the one they occupied.

In anticipation of the potential hardship that HCV households might face because of the rent reform, SCCCHA offered two means of assistance: hardship exemptions for households that experienced a sharp increase in rent share because of the new rent calculation, and financial and legal assistance for households at risk of eviction due to the rent reform.

The hardship exemption policy allowed households to have childcare or medical deductions temporarily included in the calculations for their TTP. These expenses were deducted from the household's gross income (the exemption did not include other deductions, such as the dependent deduction). A household was eligible to apply for a hardship exemption if its monthly rent portion increased by at least \$50 because of the new rent calculation method. Since the households with larger deduction amounts were most affected by the rent reform, eligible households consisted mostly of households with children under the age of 13 that were paying for childcare, or elderly and disabled households. Hardship exemptions were granted to 414 households (out of 754 requested), most of them immediately after the rent reform went into effect.¹¹ Households that were granted the exemption paid the lower TTP for 90 days, after which it was reset to the regular amount under the new rent rules, based on 35 percent of the household's gross income with no deductions.

SCCCHA also collaborated with the Law Foundation of Silicon Valley and other local organizations to create the Sequester Eviction Prevention Program (SEPP) to assist HCV households that were facing eviction because of the SCCCHA rent reform. The program provided financial assistance to cover unpaid rent or to cover a security deposit if a household had to move because of the rent reform. The program also included free legal services to prevent eviction. While the program was primarily designed to assist households affected by the voucher size rule change, the program was open to any household facing eviction because of an inability to pay the higher rent under the new rent policy. Households that experienced a substantial increase in their rent share (at least \$300 monthly), or that were otherwise at risk of eviction because of the rent reform, were eligible to receive assistance from the program. SCCCHA committed \$500,000 of MTW funds for SEPP, which was supplemented with additional funds from the county of Santa Clara, the city of San Jose, and the Housing Trust Silicon Valley, for a total funding commitment of \$1,820,000. Of this committed funding, \$808,078 was spent on the program, and all payments were made by August 2014. The program assisted 293 households comprising 805 people, including 260 households in the study cohort.

¹¹ The total of 414 hardship exemptions includes exemptions for all households regardless of elderly or disabled status. SCCCHA did not track the elderly and disabled status of households granted hardship exemptions, so it is unknown how many of these households are in the study sample, which only includes nonelderly, nondisabled households and individuals.

To avoid terminating the participation of some households in the HCV program due to budget cuts, SCCHA chose to increase the tenant contribution rate.¹² SCCHA assumed that this would not reduce tenants' employment and earnings, which would have made the policy change counterproductive.¹³ In fact, SCCHA did not know how its policy would affect HAP expenditures, households' employment decisions, and hardships, and SCCHA could not rely on previous experience. The present study is the first study of the effects of increasing the tenant contribution rate in a housing subsidy program.

Existing Evidence About the Effects of Housing Subsidies on Employment and Earnings

Given the increase in the percentage of income that tenants paid toward rent under the new SCCHA rent policy, there was a risk that tenants might reduce their earnings, which would have resulted in SCCHA having to increase the subsidy levels, effectively counteracting the HAP savings the housing agency hoped to achieve. The economic theory behind these expectations is not straightforward, however. Economic theory suggests that, on the one hand, increasing the percentage of income that tenants pay toward rent can reduce employment in response to the increased "tax" on their earnings (the "substitution effect" in labor economics). The tenants would gain less disposable income with each extra hour of work than they would have in the absence of that tax. On the other hand, households might increase their employment to compensate for the reduction in their subsidy and maintain the level of disposable income they had before the policy change (the "income effect" in labor economics).

Before this study, existing evidence was limited to studies about providing housing vouchers to households that had not been receiving housing subsidies. For such households, both the income and substitution effects point to housing subsidy receipt as a work disincentive.¹⁴ The income effect suggests that providing housing subsidies can reduce employment among recipients by increasing households' disposable income because the subsidy covers a large part of the housing costs for which households were previously paying. The substitution effect suggests a further disincentive to work by imposing an implicit "tax" on their earnings since the 30-percent-of-income rule for determining tenant rent share means that households would only "take home" 70 cents for every dollar they earn. (This tax is in addition to the explicit taxes that earnings bring.) This "tax" is effectively an increase from 0 to about 30 percent of the households' income when they begin receiving subsidies.

Three large-scale random assignment studies conducted in the past decade provide reliable evidence on new housing subsidies' effects on households' employment behavior and suggest some disincentive effect on employment and earnings consistent with the economic theory described

¹² SCCHA also put a freeze on issuing new vouchers at the time of the 2013 rent reform, so households that left the program after the rent reform was first implemented were not replaced in the subsidy program for a few years. There were two exceptions: an allotment of 500 vouchers issued to waiting list applicants in 2015 and an allotment of 500 vouchers issued to the chronically homeless in 2016. The voucher freeze was lifted at the end of February 2017.

¹³ It was confirmed in phone calls with the executive staff at SCCHA that the estimates of HAP savings that they calculated before implementing the rent reform did not account for any potential reductions in earnings from the reform.

¹⁴ See Shroder (2012) for a discussion of these and other factors and a literature review up to 2012.

above. The first of these recent studies is the random assignment evaluation of the Welfare to Work Voucher (WtWV) program, which studied the effects of receiving housing vouchers for households selected from the HCV waiting list that were receiving or had received Temporary Assistance to Needy Families (TANF). The study found that households randomly assigned to receive a housing voucher worked less than households that were randomly assigned to the control group, but only during the first year following random assignment (Mills et al., 2006). A later study leveraged a lottery used by the Chicago Housing Authority Corporation to allocate newly available housing vouchers in 1997 (Jacob and Ludwig, 2012). This natural experiment found more persistent negative impacts on labor supply. The study found that receiving a voucher caused subsidy recipients to reduce their employment by 6 percent (4 percentage points) and reduce their quarterly earnings by 10 percent (\$329 in 2007 dollars). The Chicago study found that the impacts were significantly larger for households that were not receiving TANF than for those that were, which may be an important reason their results differed from those of WtWV (whose sample consisted of all TANF recipients and found less negative impact on employment).¹⁵

The most recent of the three studies, the Family Options Study, offered vouchers to homeless families as one arm of the intervention. This study also found that housing vouchers reduced employment for voucher recipients. In the short-term, 11 percentage points fewer households who were randomly assigned to receive housing vouchers were working than was the case for households that were randomly assigned to the study's control group. (Fifty percent of the intervention group had any employment during the first year after random assignment compared with 61 percent of the control group.) After 3 years, this difference fell to 6 percentage points (64 percent of treatment group members had any employment in the prior year and a half compared with 58 percent in the control group) (Gubits et al., 2015, 2016).

In all three of these studies, randomly selected households were given access to housing subsidy programs that used the traditional 30-percent-of-income rent rule. Therefore, as described earlier, these studies estimated the effects of providing housing assistance to households that were not yet receiving any assistance. That research question is somewhat distinct from the question addressed by this SCCHA study, which examines the effects of changing rent policies for households that are already receiving housing assistance under the traditional rent rules. Also, while the earlier studies provide evidence for a potential work disincentive from obtaining a housing voucher at least in the short term, this evidence does not necessarily imply that reducing the housing subsidy (as in the SCCHA rent reform) would provide an incentive to work.

The SCCHA rent reform provided an opportunity to bring empirical evidence to bear on these economic theories. Would nonelderly, nondisabled adults respond to the increased tenant contribution rate by working less, because they could keep less of their earnings? Or would they increase their earnings to compensate for lost income? The net outcome would depend on which of the two effects is dominant. Households may also respond by maintaining their earnings levels and

¹⁵ Both the WtWV and Chicago studies found that estimated effects varied according to several baseline characteristics, including household size and age of the household head. In Chicago, Jacob and Ludwig (2012) used their employment and income findings to estimate an income elasticity of -0.09 and a compensated wage elasticity of 0.15. In this case, the response of individuals determined by the elasticity of substitution was more important than the one caused by the elasticity of income.

managing higher housing costs by reducing other spending or incurring debt. The present study is the only study to date to assess the effects of increasing the percentage of income that tenants pay toward rent in a housing subsidy program. It estimates the effects on tenants' employment behavior and housing subsidies and examines tenants' rent burden levels after the policy change was implemented.

Research Design

This study aimed to answer the question: *How does an increase in tenant rent share affect HUD-assisted tenants' work and earnings, and how does it affect housing?* This overarching question can be answered through careful consideration of the following specific research questions:

1. What was the effect of the SCCHA rent reform on household members' employment and earnings?
2. What was the effect of the SCCHA rent reform on housing assistance subsidy amounts and continued housing subsidy receipt?
3. Was there any suggestion of potential effects of the SCCHA rent reform on households' housing decisions?
4. To what extent did SCCHA households experience selected housing-related hardships after the rent reform?

These research questions are first addressed for the full study sample of nonelderly, nondisabled adults living in HCV-subsidized households. The study then explores whether these effects differ for households only affected by the increase in the tenant contribution rate (77 percent of the study sample) and for the households affected by the change in the voucher size policy in addition to the increase in the tenant contribution rate (23 percent of the study sample).

Effects on Employment and Earnings

The primary research question for this study is: "How did the SCCHA policy changes affect HCV subsidy recipients' employment and earnings?" Adults in subsidy households who were able to work could have responded to the rent reform by changing their work behavior to adjust their earnings (and therefore adjust their tenant contribution amount and net income) in three ways:

1. Households may have *increased* their employment and hours worked in response to the policy change. Doing so could increase their earnings, compensating for all or part of the reduction in disposable income so they would experience less change in their standards of living.
2. Households may have *maintained* their current levels of employment and hours worked (by choice or not), either finding a way to manage with less disposable income or perhaps experiencing increased material hardship.
3. Households may have *reduced* their employment and earnings in response to the increased disincentive to work, namely the increased "tax" on earnings, reflecting the fact that they got to keep less of each dollar they earned than they did under the former policy.

In the first two scenarios, HAP expenditures would have decreased in the amount estimated by SCCHA, and their expected savings would have been realized.¹⁶ If instead, households reduced their employment in response to an increase in the percentage dedicated to rent (the third scenario), HAP expenditures would not have decreased as much as expected, and SCCHA would not have met its budgetary targets. Depending on the extent of the reduction in employment, HAP expenditures might even be greater than previous levels, and the policy change would have been counterproductive.

These different forces could have immediate effects (someone could reduce the number of hours worked because of the increased implicit tax on earnings), or they could affect employment decisions later in the followup period (someone could choose not to accept an opportunity to increase working hours because the increase in net income would not be as large as it would have been under the previous rent policy). It is also possible that households responded to the increased tenant contribution rate differently over time. For example, households may have first responded to the unanticipated income shock by working more to compensate for the lower-income and to maintain longer-term financial commitments, but over time they may have reduced their employment as they adjusted to the change, possibly down to their pre-2013 employment level, or even lower, in response to the increased “tax” on earnings. This study estimates the effects of the SCCHA rent reform on employment and earnings for the 4 years after the rent reform was implemented and therefore can capture both immediate and longer-term effects.

Effects on Average Housing Subsidy Amounts and Continued Housing Subsidy Receipt

As described in the previous section, the SCCHA rent reform could have led to various changes in households’ employment behavior. If many households had reduced their earnings in response to the rent reform, then average household HAP amounts may not have decreased substantially. In other words, the rent reform could have directly affected households’ subsidy levels through its change in the tenant contribution rate and indirectly affected households’ subsidy levels through households’ employment responses to the changes in their housing costs.¹⁷

¹⁶ The elimination of utility allowances may contribute to the income effect (as households may have to increase income to cover increased utility costs) but would not contribute to the substitution effect (reducing earnings would not increase HUD coverage of utility costs; it would only increase HAP to cover rent).

¹⁷ See exhibit 4 for definitions of subsidy outcomes included in the present study.

Exhibit 4

Definitions of Housing Subsidy Measures Used in This Study

Housing Assistance Payment (HAP): The amount that the public housing agency (PHA) provides in subsidy to pay for rent and utilities. It is calculated as the lower of (1) the payment standard for the family's unit minus TTP, or (2) the gross rent minus TTP. Under the Santa Clara County Housing Authority (SCCHA) new rent calculation rules, HAP is calculated as the lower of (1) the payment standard for the family's unit minus TTP, or (2) the contract rent minus TTP.

Total Tenant Payment (TTP): The minimum amount that the household must contribute towards rent and utilities. Under traditional rent rules, it is calculated as the greatest of (1) 30 percent of monthly adjusted income, (2) 10 percent of monthly gross income, and (3) the PHA minimum rent. Under the SCCHA new rent rules, it is calculated as the greater of 35 percent (or 32 percent, after July 2014) of monthly gross income and (2) the PHA minimum rent.

Tenant Rent Share: The household's total contribution toward the contract rent. For households living in units with contract rents at or below the payment standard, the tenant rent share is equal to the household's TTP. For households with contract rents that exceed the payment standard, the tenant rent share is calculated as TTP plus the amount by which the contract rent exceeds the payment standard.

Continued Subsidy Receipt: A household is classified as receiving housing subsidies if their HAP amount is greater than zero (in any PHA). If a household's income increases to the threshold where their HAP amount is zero because their calculated TTP is greater than the gross rent, they have a grace period of 180 days during which they are not receiving any subsidies but are still considered active in the program. If their income drops before their grace period ends, they can have their TTP recalculated and will begin receiving subsidies again. A household whose HAP is \$0 and is in their grace period is not classified as receiving any housing subsidies at that time.

Rent Burden: Rent burden is typically defined as the portion of a household's income used toward total housing costs, including rent and utilities. Because data on utility costs were not available for two PHAs in the sample, the present study uses an alternative measure of rent burden, which is calculated as the monthly tenant rent share (rent only, not including utilities) divided by the household's monthly gross income.

The SCCHA rent reform might also have caused households to leave the HCV program. The increase in the tenant contribution rate might have driven some households' HAP down to zero, leading them to exit from the HCV program. If the rent reform increased employment and earnings, some households might have "earned their way off of" housing subsidies (if their increased income effectively reduced their subsidy payments to \$0). Households whose HAP was significantly reduced, but not reduced fully to \$0, might have chosen to leave the HCV program because they found the smaller subsidy no longer justified the burden of staying in the program and complying with program rules. While there were strong reasons to expect direct effects on average household housing subsidy amounts (as discussed before), effects on receiving *any* housing subsidy ("attrition" from the program) would have been less direct.

Households' Housing Decisions While in the Voucher Program

In contrast with the housing subsidy amounts and receipt, which are near-term outcomes of the SCCHA rent reform, households' housing decisions are more removed, and the effects on these outcomes are less direct. The tenant contribution rate change could have encouraged households to seek other housing, if their gross rent was above the payment standard, in order to offset the increase in housing costs. The study explored whether households moved to smaller units, moved to different types of neighborhoods, or relocated to units outside the jurisdiction of SCCHA (defined as "porting out") and whether they changed their housing composition by adding or removing family members.

Household Rent Burden While in the Voucher Program

Because the policy change effectively reduced the subsidy amounts provided to households for rent, an important research question is whether the rent reform led to housing-related hardship. Due to data limitations, the study was able to examine rent burden over time on a descriptive level, but it could not measure other aspects of material hardship, such as rent arrears, evictions, food insecurity, inability to pay utility bills or medical expenses, and other important expenses. The study relied on conversations with SCCHA leadership and internal agency documents to explore the types of assistance SCCHA provided to alleviate housing-related hardship and prevent eviction due to the rent reform.

Effects for Households Affected by the Tenant Contribution Rate Change Only Versus Households Also Affected by the Voucher Size Rule Change

The hypotheses described earlier relate to the potential effects of the tenant contribution rate change. As noted earlier, 23 percent of the study sample of nonelderly, nondisabled HCV households in SCCHA were immediately affected, not only by the change in subsidy levels but also by the new voucher size policy. The new voucher size policy enforced a minimum of two family members per bedroom, excluding the head of household's bedroom, regardless of age, generation, gender, or relationship of the household members.

All households in both subgroups were affected by the tenant contribution rate increase; therefore, all households faced the potential earnings and employment incentives and disincentives, and all households whose rent exceeded the payment standard faced some incentive to move to a less expensive unit to offset higher housing costs. It is possible, however, that the rent reform's effects on employment and earnings for the subgroup of households affected only by the tenant contribution rate increase may have differed from the effects for the subgroup of households affected by both policy changes. Households also affected by the voucher size rule change might have stayed in their current units, and faced much steeper out-of-pocket housing costs, because they had to fully cover the difference between the new lower payment standard and the previous one, or they might have moved to a smaller unit whose gross rent exceeded the area payment standard by a larger amount than their previous larger unit. For these reasons, households in the double policy change subgroup could have had stronger incentives to change their employment behavior in addition to stronger incentives to move to a new unit. Furthermore, if double policy change households who did not move to smaller units were unable to afford their much higher rent shares, and this hardship led them to leave the subsidy program (either by voluntarily moving to a more affordable housing situation, like moving in with other family members or through eviction), the turmoil of their housing situation may also have affected households' employment and earnings.

Study Sample

The analysis sample includes all nonelderly, nondisabled households and individuals who were receiving HCV subsidies at the time of the SCCHA policy change in July 2013 from SCCHA or from one of the three selected comparison PHAs: the Housing Authority of the County of Alameda,

the Housing Authority of the County of San Mateo, and San Francisco Housing Authority.^{18, 19} The main criteria for the Comparative Interrupted Time Series (CITS) method used in this analysis is that the housing authorities' voucher holders must be subject to similar labor and housing market forces as those in SCCHA. The study considered local labor and housing market information, baseline earnings and employment levels and trends, and the characteristics of households in candidate housing agencies to select the sample. The process used for selecting these PHAs for the comparison group is described later in this article.

Exhibit 5

HUD Definitions of Sample Terms

Adult: An individual who is 18 years of age or older or a minor under the age of 18 who has been emancipated to act on his/her own behalf, including the ability to execute a contract or lease.

Household with Disabilities: A household where the head of household, spouse, or co-head is a person with a disability.

Elderly Individual: A person at least 62 years of age.

Elderly Household: A household whose head, co-head, spouse, or sole member is at least 62 years of age.

Quarterly and annual effects on employment and earnings were estimated for the cohort of all nonelderly, nondisabled *individuals* who were living in households receiving HCV subsidies at the time of the rent reform (July 2013). Annual effects on household subsidy amounts and continued housing subsidy receipt were estimated for the cohort of all nonelderly, nondisabled *households* receiving HCV subsidies from study PHAs at the time of the rent reform.

A different sample was required for the subgroup analysis that compares intervention effects on households that experienced only a change in the tenant contribution rate with households that were also affected by the voucher size rule change. The subgroup of SCCHA households affected by the voucher size rule change was identified by comparing households' voucher sizes at baseline (in early July 2013, before the rent reform was implemented) with their voucher sizes under the new policy. Using actual subsidy data, a simulation applied the new voucher size rules to each household according to its baseline unit size and household composition. A household was included in the subgroup of households affected by the voucher size rule change if its new rent calculation would use the payment standard of a smaller voucher size under the new policy. All other households were included in the subgroup of households that were only affected by the tenant contribution rate increase.

At the time of the SCCHA rent reform, only one PHA in the study sample other than SCCHA—the San Francisco Housing Authority (SFHA)—had not yet moved to a more conservative voucher size policy. Therefore, only SFHA could be included in the comparison group for this subgroup analysis. The method described earlier was used to identify the subgroup of households (based on baseline voucher size, unit size, and household composition) in SFHA that *would have been affected* by the new voucher

¹⁸ The study uses HUD's definitions of elderly and disabled households and adults. See exhibit 5 for definitions of these terms.

¹⁹ As described earlier, the SCCHA policy changes affected all HCV households, regardless of elderly or disability status. The study focuses on nonelderly, nondisabled households because elderly and disabled households would not have had the same flexibility to change their work behavior in response to the policy changes.

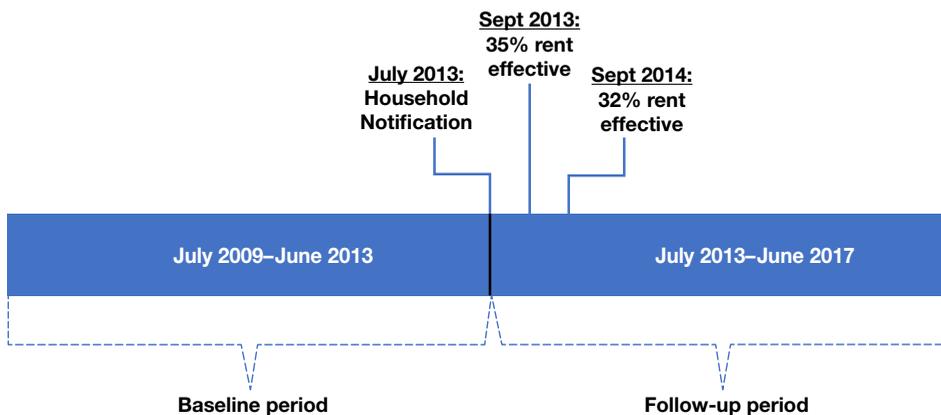
size rules if those rules had been applied to them. Twenty-three percent of nonelderly, nondisabled households in SCCCHA, and 21 percent in SFHA, were identified for this subgroup analysis. The subgroup analysis also differs from the main analysis in that, due to data limitations, the sample was defined at the household (not individual) level. The subgroup analysis estimates effects for adults living in nonelderly, nondisabled households—this group includes a small number of disabled and elderly individuals (approximately 5 percent of the sample) and excludes some nonelderly, nondisabled individuals who were living in households headed by an elderly or disabled person.

Study Period

The CITS design used in this study (described in detail later) requires a sufficient number of time points (ideally, at least 4 years) before the policy change in order to reliably estimate baseline trends. As exhibit 6 shows, the SCCCHA rent reform was implemented in early July 2013 (when SCCCHA sent letters to subsidy households notifying them of the rent reform and their new tenant rent share under the new rent policy), and the baseline period is defined as the 4 years before the start of the SCCCHA rent reform implementation: July 1, 2009, to June 30, 2013. The followup period includes the 4 years after the start of the SCCCHA rent reform and is defined as July 1, 2013, to June 30, 2017. In other words, the analysis used 4 years of historical (pre-rent reform) and 4 years of followup (post-rent reform) data on the study cohort to estimate the effects of the rent reform.

Exhibit 6

Timeline of Policy Changes



Source: Housing Authority of the County of Santa Clara, 2013

Data Sources

The study primarily relies on two data sources for understanding the rent reform’s effects on employment, earnings, housing subsidy receipt and amounts, plus housing characteristics: state unemployment insurance (UI) wage data and the HUD Inventory Management System/Public Indian Housing Information Center (IMS/PIC) data. It also uses other data sources—including U.S. Census Bureau data and internal SCCCHA documents and discussions with SCCCHA staff members—to provide context for these findings.

Employment and Earnings

Employment and earnings data obtained from the California Employment Development Department (EDD) consist of employer-reported UI wage data for all employment covered by UI in the state of California. These data do not include wage data for jobs outside of California, federal employment, or informal or self-employment not covered by UI.

The data are quarterly and were received in de-identified, aggregated form grouped to serve analysis purposes. The employment and earnings data for the main analysis (which estimates effects for all nonelderly, nondisabled adults receiving HCV subsidies) were grouped by PHA and whether individuals were elderly or disabled. These data were used to construct the average quarterly employment rate and average quarterly earnings measures. Since CITS analysis requires the calculation of a trend in the outcome over time, average quarterly earnings were adjusted for inflation to 2017 dollars using the U.S. Bureau of Labor Statistics Consumer Price Index (CPI).²⁰

For the subgroup analysis, which looks at effects on employment and earnings for adults living in households that were only affected by the increased tenant contribution rate separately from households also affected by the new voucher size policy, the sample was defined at the household level. The data were grouped by PHA, household elderly or disabled status, and whether the payment standard on which the household's rent calculation was based was reduced because of the new voucher size determination rules. Therefore, this analysis estimated effects on earnings and employment for all adults (regardless of elderly or disabled status) living in nonelderly, nondisabled households that were subject to the voucher size policy change. Employment and earnings measures were constructed in the same way as for the main analysis.

Housing Subsidies and Housing Characteristics

Quarterly IMS/PIC snapshot data were used to identify the study sample, to describe household and individual characteristics at the time of the policy change, and to create covariates for the impact models. Snapshot files from the second and third quarters of 2013 were used to identify which households in the selected PHAs were receiving subsidies on July 1, 2013, just before the SCCCHA rent reform was implemented.

IMS/PIC transactional data were used to investigate effects on housing subsidy amounts and housing subsidy receipt and to provide descriptive information on other housing variables, including rent burden and unit characteristics. The transactional files include a record for each certification that occurred during the study period. Monthly measures from July 2009 through June 2017 were created using these data. Data were acquired for all transactions recorded from January 1, 2009 (6 months before the study period) to establish baseline levels of all the housing-related measures.

The IMS/PIC data for the last year of the followup period (July 1, 2016, to June 30, 2017) did not benefit from updates recorded in the following year, nor from certifications that were recorded in the following year but effective during Year 4. Therefore, results using the fourth year of IMS/PIC data are not presented in this report, but the overall results using Year 4 data are reported in footnotes.

²⁰ All Urban Consumers (Current Series) database (<https://www.bls.gov/cpi/data.htm>).

MTW agencies have fewer 50058 reporting requirements and use a shortened 50058 form to collect data at each certification. It was necessary, therefore, to construct some measures that are available for traditional PHAs but are not included in HUD Form 50058 MTW: HAP, TTP, and family share. These measures rely on the payment standard at the time of the rent calculation, which is not included in the IMS/PIC data.²¹ MDRC collected payment standard amounts for the full study period from SCCHA and from the Housing Authority of the County of San Mateo (HACSM), one of the MTW agencies selected for the comparison group.²² Exhibit 7 describes how MDRC calculated the subsidy measures used in the analysis that were not already included in the IMS/PIC data.

Exhibit 7

Calculated Housing Subsidy Measures Used in this Study			
Measure	Definition	Calculation Method Used to Construct Measures for Analysis	
		Traditional PHAs	MTW PHAs
TTP	The minimum amount that the household must contribute toward rent and utilities	No calculation needed / Included in the IMS/PIC data.	Under traditional rent rules, it is calculated as the greatest of (1) 30 percent of monthly adjusted income, (2) 10 percent of monthly gross income, or (3) the PHA minimum rent. Under the SCCHA new rent rules, it is calculated as the greater of 35 percent (or 32 percent, after July 2014) of monthly gross income or (2) the PHA minimum rent.
HAP	The amount that the PHA provides in subsidy for rent and utilities	No calculation needed / Included in the IMS/PIC data.	Under the traditional rent policy, it is calculated as the lower of (1) the payment standard for the family’s unit minus the TTP or (2) the gross rent minus the TTP. For SCCHA households after the new rent policy went into effect, it is calculated as the lower of (1) the payment standard for the family’s unit minus the TTP or (2) the contract rent minus the TTP.
Family Share	The household’s total contribution (rent plus utilities) toward the gross rent	No calculation needed / Included in the IMS/PIC data.	For households with gross rent at or below the payment standard, the family share is equal to the household’s TTP.
Tenant Rent Share	The household’s total contribution toward contract rent	No calculation needed / Included in the IMS/PIC data.	TTP plus the amount over the payment standard that the household pays toward contract rent. (Contract rent is gross rent minus utilities.)
Rent Burden	Traditional definition: The total amount a household pays in rent and utilities (family share) as a proportion of household adjusted income	The total amount household pays in rent (tenant share) divided by household gross income.	

HAP = Housing Assistance Payment. IMS/PIC = HUD Inventory Management System/Public Indian Housing Information Center. MTW = Moving to Work. N/A = data not available. PHA = public housing agency. SCCHA = Santa Clara County Housing Authority. TTP = total tenant payment.

²¹ The payment standard amounts and the household HAP, TTP, family share, and tenant share of contract rent amounts are included in the IMS/PIC data for traditional PHAs.

²² The selection process for the comparison group is described in detail later in this chapter.

Accounting for utility allowances in this study posed measurement challenges. At traditional PHAs, if a tenant's contract rent does not cover utilities, the tenant receives a utility allowance from the PHA. The contract rent plus the utility allowance equals the gross rent for a unit, and HAP is calculated based on gross rent. MTW agencies have the option to eliminate or restructure their utility allowances, and one of the comparison agencies did so early in the study period.²³ Therefore, the calculation of HAP for that housing agency does not include utility allowances.^{24, 25}

To ensure that the measure of rent burden is consistent over time—both before and after the SCCHA rent reform—and that this measure is comparable between SCCHA and the comparison group PHAs—an alternative measure of rent burden that does not rely on the measurement of utility allowances is used. This measure is the tenant rent share (equal to the TTP plus any amount by which the *contract* rent, not including tenant-paid utilities, exceeds the payment standard) divided by the household's gross income.²⁶

A 40-percent rent burden is commonly used as the threshold for a high burden in the literature discussing HCV households (Dawkins and Jeon, 2017; Ellen and Torrats-Espinosa, 2017). The measure used in this study—the tenant rent share as a proportion of household gross income—departs from this standard definition in two ways. First, the threshold used is typically 40 percent of *adjusted* income—which would be a lower threshold than 40 percent of gross income. Second, the measure typically uses tenant rent share plus tenant-paid utilities as a proportion of household income. The measure in the present study uses tenant rent share and does not include tenant-paid utilities.

Neighborhood Poverty, Local Context, and Hardship Policies

To measure neighborhood quality, the study uses the census tract poverty rate. The poverty rate is the most widely used measure of neighborhood quality and distress (Galvez, 2010). The geocoded HUD IMS/PIC data were merged with U.S. Census Bureau data. The census-tract poverty rates (for individuals age 18 to 64 years) from either the 2007–2011 American Community Survey (ACS) 5-year estimates or the 2012–2016 ACS 5-year estimates, depending on the date that the record was entered, were merged with the census tracts in the IMS/PIC data. ACS data on county-level population and housing market data were used for comparison group selection. These measures included the median household income, median household rents, rental vacancy rates, housing unit density, population density, education levels, and racial and ethnic composition.

The study used two additional public data sources during the process of selecting the comparison group PHAs (described later). Public data from the California EDD website was one source for measures of labor information for 2012–2016 for the Bay Area counties where the PHAs

²³ HACSM restructured its utility allowances as part of a more comprehensive rent reform that introduced a tiered rent structure.

²⁴ SCCHA's elimination of utility allowances when it implemented its rent reform in 2013 does not pose problems for estimating impacts of the rent reform on housing subsidies because the calculations of HAP post-rent reform accurately reflect the exclusion of utility allowances.

²⁵ Several sensitivity analyses described in Castells (2020) confirm that results are not affected by the exclusion of utility allowances in the calculation of HAP at HACSM.

²⁶ For households whose tenant rent share (TTP plus the amount that the contract rent exceeds the unit's payment standard) exceeds their gross income, this measure is set to 100 percent.

in the present analysis were located.²⁷ The other source was 2013 data from the HUD Picture of Subsidized Households dataset, available publicly on the HUD website, to describe the characteristics of households living in candidate PHAs.

Lastly, the study relied on discussions with SCCHA leaders and internal SCCHA documentation to better understand PHA hardship policies and eviction assistance program and the overall policy and economic context at the time the rent reform was implemented.

Analytic Approach

A combination of analytic methods was used to assess the effects of the SCCHA 2013 rent reform, using the most rigorous approach feasible for each set of outcomes. Each method is explained narratively in what follows, and appendix B contains model specifications.²⁸ Exhibit 8 shows which outcome measures were used in each type of analysis, and which research questions they aimed to address.

Exhibit 8

Research Question	Outcomes by Analytic Approach		
	Comparative Interrupted Time Series	Autoregressive Difference-in-Differences	Descriptive (Exploratory)
What was the effect of the SCCHA rent reform on household members' employment and earnings?	Total annual earnings Average quarterly employment rate		
What was the effect of the SCCHA rent reform on housing assistance subsidy amounts and continued housing subsidy receipt?		Total Annual Housing Subsidy Received Any Housing Subsidies	Received Any Housing Subsidies Among Households Receiving Subsidies: <ul style="list-style-type: none"> • Total Tenant Payment (TTP) • Housing Assistance Payment (HAP) • Total Tenant Rent Share
Was there any suggestion of potential effects of the SCCHA rent reform on households' housing decisions?			Among Households Receiving Subsidies: <ul style="list-style-type: none"> • Neighborhood Poverty Rate • Total Number of Bedrooms • Ported Out to a Different PHA • Household Size
To what extent did SCCHA households experience selected housing-related hardships after the rent reform?			Rent Burden (Tenant Rent Share Contribution as Percent of Monthly Gross Income) Total Hardship Exemptions Granted (SCCHA only) Total Households Assisted with Eviction Prevention Assistance (SCCHA only)

PHA = public housing agency; SCCHA = Santa Clara County Housing Authority. Employment and Earnings—Comparative Interrupted Time Series

²⁷ Data were compiled from the “REPORT 400 C, Monthly Labor Force Data for Counties, Annual Average (Data Not Seasonally Adjusted)” reports, produced by the Labor Market Information Division of California EDD, available on the California EDD website: <https://www.labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html>.

²⁸ See Castells (2020) for more details on each of the analyses used in the present study.

Employment and Earnings—Comparative Interrupted Time Series

The most rigorous method used is a CITS analysis, which is a quasi-experimental design, used in this study to estimate effects on the study's key outcomes: employment and earnings.

The CITS analysis measures the impact of the SCCHA rent reform on earnings or on employment as the difference between the post rent reform SCCHA *deviation* from its pre-rent reform trend and the corresponding comparison group deviation from its pre-rent reform trend.²⁹ The focus of the present analysis is whether the SCCHA rent reform caused a deviation in predicted employment rates or average quarterly earnings for SCCHA's study cohort that differed from any deviation from predicted employment rates and average annual earnings for the study cohort at comparison PHAs.

The SCCHA rent reform meets important criteria for a successful CITS analysis. First, the policy change or changes must be consequential, capable of producing a substantial impact in a relatively short time. The reform was consequential in that it was expected to increase the average tenant rent share from 27 to 35 percent of gross income and decrease HAP payments by 12 percent. Second, the policy change must be implemented all at once for the entire study cohort. The rent reform affected all HCV households, and, according to the SCCHA, all households were notified and therefore potentially affected at the same time. Letters were sent out to households in the first week of July, and the changes went into effect on September 1, 2013. Third, for the comparison with other housing authorities to be valid, those housing authorities' voucher holders must be subject to similar labor and housing market forces as SCCHA (the baseline levels of employment and earnings do not have to be the same). The study used a systematic comparison group selection process that identified comparison PHAs that faced similar local economic forces during the study period.

The first step in the CITS analysis was to measure the average earnings or employment trajectory of all the nonelderly, nondisabled adults in households receiving subsidies in the SCCHA HCV program over the 4 years before its policy changes in 2013. This baseline trend was then used to extrapolate what earnings levels or employment rates would have looked like in the absence of the policy changes in 2013. The second step was to measure the earnings levels or employment rates after these changes occurred to estimate the magnitude and direction of any subsequent deviations from this baseline trend. A parallel analysis was conducted for comparison PHAs. The final step of the design was to measure the magnitude and direction of the treatment and control group *difference* in these estimated deviations from the trend. These observed differences represent the estimates of the impact of the SCCHA rent reform on individual earnings and rates of employment.

Subsidy Amounts and Receipt of Subsidy—Autoregressive Difference-in-Difference

An autoregressive difference-in-difference model was used to estimate effects on the average amount of subsidy that households received, and the percentage of households in the sample still receiving subsidies each year after the SCCHA rent reform was first implemented. Difference-in-difference estimation is also a rigorous, quasi-experimental design, but unlike a CITS analysis, it does not account for differences in baseline trends.

²⁹ See Somers et al. (2013) for a review of this method.

While the lack of 4 full years of historical data for the full study cohort ruled out using a CITS analysis for these outcomes, the comparison group selection process provides a reasonable level of confidence that the comparison PHAs had similar baseline trends in housing subsidy receipt and amounts and were subject to the same labor and housing market forces. It is important to remember the caveat that if there were any differences in the trends of these housing outcomes before the rent reform, those differences, rather than the policy changes, could be the cause of estimated impacts, or they could mask a true effect when none is detected.

Conceptually, autoregressive difference-in-difference measures the difference between the outcome of interest at the time of the policy change and the outcome at specific points during the followup period (for example, 1 year after the policy change) for both the treatment and comparison groups, and then compares those differences. Unlike a simple difference-in-difference model, however, the models used for this analysis are autoregressive in that they also control for preintervention values of the outcome measure. The model estimating effects on average HAP includes four covariates representing HAP amounts in the 4 years before the rent reform (for those households not yet receiving HCV subsidies in each of the 4 years, these values of HAP are \$0), along with four binary covariates indicating whether the household was receiving any HCV subsidy in each year before the rent reform. The model specifications for these autoregressive difference-in-difference models are provided in appendix B.

Descriptive Analysis of Rent Burden, Number of Bedrooms, Neighborhood Quality, and Household Size

The study describes outcomes that may reflect housing decisions that SCCHA households made in response to the rent reform and that reflect any subsequent housing-related hardship they may have faced, including rent burden, number of bedrooms, neighborhood quality, and household size. Average levels of these outcomes for the sample households in Santa Clara are compared with averages in the comparison group PHAs in the last month of baseline and annually thereafter. Discussions with SCCHA leadership provided information on safeguards that SCCHA offered to households severely affected by the rent reform.

The trends in the descriptive exhibits should be interpreted with caution because data are only available for households still receiving subsidies and therefore represent only a partial picture. Also, households that leave the subsidy program each year are likely to differ systematically from households that remain, meaning this picture gets less representative later in the study period as the percentage of households still receiving subsidies gets smaller.³⁰ The comparison group's outcomes are presented for context, but they should not be interpreted as counterfactual representations of the expected outcomes for SCCHA households in the absence of the rent reform.

The descriptive analysis serves two main purposes. First, it examines the averages in the housing subsidy outcomes as an additional check on the validity of the study. The SCCHA rent reform is

³⁰ Drawing conclusions from the patterns of these outcomes can be especially problematic if the rent reform had an effect on the proportion of households that lost their subsidies. While the analysis did not suggest an overall effect on households leaving housing assistance, the SCCHA rent reform may have influenced which types of households left the subsidy program during the followup, even if this change is not captured by the data on changes in the percentage of households receiving subsidies over time.

expected to have direct effects on households' housing subsidies. If there is no clear pattern of an increase in TTP and reduction in HAP (especially 1 year after the rent reform was implemented), the findings might call into question the face validity of the study—whether the SCCHA rent reform was implemented as expected and whether key outcomes are being measured correctly. Second, the analysis examines patterns in averages of housing outcomes during the followup period that may reflect households' responses to the SCCHA rent reform to see whether any stark deviations from pre-rent reform levels are evident, especially if this deviation does not exist in the comparison group. Even if such a stark difference is evident, however, it alone would not provide compelling evidence that the change was caused by the SCCHA rent reform. Instead, it would suggest that the rent reform may have led to changes in SCCHA households' housing decisions and may warrant further exploration in future studies with more rigorous methods directed to this question.

Single and Double Policy Change Subgroup Analysis

The subgroup analysis examines whether the effects of the SCCHA rent reform for the 77 percent of nonelderly, nondisabled households who were only affected by the tenant contribution rate increase (hereafter referred to as the “single policy change” subgroup) differed from that for the 23 percent of nonelderly, nondisabled households who were affected by both the increased tenant contribution rate and the reduction in voucher size (hereafter referred to as the “double policy change” subgroup).

Only one of the comparison PHAs—SFHA—could be used for the subgroup analysis comparison group. Analyses reported in Castells (2020) confirm that SFHA by itself would provide a valid comparison group for the subgroup analysis of impacts on earnings and employment. The CITS method used to estimate impacts on employment and earnings in the full study sample was used to estimate impacts for each subgroup in the smaller sample of households drawn from only SCCHA and SFHA.

The analyses showed, however, that the autoregressive difference-in-difference model used to estimate impacts on average household HAP and whether households were still receiving subsidies in the full sample would not be valid for the subgroup analysis using only SCCHA and SFHA. As explained in Castells (2020), it is possible to estimate how the effects of SCCHA's rent reform differ (in direction and magnitude) between the single and double policy change groups. These differential effects can be estimated by examining the difference in the separate estimated effects for the two subgroups. This method is known as a difference-in-difference-in-difference design and is presented in this article as an exploratory analysis for the present study.³¹

Comparison Group Selection

One of the main conditions for a CITS design to be an effective method for measuring the impact of the SCCHA rent reform is that the CITS comparison group be subject to labor and housing market forces that are similar to those for SCCHA. Because the present study identified comparison PHAs in the Bay Area in counties with similar labor and housing markets, one can be reasonably

³¹ See Wing, Simon, and Bello-Gomez (2018) for a description of this method.

confident that this condition is met.³² This condition is important for a CITS analysis because the mean outcome of the comparison group does not serve as the counterfactual outcome for the treatment group, as it does in most quasi-experimental methods. Instead, the *deviation* in the mean outcome of the comparison group from its estimated baseline trend serves as the counterfactual for the deviation of the mean treatment group outcome from its estimated baseline trend. Consequently, the difference between these two deviations from the trend identifies the impact of the SCCHA rent reform on the employment and earnings of SCCHA subsidy recipients.

In addition, it is desirable for the CITS comparison group to have baseline trends for the primary outcome measures (employment and earnings) that are similar to those for SCCHA and for the characteristics of their households to be similar to those of SCCHA residents. While these similarities are not necessary for a CITS analysis to produce valid impact estimates (because the CITS design implicitly controls for these baseline differences), the closer the alignment between the treatment and comparison groups on baseline levels and trends of earnings and employment, and the more similar the households in the two groups, the more one can be confident that the groups would respond similarly to changing local economic conditions.

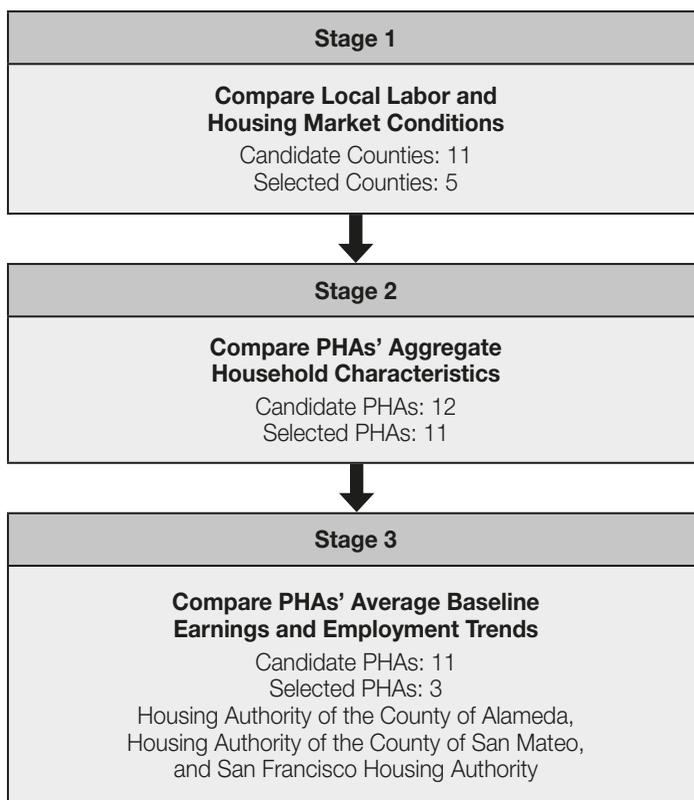
In contrast, the similarity of baseline trends is quite important for the difference-in-difference method used to estimate effects on housing subsidy levels and whether households continued to receive subsidies since this method does not account for any treatment and comparison group differences in baseline trends.

With the preceding considerations in mind, a three-stage process was used to identify PHAs to serve as the comparison group. As exhibit 9 illustrates, the first stage narrowed down the counties considered by examining the local labor market and housing market conditions. The map in appendix A shows the counties' locations in the Bay Area. The second stage examined characteristics of households in the remaining candidate PHAs to determine which differed appreciably from those in SCCHA. Last, baseline earnings and employment trends for the remaining pool of PHAs were examined to select those whose baseline trends were most closely aligned with the SCCHA baseline trends. Castells (2020) describes the details of each stage of the process, including the rationale for narrowing down the specific counties or PHAs at each stage.

³² While it would have been possible to identify PHAs in areas with similarly tight housing markets and strong labor markets, like New York City or Los Angeles, that closely match SCCHA in baseline characteristics and employment and earnings trends, selecting the comparison group PHAs from locations outside the Bay Area increases the likelihood that the comparison group PHAs experienced economic forces or policy changes that were different from those that SCCHA experienced during the study's followup period.

Exhibit 9

Comparison Group Selection



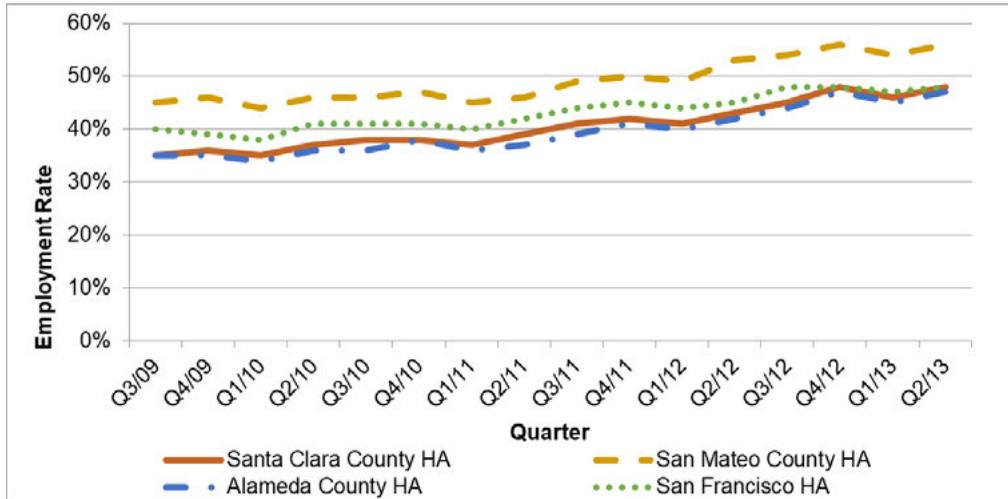
PHA = public housing agency.

Notes: Stage 1 conditions were calculated using county-level U.S. Census Bureau (2010), 2009–2013 American Community Survey 5-Year Estimates, and California Employment Development Department Monthly Labor Force Data for Counties (2012–2016) data. Stage 2 characteristics were calculated using HUD housing agency-level Picture of Subsidized Households (2013) data and HUD household-level Public and Indian Housing Information Center data. Stage 3 trends were calculated using California Employment Development Department's individual-level aggregate unemployment insurance data. Trends were calculated across the 4-year period from July 1, 2009, through June 30, 2013.

Based on local labor and housing market conditions in candidate counties, and aggregate household characteristics in candidate PHAs, and most importantly, patterns of baseline employment and earnings among residents in candidate PHAs before the SCCHA rent reform, the sample was narrowed down to the three PHAs with trends most similar to Santa Clara's: The Housing Authority of the County of Alameda, HACSM, and SFHA. Exhibits 10 and 11 present these trends for Santa Clara and the selected counties.

Exhibit 10

Baseline Trends in Quarterly Employment Rates of Nonelderly, Nondisabled Adults in the Santa Clara County Housing Authority and Selected Comparison Housing Agencies



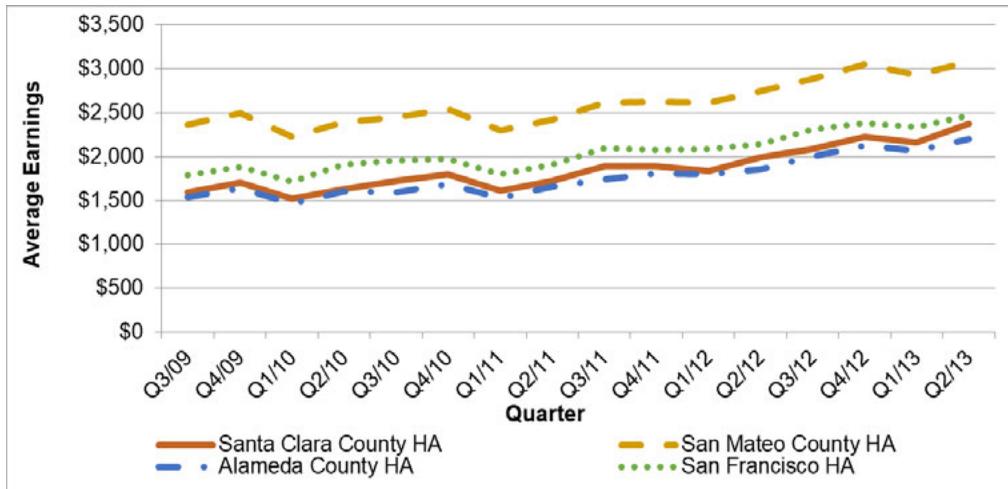
HA = housing authority.

Note: Sample consists of adults in the Housing Choice Voucher program who were not elderly or adults with disabilities.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

Exhibit 11

Baseline Trends in Average Quarterly Earnings of Nonelderly, Nondisabled Adults in the Santa Clara County Housing Authority and Selected Comparison Housing Agencies



HA = housing authority.

Notes: Sample consists of adults in the Housing Choice Voucher program who were not elderly and did not have disabilities. Earnings not adjusted for inflation.

Source: California Employment Development Department aggregate unemployment insurance data

Exhibits 12 and 13 presents baseline characteristics for households and individuals in SCCHA and the three selected comparison PHAs in early July 2013, just before the rent reform was implemented.³³ It shows that households in both groups have, on average, two adults, with more than one-half having more than one adult in the household, and 65 percent in both groups have children in the household. About 62 percent of study households in SCCHA and 60 percent in comparison PHAs have at least one household member who is working. In both groups, 23 percent of households are receiving TANF.

Exhibit 12

Characteristics of Study Nonelderly, Nondisabled Households at Baseline

Characteristic	SCCHA	Comparison PHAs
Average Number of Family Members		
Adults ^a	1.9	1.8
Children	1.4	1.3
Families with More than One Adult (%)	58.3	50.7
Families with Any Children (%)	64.7	64.6
Current/Anticipated Annual Family Income (\$)	17,368	18,525
Income Sources^b (%)		
Wages	61.7	60.4
TANF	23.2	22.9
Social Security/SSI/Pension	12.8	16.5
Other Income Sources	29.1	35.5
Average Monthly Family Share^c (\$)	523	561
Average Monthly Housing Subsidy^d (\$)	1,397	1,244
Monthly Gross Rent Exceeds Payment Standard (%)	53.2	56.7
Neighborhood Poverty Rate^e (%)		
0%–10%	41.5	41.8
11%–20%	40.1	47.2
21%–30%	14.3	8.1
More than 30%	4.1	3.0
Household Sample Size (Total = 15,499)	7,111	8,388

PHA = public housing agencies. SCCHA = Santa Clara County Housing Authority. TANF = Temporary Assistance for Needy Families. SSI = Supplementary Security Income.

^aAdults are defined as individuals age 18 and older who were not classified on the HUD-50058 form as a live-in aide.

^bIncome source categories are as defined on the HUD-50058 form. Wages include one's own business, federal wages, PHA wages, military pay, and other wages. Other income sources include child support, medical reimbursement, Indian trust/per capita, unemployment benefits, and other nonwage sources.

^cFamily share is the family's contribution toward the gross rent.

^dHousing subsidy is the full subsidy amount paid by the housing agency on the household's behalf. It includes any utility allowance payments made to the tenant in addition to rent paid to the owner by the housing agency.

^ePoverty rate is defined as the percentage of individuals ages 18 to 64 years whose income in the previous 12 months was below the poverty threshold.

Notes: Samples consist of households that were not headed by elderly adults or adults with disabilities. Sample sizes may vary because of missing values. Rounding may cause slight discrepancies in sums and differences. The set of comparison group public housing agencies (PHAs) includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Housing subsidy characteristics represent monthly averages. Utility allowance data were not available for San Mateo and are therefore not included in San Mateo's housing subsidy measures. Averages for the comparison group are weighted based on each PHA's sample size.

Sources: MDRC calculations using HUD Public and Indian Housing Information Center and 2009–2013 American Community Survey 5-year estimates data

³³ A more detailed set of baseline characteristics are presented in Castells (2020).

Exhibit 13

Characteristics of Study Nonelderly, Nondisabled Adults at Baseline

Characteristic	SCCHA	Comparison PHAs
Female (%)	63.9	66.3
Average Age (Years)	35.6	35.4
Race (%)		
White, non-Hispanic	9.4	16.7
Black, non-Hispanic	14.7	40.6
Asian or Hawaiian or Pacific Islander, non-Hispanic	34.7	21.2
Hispanic	40.4	20.1
Other Race or More than One Race, non-Hispanic	0.8	1.4
Income Sources^a (%)		
Wages	41.1	41.4
TANF	11.5	11.9
Social Security/SSI/Pension	1.8	4.2
Other Income Sources	14.3	21.0
Average Annual Income from Wages for Individuals with Any Wage Income (\$)	16,840	19,247
Individual Sample Size (Total = 34,075)	16,133	17,942

PHA = public housing agency. SCCHA = Santa Clara County Housing Authority. SSI = Supplementary Security Income. TANF = Temporary Assistance for Needy Families.

^aIncome source categories are as defined on the HUD-50058 form. Wages include one's own business, federal wages, PHA wages, military pay, and other wages. Other income sources include child support, medical reimbursement, Indian trust/per capita, unemployment benefits, and other nonwage sources.

Notes: Samples consist of adults who were nonelderly and did not have disabilities. Sample sizes may vary because of missing values. Rounding may cause slight discrepancies in sums and differences. The set of comparison group PHAs includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Averages for the comparison group are weighted based on each PHA's sample size.

Source: MDRC calculations using HUD Public and Indian Housing Information Center data

The two groups are also quite similar at the individual level. Exhibit 13 presents the baseline characteristics of nonelderly, nondisabled adults in the HCV program in SCCHA and the comparison PHAs. The sample is majority female (64 percent in SCCHA and 66 percent in comparison PHAs), and the average age is about 36 years old in SCCHA and 35 in comparison PHAs. Forty-one percent of adults in both groups were working during the last month of the baseline period, and 12 percent in both groups were receiving TANF. Average annual earnings were higher in the comparison PHAs: \$19,247 compared with \$16,840 in SCCHA.

Although both groups are racially and ethnically diverse, there are differences in their racial and ethnic compositions. SCCHA has a larger Asian population (35 percent compared with 21 percent in the comparison group) and a larger Hispanic population (40 percent compared with 20 percent in the comparison group). The comparison group PHAs have a higher White (17 percent compared with 9 percent in SCCHA) and Black (41 percent compared with 15 percent in SCCHA) population. As mentioned, while there are some differences in racial and ethnic composition between SCCHA and the comparison group, the fact that the trends in employment and earnings throughout the 4-year baseline period are similar provides assurance that households in both groups respond similarly to local economic forces despite these differences.

The fact that households in both groups live in tight housing markets is evident by their high level of average household subsidies: \$1,397 monthly for SCCHA households and \$1,244 for the comparison PHAs. Also, 53 percent of households in SCCHA and 57 percent in comparison PHAs have a gross rent that is greater than the payment standard. On average, households pay a total of \$523 monthly in SCCHA and \$561 in comparison PHAs toward their housing costs (rent plus utilities). Only a very small proportion of households (4 percent in SCCHA and 3 percent in comparison PHAs) live in neighborhoods with poverty rates greater than 30 percent. Most households (82 percent in SCCHA and 89 percent in comparison PHAs) live in neighborhoods with relatively low poverty rates of no more than 20 percent.

The validity of the CITS analysis that investigates the impact of the rent reform on employment and earnings is not based on how similar the comparison group is to the intervention group but on the level of confidence that the comparison group PHAs are subject to the same labor and housing market forces, and that they generally respond similarly to such changes. The baseline trends in employment and earnings presented in exhibits 10 and 11 provide a reasonable level of confidence that subsidy recipients in each of the two groups respond similarly to changing economic conditions. Even so, it is useful to note that the study households in the comparison PHAs are quite similar to the study households in SCCHA.

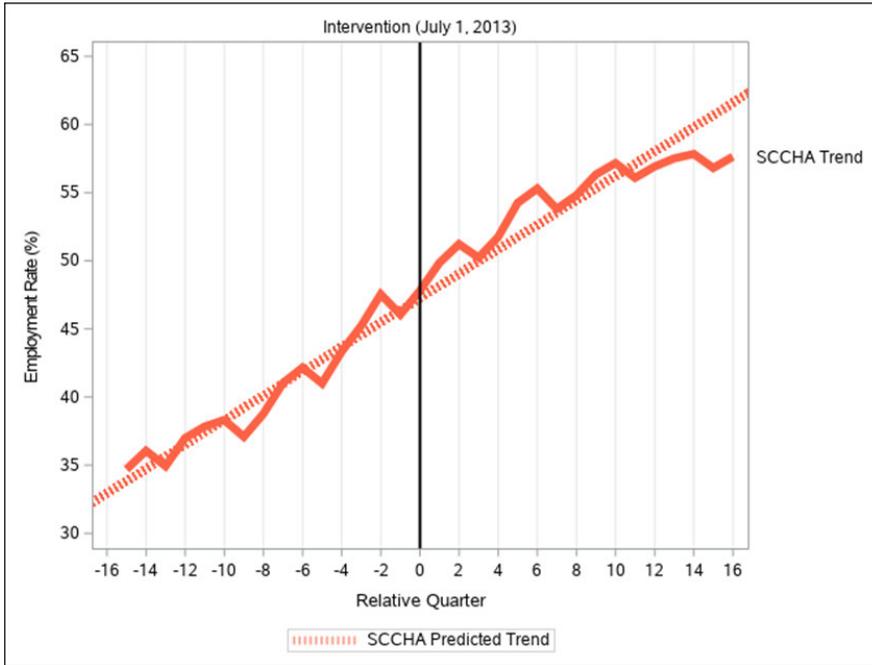
Findings

Impacts on Employment and Earnings

The CITS design tests whether the SCCHA rent reform caused a deviation from the predicted baseline trend in employment rates and average earnings for the nonelderly, nondisabled adults in the SCCHA HCV program. Exhibits 14 to 15 graphically illustrate this analysis. The first step in the CITS analysis was to use the observed quarterly employment rate of the adults in the SCCHA sample (the solid line in exhibit 14) over the 4-year baseline period before the SCCHA rent reform to measure the employment rate trend over those 4 years, which is shown by the dotted line over the same baseline period. This baseline trend was used to project what employment rates would have looked like for this SCCHA sample in the absence of the 2013 rent reform, as shown with the dotted line continuing throughout the 4-year followup period. The second step of the analysis was to measure the quarterly employment rates after the SCCHA rent reform (the solid line) to estimate whether there was a deviation from this baseline trend, indicated by the distance between the solid line during the followup period and the dotted line during the followup period. Visually, this gap indicates that employment rates were slightly higher than the trend would predict in the first 2 years of implementing the new SCCHA rent policies, and then somewhat lower.

Exhibit 14

Quarterly Employment Rates for Nonelderly, Nondisabled Adults in the Santa Clara County Housing Authority



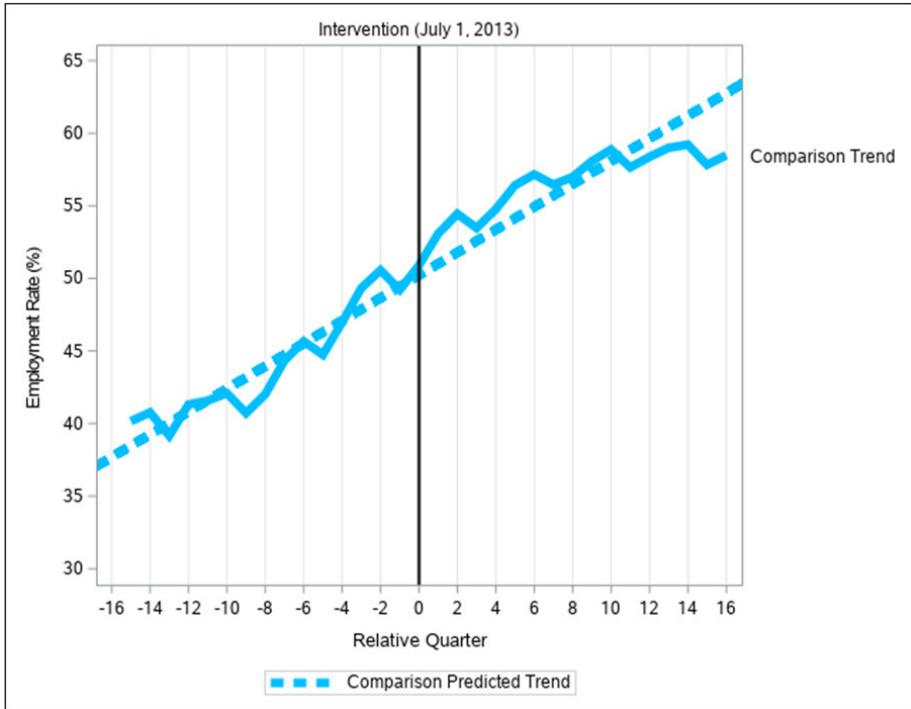
SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of adults who were not elderly and did not have disabilities. Impacts were estimated using a comparative interrupted time series model. Average quarterly earnings were adjusted for inflation to 2017 dollars using the Bureau of Labor Statistics Consumer Price Index.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

Exhibit 15

Quarterly Employment Rates for Nonelderly, Nondisabled Adults in the Comparison Group

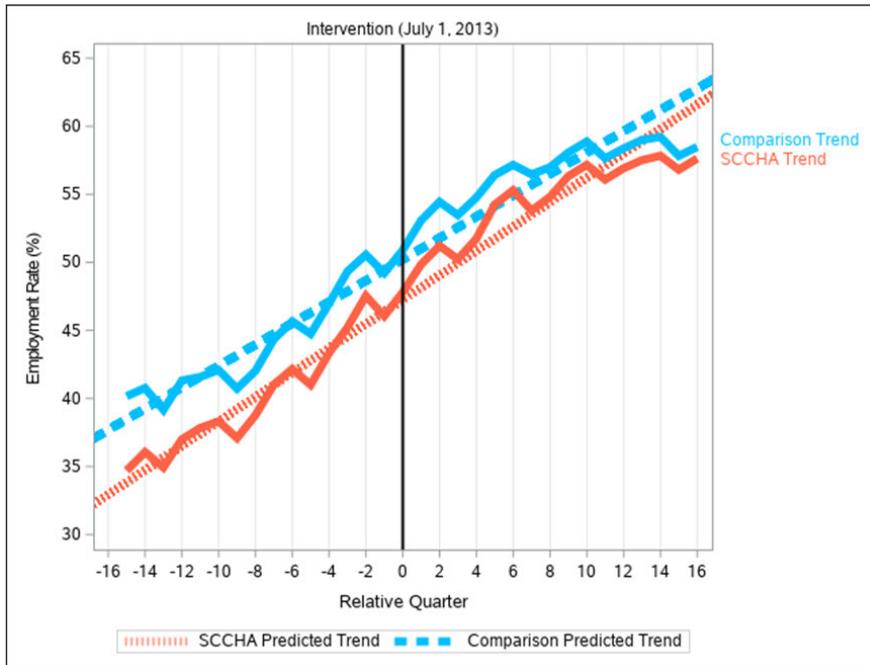


Notes: Samples consist of adults who were not elderly and did not have disabilities. The set of comparison group public housing agencies includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Impacts were estimated using a comparative interrupted time series model. Average quarterly earnings were adjusted for inflation to 2017 dollars using the Bureau of Labor Statistics Consumer Price Index.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

Exhibit 16

Quarterly Employment Rates for Nonelderly, Nondisabled Adults in the Santa Clara County Housing Authority and Comparison Group



SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of adults who were not elderly and did not have disabilities. The set of comparison group public housing agencies includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Impacts were estimated using a comparative interrupted time series model. Average quarterly earnings were adjusted for inflation to 2017 dollars using the Bureau of Labor Statistics Consumer Price Index.

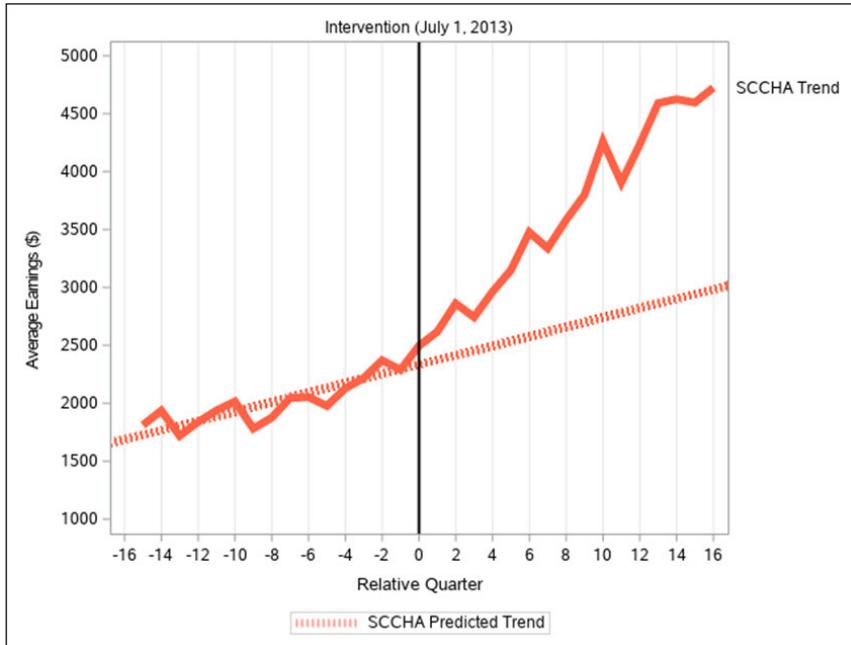
Source: California Employment Development Department individual-level aggregate unemployment insurance data

A parallel analysis was then conducted for the comparison group sample, illustrated in exhibit 15. The deviation of the actual employment rates from the predicted employment rates over the followup period looks similar to the deviation for SCCHA in exhibit 14. The final step of the analysis was to test whether the deviation in the employment rates for SCCHA was statistically discernible from the deviation for the comparison group PHAs. In other words, the differences in the deviations were examined. Exhibit 16 overlays the graphs for the SCCHA and comparison groups. Again, the relevant comparison is not between the two [solid lines], but between the two sets of deviations from each [solid line].

Exhibit 17 to 19 illustrate the same CITS analysis for average earnings. The difference between the gaps for the two groups was not statistically significant for either the employment rate or average earnings outcome throughout the followup period. The sharp upward trend in average earnings for both SCCHA and the comparison group reflect the rapidly growing local economy during the study, which covers a time period when the economy was rebounding from the 2008 recession, the overall median household income was accelerating more rapidly in the area compared with the rest of the state and the country, and where the latter half of the study period saw a series of increases in local (and state) minimum wages.

Exhibit 17

Average Quarterly Earnings of Nonelderly, Nondisabled Adults in the Santa Clara County Housing Authority



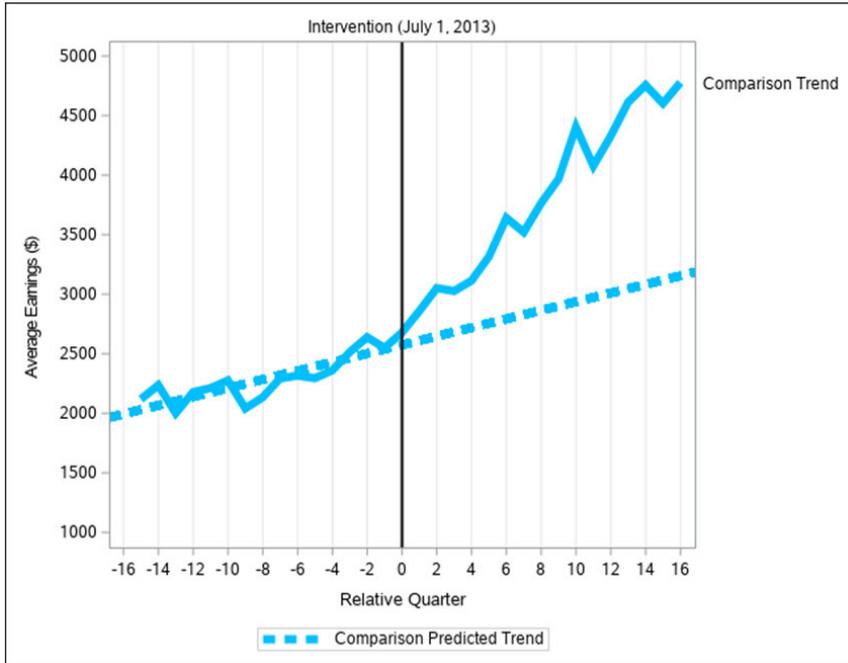
SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of adults who were not elderly and did not have disabilities. Impacts were estimated using a comparative interrupted time series model. Average quarterly earnings were adjusted for inflation to 2017 dollars using the Bureau of Labor Statistics Consumer Price Index.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

Exhibit 18

Average Quarterly Earnings of Nonelderly, Nondisabled Adults in the Comparison Group

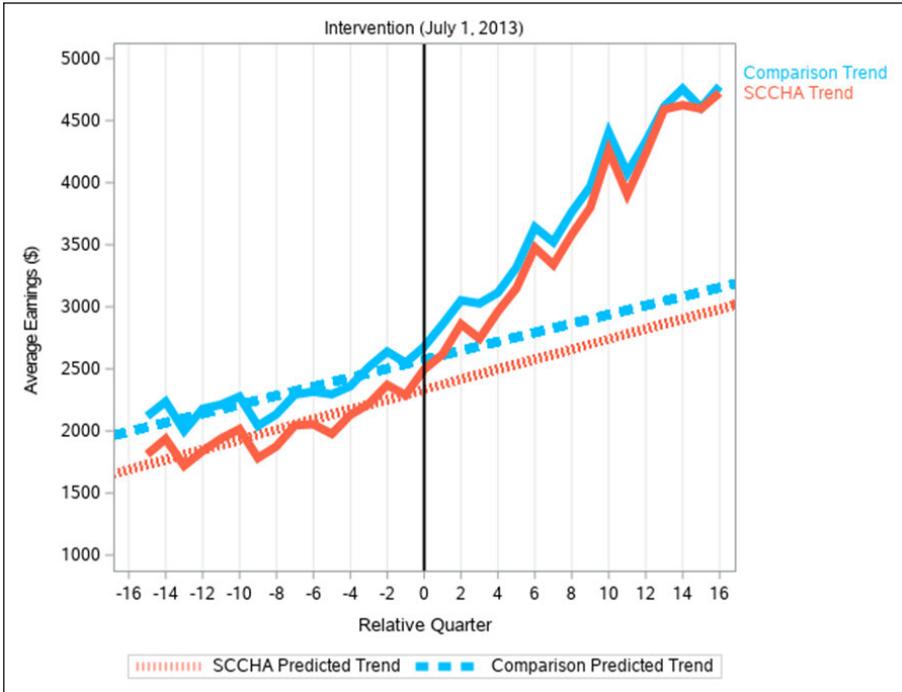


Notes: Samples consist of adults who were not elderly and did not have disabilities. The set of comparison group public housing agencies includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Impacts were estimated using a comparative interrupted time series model.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

Exhibit 19

Average Quarterly Earnings of Nonelderly, Nondisabled Adults in both the Santa Clara County Housing Authority and the Comparison Group



SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of adults who were not elderly and did not have disabilities. The set of comparison group public housing agencies includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Impacts were estimated using a comparative interrupted time series model. Average quarterly earnings were adjusted for inflation to 2017 dollars using the Bureau of Labor Statistics Consumer Price Index.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

Exhibit 20 presents the estimated effects of the SCCHA rent reform on average employment rates and average annual earnings for adults for each year of the followup period.³⁴ Yearly effects on employment rates for each year in the followup period were calculated by averaging the quarterly employment rate impact estimates across the four quarters in each followup year. Yearly effects on average earnings were calculated by summing quarterly earnings impact estimates across the four quarters in each followup year. Standard errors were computed accordingly.

The first column of results in exhibit 20, labeled “SCCHA Mean,” represents the average outcome for the study cohort in SCCHA. For example, the average quarterly employment rate in Year 1 (which is an average of the quarterly employment rate for each of the four quarters in Year 1) is 50.8 percent. In other words, 50.8 percent of the SCCHA households had some earnings in a given quarter, on average, in Year 1. The second column, labeled “Impact,” represents the estimated impact of the SCCHA rent reform. For example, the 50.8-percent employment rate observed

³⁴ See Castells (2020) for estimated quarterly impacts on employment rates and average earnings.

for SCCHA is estimated to be a 0.5 percentage point lower than what it would have been in the absence of the SCCHA rent reform. This impact estimate is an estimate of the true effect, which is unknown. The third column labeled “Std. Error” represents the standard error of the impact estimate, which measures the uncertainty which exists about its corresponding impact estimate. The final column reports the p-value of the impact estimate, which represents the likelihood that an estimated effect at least as large as the one observed would have occurred by chance if there was no true effect.

Exhibit 20

Impacts on Average Quarterly Employment Rate and Annual Earnings of Nonelderly, Nondisabled Adults

Outcome	SCCHA Mean	Estimated Effect	Std. Error	P-Value
Employment Rate				
Year 1	50.8	-0.5	0.9	0.604
Year 2	54.5	0.0	1.2	0.972
Year 3	56.6	0.1	1.5	0.929
Year 4	57.5	0.1	1.8	0.941
Earnings				
Year 1	11,187	46	349	0.897
Year 2	13,549	143	474	0.763
Year 3	16,198	200	597	0.738
Year 4	18,538	509	725	0.484
Sample Size				34,075

SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of adults who were not elderly and did not have disabilities. The set of comparison group public housing agencies includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Effects were estimated using a comparative interrupted time series model. All estimated earnings effects are reported in 2017 dollars. The p-value indicates the likelihood that the estimated impact (or larger) would have been generated by an intervention with zero true effect. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Source: California Employment Development Department individual-level aggregate unemployment insurance data

The results show no evidence of effects on the percentage of nonelderly, nondisabled adults who are employed or on their average earnings across the 4 years of followup. The estimated effects on both outcomes are small and not statistically significant. For example, in the first year after the rent reform, the estimated impact on average earnings was \$46, but this difference was not statistically significant. This estimate could be interpreted to mean that the SCCHA average quarterly earnings of \$11,187 for this first followup year was \$46 higher than it would have been in the absence of the rent reform. The magnitude of the effect is very small, however, and the standard error and p-values are very large, suggesting that this small difference is very likely due to chance. In other words, there is no evidence that the SCCHA rent reform caused a deviation from its predicted average earnings trend in the first year after the rent reform was implemented that was

appreciably different from deviation from the predicted average earnings trend for the comparison group during the same time period, where no rent reform was implemented. As exhibits 14 to 19 illustrate, employment rates and average earnings increased steadily throughout the 4 years following the SCCHA rent reform for both SCCHA and comparison group subsidy recipients.

Impacts on Housing Subsidies

The SCCHA rent reform was intended to directly decrease the average household HAP by increasing the tenant contribution rate from 30 percent of adjusted income to 35 percent of gross income, eliminating utility allowances for all households, and by reducing the voucher sizes for a smaller percentage of households (23 percent) by applying a new voucher size policy. This part of the analysis examines whether the rent reform did in fact decrease average household HAP and whether HAP remained lower over time. If households had reduced their earnings in response to the rent reform (there was no evidence they did so, as discussed in the previous section), the SCCHA HAP savings would have been smaller than what it had projected. The analysis also tested whether the SCCHA rent reform increased the rate of households leaving the HCV program. The rent reform could have caused attrition from the HCV program if it drove some households' HAPs down to zero, reduced subsidies to the extent that some households decided the subsidy no longer justified the hassles of complying with program rules or increased household rent burden to a level that was not sustainable for households.

Exhibit 21 presents the estimated effects of the SCCHA rent reform on the average amount of housing subsidy and the percentage of households receiving any housing subsidy at followup, using autoregressive difference-in-difference estimation. The findings in this exhibit can be interpreted in the same way as described in the previous section for exhibit 20, with the caveat that the research design used to estimate impacts for exhibit 21 is weaker and that less confidence should be placed in the estimates.

The average household housing subsidy in the month before the implementation of the rent reform was \$16,764 per year, or \$1,397 per month (as shown in exhibit 12). As expected, the SCCHA rent reform reduced the average amount of housing subsidy that households received. This effect is probably a direct result of the increase in the tenant contribution rate from 30 percent of adjusted income to 35 percent of gross income and the other policy changes implemented as part of the rent reform, which resulted in the PHA paying less of a subsidy on behalf of each household. In the first year, the average annual household subsidy was estimated to be \$1,593 less than it would have been in the absence of the rent reform. This annual effect is equivalent to \$133 monthly.³⁵ In the second year after the rent reform was implemented, when the tenant contribution rate was reduced to 32 percent of gross income, the effect was slightly smaller: the average monthly household subsidy was \$1,548 less annually, or \$129 less monthly,

³⁵ This first-year impact estimate does not account for a 90-day hardship exemption that allowed some households to deduct medical and childcare expenses from their gross income for their temporary HAP calculation. A total of 414 households were granted a hardship exemption, but this total includes elderly and disabled households. SCCHA did not retain data on the elderly and disabled status of these households, so the precise number of households in the study's nonelderly, nondisabled sample is unknown.

than it would have been in the absence of the rent reform. In the third year, the rent reform reduced annual HAP by \$1,329 and monthly HAP by \$111.^{36,37}

Exhibit 21

Impacts on Housing Subsidies of Nonelderly, Nondisabled Households

Outcome	SCCHA Mean	Estimated Effect	Std. Error	P-Value	
Total Annual Housing Subsidy (\$)					
Year 1	14,335	-1,593	65	0.000	***
Year 2	13,414	-1,548	99	0.000	***
Year 3	13,481	-1,329	123	0.000	***
Receipt of Housing Subsidy (%)					
Year 1	99.2	0.5	0.2	0.013	**
Year 2	92.9	-0.4	0.5	0.368	
Year 3	87.5	-0.9	0.6	0.137	
Sample (Total = 15,490)	7,109				

SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of households that were not headed by elderly adults or adults with disabilities. The set of comparison group public housing agencies (PHAs) includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Sample sizes may vary because of missing values. Effects were estimated using an autoregressive difference-in-differences model, controlling for the past receipt of housing subsidies and other baseline characteristics of sample households. To assess differences between the research groups, chi-square tests were used for categorical variables and two-tailed t-tests were used for continuous variables. The p-value indicates the likelihood that the estimated impact (or larger) would have been generated by an intervention with zero true effect. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. Utility allowance data were not available for San Mateo and are therefore not included in San Mateo’s housing subsidy measures.

Source: MDRC calculations using HUD Public and Indian Housing Information Center data

The bottom panel of exhibit 21 presents the estimated effects of the rent reform on whether households are still receiving subsidies at followup.³⁸ Overall, there is no clear evidence that the SCCHA rent reform had an effect on the percentage of nonelderly, nondisabled households that lost their subsidies. There was a small (0.5 percentage point) but statistically significant increase in the percentage of households continuing to receive subsidies in the first year of followup, but this effect is probably inconsequential because of its small magnitude and the fact that it disappears after the first year.³⁹ (This 0.5 percentage point impact estimate can be interpreted to mean that

³⁶ The effect continues to decrease in the fourth year, though this finding is likely due to the data limitation for Year 4 housing data described in the “Data Sources” section of chapter 2.

³⁷ Results from a sensitivity test that estimated effects on HAP using utility allowance imputations for HACSM in the HAP calculations had very similar results (Castells, 2020).

³⁸ Any household that is receiving a HAP amount greater than zero (in any PHA) is counted as still receiving a subsidy at that time. If a household’s income increases to the threshold where its HAP amount is zero because its calculated TTP is greater than the gross rent, the household has a grace period of 180 days during which it is still considered active in the program. If the household income drops during this period, TTP can be recalculated, and the subsidy can resume; otherwise, the household’s participation is terminated from the HCV program and would have to go back on the waiting list to rejoin if its situation changes. Households that leave the HCV program are included in the average with a subsidy amount of \$0. If 10 percent of the sample left the HCV program and the PHA replaced them all with new households, the subsidy receipt rate for the group would be 90 percent (not 100 percent).

³⁹ The statistical significance for an impact estimate of such a small magnitude reflects the high precision that exists when the mean of a binary outcome variable is near zero or one.

99.2 percent of the cohort of households who were receiving HCV subsidies from SCCHA when the rent reform was implemented in July 2013 still received subsidies during the first year after the rent reform was implemented, which is 0.5 of a percentage point more than what the percentage would have been in the absence of the rent reform.) Two years after the implementation of the rent reform, there was no difference between the percentage of households in the sample receiving subsidies in SCCHA and the percentage that would have been receiving subsidies in the absence of the rent reform. This remained true 3 years after rent reform was implemented.^{40, 41, 42}

The patterns in household housing subsidy outcomes over time align with expectations based on the nature and timing of the rent reform, indicating that the rent reform was implemented as intended.⁴³ The average household TTP and family share (TTP plus the amount by which a household's gross rent exceeds the payment standard) increased more steeply than they did for comparison group PHAs when the tenant contribution rate changed from 30 percent of adjusted income to 35 percent of gross income in the first year of the rent reform. The increase was tempered in the second year when the tenant contribution rate was reduced to 32 percent of gross income. As expected, the household HAP—which is directly related to the TTP in that a household's HAP decreases by the same amount that the TTP increases—mirrors these patterns in TTP and family share. Housing market trends are also reflected in these patterns of housing subsidy outcomes: housing prices were steeply increasing during the followup period, so there is a general upward trend in subsidies independent of any policy change (across both SCCHA and comparison PHAs) as payment standards increased in response.

Households' Housing Decisions and Rent Burden

The findings discussed so far show that SCCHA rent reform did not have an overall effect on tenants' employment and earnings and that it did lead to deep and lasting cuts in housing subsidies as intended. This section explores measures of households' housing characteristics over time to gain further insight into how households may have responded to the SCCHA rent reform and to describe households' levels of rent burden in the years following the rent reform. The rent reform could have encouraged households to seek other, less expensive housing, possibly with fewer bedrooms or in higher poverty neighborhoods in some cases, or to transfer to an area in the jurisdiction of a different PHA that still used traditional rent rules. These types of housing decisions would have tempered the increase in households' rent burden resulting from the reduction in housing subsidies.

The findings in this section should be interpreted with a great deal of caution. The exhibits in this section present average housing outcomes over time and causal inferences should not be drawn

⁴⁰ It also remained true 4 years after the rent reform was implemented. While the data limitations with the Year 4 IMS/PIC data would have affected measures of average subsidy amounts more than the measures of any subsidy receipt, the overall data limitations also reduce the reliability of this Year 4 impact estimate.

⁴¹ As a sensitivity test, logistic regressions were run to estimate effects on this dichotomous outcome. The results were very similar.

⁴² Results from a sensitivity test that included utility allowance imputations for HACSM in the HAP calculations were very similar in magnitude to these main findings except for the Year 1 impact estimate, which was smaller (but still positive) and was not statistically significant.

⁴³ Patterns in household housing subsidy outcomes over the study period are presented in Castells (2020).

from this descriptive analysis. Comparison group levels are presented to provide context for the SCCHA findings.

Households' Housing Decisions While in the Voucher Program

The patterns in measures related to households' housing decisions throughout the followup period give no obvious indication that households are, on average, relocating to poorer quality neighborhoods, moving to smaller units, moving to units outside the jurisdiction of SCCHA, or changing their household composition.⁴⁴ There was a general upward trend in households' neighborhood poverty rate over the followup period, suggesting that households that moved tended to move to poorer neighborhoods, but this trend also existed for households in the comparison group PHAs. The SCCHA households' average number of bedrooms dropped only slightly, from 2.7 to 2.6 bedrooms. (The comparison group's average number of bedrooms remained constant throughout the followup period.) There is also no strong indication that a significant portion of households changed their household composition by adding or removing household members in response to the rent reform. Household size decreased slightly over the followup period, but a similar trend is evident for the comparison group households. Last, there is no indication that a large portion of households chose to relocate to a unit outside the jurisdiction of SCCHA to avoid the higher out-of-pocket housing costs (defined as "porting out"); SCCHA had a lower rate of port-outs than the comparison group PHAs throughout the study period.

Household Rent Burden While in the Voucher Program

The lack of effects on employment and earnings discussed earlier in this chapter means that households were not increasing their incomes to cover their greater tenant rent share due to the rent reform. These findings suggest that households were absorbing their increased housing costs into their current budgets, either by reducing spending or incurring debt. Considering material hardship is therefore an important part of understanding the effects of a rent reform that increases the tenant contribution rate toward rent, but material hardship is only partially measured in this study. This section looks at patterns of rent burden over the study period to better understand the extent to which households' rent burdens increased after the rent reform was implemented.⁴⁵ As described earlier, the present study uses a measure of rent burden that is the tenant rent share (equal to the TTP plus any amount over the payment standard that the household pays toward the contract rent, not including tenant-paid utilities) as a proportion of the household's gross income.

Exhibit 22 shows patterns in households' rent burden from the last month of the baseline period (before the rent reform was implemented) through the 4 years of followup.⁴⁶ In the month before SCCHA's rent reform was implemented, the percentage of nonelderly, nondisabled households

⁴⁴ See Castells (2020) for details.

⁴⁵ As described earlier, this study focused on nonelderly, nondisabled households and individuals in the HCV program. Although it was not feasible to conduct an impact analysis for the cohort of elderly and disabled households and individuals in the HCV program due to the data limitations described earlier, the rent burden measure was available for this cohort. Castells (2020) presents the rent burden measures for the cohort of elderly and disabled households and shows similar patterns as the nonelderly, nondisabled sample, though the increases in the percent of gross income these households pay toward rent are not as steep.

⁴⁶ Castells (2020) presents alternative measures of rent burden, including average, median, and distributions of rent burden in the last month of baseline and of each followup year.

whose tenant rent share exceeded 40 percent of their gross income looked fairly similar to the percentage for the comparison group households; 12 percent in SCCHA and 14 percent in comparison PHAs were paying more than 40 percent of their gross income toward rent. In the first year following the implementation of the SCCHA rent reform, the percentage of households in SCCHA paying more than 40 percent of their income toward rent increased steeply from 12 to 30 percent, compared with a three percentage points increase for households in comparison group PHAs. These patterns largely held up during the second year; the differences declined in the third. That decline may not reflect a true decline in rent burden, if it was at least in part due to households with an extreme rent burden leaving the subsidy program (voluntarily or through eviction) and therefore not being counted in the averages. It is notable that a downward trend in the percentage of households exceeding this 40-percent threshold also existed for the comparison group in this subsample, possibly also because of the changing composition of households continuing to receive subsidies over time.

Exhibit 22

Rent Burden Among Nonelderly, Nondisabled Households Receiving Subsidies

Outcome	SCCHA	Comparison PHAs
Tenant Rent Share Exceeds 40% of Monthly Gross Income (%)		
Last Month of Baseline	12.3	14.0
Last Month of Year 1	30.1	17.4
Last Month of Year 2	30.5	14.2
Last Month of Year 3	19.4	11.2
Tenant Rent Share Exceeds 50% of Monthly Gross Income (%)		
Last Month of Baseline	8.9	9.6
Last Month of Year 1	21.4	11.9
Last Month of Year 2	21.9	9.3
Last Month of Year 3	13.9	7.7
Sample Size (Total = 15,490)	7,109	8,381

PHA = public housing agency. SCCHA = Santa Clara County Housing Authority.

Notes: Samples consist of households headed by adults who were not elderly and did not have disabilities. The set of comparison group PHAs includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Sample sizes may vary because of missing values. Outcomes shown describe only those households receiving any housing subsidies in the specified month. Utility allowance data were not available for San Mateo and are therefore not included in San Mateo's housing subsidy measures.

Source: MDRC calculations using HUD Public and Indian Housing Information Center data

Effects for the Single and Double Policy Change Subgroups

As described earlier, SCCHA implemented a new voucher size policy that enforced a minimum of two family members per bedroom, excluding the head of household's bedroom. Before this policy change, the age, generation, gender, and relationship of other household members were considered when determining voucher size. The group of households in SCCHA that were immediately affected by this change constituted approximately 23 percent of the nonelderly, nondisabled

voucher population. This section presents the findings of a subgroup analysis of the effects on earnings and employment and describes housing characteristics and rent burden separately for the households only affected by the tenant rent contribution increase (referred to as the “single policy change” subgroup) and households affected by the voucher policy change in addition to the tenant contribution rate increase (referred to as the “double policy change” subgroup).

The single policy change subgroup differed from the double policy change subgroup in some important ways. It is important to keep this in mind when interpreting the subgroup findings, as differences in effects between the two subgroups may not be entirely due to being differentially affected by just the tenant contribution rate versus both policy changes, but they may also reflect how different types of households respond to the policy changes. Exhibit 23 presents characteristics of households just before SCCHA implemented its rent reform for the single policy change and the double policy change subgroups separately. Households that were directly affected by the voucher size rule change tended to be larger and have more children than households that were only affected by the tenant contribution rate change. In SCCHA, the average number of household members is 3.7 for this subgroup (compared with 3.2 for the single policy change subgroup), and 77 percent of households in the double policy change group in SCCHA included children, compared with 61 percent in the single policy change subgroup. A slightly larger proportion of households in the double policy change subgroup in SCCHA had at least one adult working at baseline than those among the single policy change subgroup: 65 percent compared with 61 percent. The double policy change subgroup in SCCHA also had a higher level of out-of-pocket housing costs (\$574 monthly) than the single policy change subgroup (\$508 monthly) and a larger average subsidy (\$1,711 per month compared with \$1,304).⁴⁷

⁴⁷ See Castells (2020) for more detailed exhibits of baseline characteristics of households and adults in each of these subgroups.

Exhibit 23

Characteristics of the Sample at Baseline by Policy Group Nonelderly, Nondisabled Santa Clara County Housing Authority Households

Characteristic	Single Policy Change	Double Policy Change
Average Number of Family Members		
Adults ^a	1.8	2.2
Children	1.4	1.5
Families with More than One Adult (%)	53.6	74.1
Families with Any Children (%)	61.2	76.7
Current/Anticipated Annual Family Income (\$)	16,511	20,247
Income Sources^b (%)		
Wages	60.7	65.2
Temporary Assistance for Needy Families (TANF)	22.6	25.4
Social Security/SSI/Pension	11.2	18.0
Other Income Sources	28.1	32.4
Average Monthly Family Share^c (\$)	508	574
Average Monthly Housing Subsidy^d (\$)	1,304	1,711
Monthly Gross Rent Exceeds Payment Standard (%)	53.5	52.0
Neighborhood Poverty Rate^e (%)		
0%–10%	39.0	50.1
11%–20%	41.1	36.8
21%–30%	15.5	10.4
More than 30%	4.4	2.7
Household Sample Size (Total = 6,725)	5,183	1,542

SCCHA = Santa Clara County Housing Authority. SSI = Supplementary Security Income.

^aAdults are defined as individuals age 18 and older who were not classified on the HUD-50058 form as a live-in aide.

^bIncome source categories are as defined on the HUD-50058 form. Wages include one's own business, federal wages, public housing agency (PHA) wages, military pay, and other wages. Other income sources include child support, medical reimbursement, Indian trust/per capita, unemployment benefits, and other nonwage sources.

^cFamily share is the family's contribution toward the gross rent.

^dHousing subsidy is the full subsidy amount paid by the housing agency on the household's behalf. It includes any utility allowance payments made to the tenant in addition to rent paid to the owner by the housing agency.

^ePoverty rate is defined as the percentage of individuals ages 18 to 64 years whose income in the previous 12 months was below the poverty threshold.

Notes: Samples consist of households headed by adults who were not elderly and did not have disabilities. Sample sizes may vary because of missing values. Rounding may cause slight discrepancies in sums and differences. The set of comparison group PHAs includes the San Mateo County Housing Authority, the San Francisco Housing Authority, and the Alameda County Housing Authority. Housing subsidy characteristics represent monthly averages. Utility allowance data were not available for San Mateo and are therefore not included in San Mateo's housing subsidy measures.

Sources: MDRC calculations using HUD Public and Indian Housing Information Center and 2009–2013 American Community Survey 5-year estimates data

Subgroup Impacts on Employment and Earnings

The estimated effects of the SCCHA rent reform on employment rates and average earnings for the subgroup of individuals living in households that were affected only by the tenant contribution rate increase were very similar to the impact estimates for the full sample. There is no suggestion

of positive or negative effects on employment rates or average earnings for this subgroup. This is unsurprising, given that these households constitute 77 percent of the full study sample.

As exhibit 24 shows, households affected by the change in the voucher size policy *in addition* to the tenant contribution rate increase—the remaining 23 percent of the full study sample—showed a pattern of negative estimated effects on employment rates, but these estimates were not statistically significant. They were also not statistically significantly different from those for the single policy change subgroup. The impact estimates in the “single policy change” panel and the “double policy change” panel of exhibit 24 represent impact estimates using a CITS analysis for each subgroup separately and can be interpreted in the same way as the impact estimates in exhibit 20. Exhibit 24 contains an additional column labeled “Difference Between Groups.” This column presents the results of the statistical comparison between the *difference* in the impact estimates between the two subgroups. The numbers in the column represent the p-values, and the daggers represent the levels of statistical significance of the estimate of the difference in impacts.

There is some evidence, however, that the household members also affected by the voucher size rule change may have reduced their earnings in response to the rent reform. For this double policy change subgroup, average annual earnings were estimated to be lower in the first 2 years after the rent reform was implemented than they would have been in the absence of the rent reform, though these estimated effects were not statistically significant from zero. By the third year, SCCHA residents in this subgroup were earning \$2,220 less annually on average than they would have been in the absence of the rent reform, and this effect was sustained in the fourth year (when the estimated decrease was \$2,341). These third- and fourth-year effects are statistically significant at the 0.05 level. They are also statistically significantly different from the impact estimates for the single policy change subgroup at the 0.05 level.

As exhibits 14 to 19 from the full sample analysis illustrated, employment rates and average earnings increased over the followup period for both SCCHA and the comparison group. In the context of these earnings trends, an estimated negative effect on average earnings means that, although average earnings did increase over time for SCCHA subsidy residents, they did not increase as quickly or as much as they would have in the absence of the rent reform. An estimated negative effect on average earnings could be caused either by some SCCHA residents reducing their employment in response to the rent reform or by some SCCHA residents not obtaining employment or not increasing their hours or wages because of the rent reform.

Exhibit 24

Impacts on Average Quarterly Employment Rate and Annual Earnings of Adults in Nonelderly, Nondisabled Households by Policy Change

Outcome	One Policy Change Group				Two Policy Change Group				Difference Between Groups	
	SCCHA Mean	Estimated Effect	Std. Error	P-Value	SCCHA Mean	Estimated Effect	Std. Error	P-Value		
Employment Rate										
Year 1	49.9	-0.2	1.4	0.881	51.0	-1.3	1.3	0.323	0.573	
Year 2	53.1	-0.2	1.9	0.907	54.6	-1.7	1.7	0.322	0.560	
Year 3	54.9	-0.6	2.4	0.801	56.4	-3.5	2.2	0.112	0.374	
Year 4	55.6	-0.4	2.9	0.886	57.7	-4.2	2.6	0.112	0.334	
Earnings										
Year 1	11,223	111	496	0.824	11,572	-663	521	0.208	0.284	
Year 2	13,206	212	674	0.755	13,761	-960	695	0.172	0.228	
Year 3	15,618	223	859	0.796	16,206	-2,220	875	0.014	** 0.048 ††	
Year 4	17,606	736	1,046	0.484	18,487	-2,341	1,058	0.031	** 0.041 ††	
Sample Size				12,439					4,438	

SCCHA = Santa Clara County Housing Authority.

Notes: The comparison group public housing agency in this exhibit is the San Francisco Housing Authority. Effects were estimated using a comparative interrupted time series model. All estimated earnings effects are reported in 2017 dollars. The p-value indicates the likelihood that the estimated impact (or larger) would have been generated by an intervention with zero true effect. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent. A two-tailed t-test was applied to differences between the outcomes of the policy subgroups. Statistical significance levels for differences across subgroup impacts are indicated as: ††† = 1 percent; †† = 5 percent; † = 10 percent.

Source: California Employment Development Department household-level aggregate unemployment insurance data

This negative effect of the rent reform on average earnings for the households affected by both the tenant contribution rate change and the voucher size rule change seems at least partly due to the decrease in employment rates that the impact estimates (though not statistically significant) on employment rates suggest. The negative effect on employment and earnings for this subset of the sample did not occur immediately after the rent reform was implemented, suggesting that residents did not reduce their employment right away.

An exploratory analysis examined whether these employment and earnings effects may also be related to the double policy change households' housing experiences following the rent reform. The column labeled "Difference Between Groups" can be interpreted as the *difference* in impact estimates (the double policy change subgroup impact estimate minus the single policy change subgroup impact estimate). The column to the right of that column contains their p-values, which are marked with daggers to indicate the level of statistical significance.

The findings of this exploratory analysis suggest that households in the double policy change subgroup experienced much larger reductions in HAP than the single policy change group. Households in the double policy change subgroup experienced reductions in subsidies that were more than \$4,000 larger than the single policy change group in the first 2 years following the rent reform, and this difference declined somewhat in the third year. These differences in effects on

average HAP are statistically significant at the 0.01 significance level. The differential effects on continued subsidy receipt are not statistically significant between the two groups (although they approach statistical significance by the third year), but the pattern of these differential effects may suggest that the SCCHA rent reform led a small percentage of households in the double policy change group to leave the subsidy program or lose their housing subsidies. The timing of these estimated impacts on continued subsidy receipt aligns with the timing of the estimated negative impacts on employment and earnings for this double policy change subgroup, suggesting that they may be related. The patterns in housing subsidies for each of the subgroups (in relation to their corresponding comparison groups) aligns with these suggestive findings. HAP decreased significantly more, and tenant rent share increased significantly more, for the double policy change subgroup than for the single policy change subgroup. By the third year after the SCCHA rent reform was implemented, 86 percent of SCCHA households in the double policy change subgroup were still receiving subsidies compared with 91 percent in the comparison group.⁴⁸

Households' Housing Decisions and Rent Burden While in the Voucher Program by Subgroup

Households affected by only the tenant contribution rate increase may have had an incentive to move to a more affordable unit (whose contract rent exceeds the payment standard by a lesser amount than their current unit) to offset increases in housing costs. Households affected by the voucher size rule change, in addition to the tenant contribution rate increase, had an additional very strong incentive to relocate to smaller units to avoid the steeper out-of-pocket housing cost they would have faced if they remained in their units.

Especially in a tight housing market, finding a unit that is affordable may require moving to a more affordable neighborhood. The trends among both single policy change households and double policy change households look similar to each other: a slight increase in neighborhood poverty over the 3 years following the SCCHA rent reform that mirrors the full sample results. Similar to the full sample findings, the differences between each subgroup of SCCHA households and their corresponding comparison group households (whose trends fluctuate only slightly) are not stark, and it is impossible to draw any conclusion about effects from these purely descriptive data. The trends in the number of bedrooms over time suggest more strongly that households in the double policy change group moved to smaller units, with households' average unit size dropping from 3.4 to 3.2 bedrooms in the first year after the SCCHA rent reform was implemented, and then continuing to drop to 3.1 bedrooms by the end of the third year, compared with the single policy change comparison group, whose average remains steady at 3.1 starting before the SCCHA rent reform was implemented and remaining at 3.1 throughout the 3 years following the rent reform. For the single policy change group, the number of bedrooms remains steady both for SCCHA households and comparison group households. There is no apparent pattern of households changing their household composition following the policy changes for either subgroup.⁴⁹

One particularly striking pattern is that the double policy change households' tenant rent share (as measured by TTP plus the amount that the contract rent exceeds the payment standard) increased

⁴⁸ See Castells (2020) for more details.

⁴⁹ See Castells (2020) for details.

very steeply in the year following implementation of the rent reform for households continuing to receive subsidies compared with the single policy change subgroup. Tenants' rent shares increased slightly in the comparison groups for both the single and double policy change households. The SCCHA households' tenant rent share in the single policy change subgroup increased from \$447 to \$529 between the month before the SCCHA rent reform and 1 year later (which was a larger increase than the single policy change comparison group, as expected). In contrast, the SCCHA households' tenant rent share in the double policy change subgroup rose from \$511 per month just before the implementation of the rent reform to \$810 per month 1 year later. (Only a tiny fraction of households in the double policy change subgroup—0.3 percent—stopped receiving housing subsidies between these two time points, so these averages are a relatively reliable measure of the sample's housing costs.) Tenant rent shares did decrease in subsequent years (in part because of the reduction in tenant contribution from 35 to 32 percent of gross income), but they remained high. This pattern supports SCCHA's observation that while many double policy subgroup households moved to smaller units, many other households stayed in place and paid the much higher housing costs as a result.

The increase in tenant rent share for double policy change households from \$511 to \$810 per month is quite large for this subset of SCCHA households, which have an average household income of \$1,687 per month. This apparent hardship is explored more formally in exhibit 25, which presents households' rent burden just before the SCCHA implementation of the rent reform and throughout the followup period.⁵⁰ The levels of average rent burden demonstrate that this subset of households experienced very high levels of housing-related hardship after the rent reform was implemented. Just before the rent reform was implemented, just 6 percent of these households had tenant rent shares that exceeded 40 percent of their gross income. The percentage jumped to 61 percent 1 year after the rent reform was first implemented. (In contrast, this percentage only increased from 15 to 21 percent for single policy change households.) This percentage then decreased over the rest of the followup period, to 50 percent by the end of the second year and 33 percent by the end of the third. This decrease reflects the tenant contribution rate being reduced from 35 to 32 percent of gross income in the second year of its implementation, but may also reflect the fact that some households may have moved to smaller or more affordable units after the end of the first year, or that households with the highest levels of rent burden may have left the subsidy program following the rent reform. The same pattern is evident using a higher threshold. The percentage of SCCHA households in the single policy change subgroup paying over one-half of their gross incomes toward rent rose only slightly from 11 to 14 percent, but for households in the double policy subgroup, this percentage rose steeply from 4 percent just before the start of implementation to 47 percent 1 year later.

⁵⁰ Additional measures of rent burden are presented in Castells (2020).

Exhibit 25

Tenant Rent Burden Among Nonelderly, Nondisabled Households Receiving Subsidies, by Policy Subgroup in Santa Clara County Housing Authority

Outcome	Single Policy Change	Double Policy Change
Tenant Rent Share Exceeds 40% of Monthly Gross Income (%)		
Last Month of Baseline	14.9	5.8
Last Month of Year 1	21.4	60.5
Last Month of Year 2	24.5	50.2
Last Month of Year 3	15.6	32.9
Tenant Rent Share Exceeds 50% of Monthly Gross Income (%)		
Last Month of Baseline	10.9	4.1
Last Month of Year 1	14.0	47.3
Last Month of Year 2	16.8	38.7
Last Month of Year 3	10.9	25.0
Sample Size (Total = 6,723)	5,181	1,542

Notes: Sample sizes may vary because of missing values. Outcomes shown describe only those households receiving any housing subsidies in the specified month.

Source: MDRC calculations using HUD Public and Indian Housing Information Center data

Discussion

This study analyzed the impact of SCCHA’s rent reform on employment, earnings, housing subsidy, and housing characteristics of the group of nonelderly, nondisabled SCCHA tenants who were receiving HCV subsidies in July 2013, when SCCHA’s rent reform was implemented. There were three possible effects of the rent reform on tenant earnings: (1) households would reduce their earnings in response to the disincentive of higher tenant contribution rate; (2) households would increase earnings to cover their increased housing costs; or (3) households would not change their employment behavior and instead would reduce spending in other areas to cover their higher housing costs, or they would increase their debt, or do neither and experience increased material hardship. The analysis found no evidence that SCCHA’s rent reform had any effects, on average, on the employment and earnings of nonelderly, nondisabled SCCHA residents. Since the rent reform did not lead to a decrease in earnings, SCCHA realized its projected HAP savings. Nonelderly, nondisabled households received approximately \$1,600 less in housing subsidies, on average, during the first year, \$1,550 less in the second, and \$1,330 less in the third year after the rent reform than they would have received without the rent reform. There was also no evidence that the rent reform caused households to lose their housing subsidies, on average.

There are two factors specific to the SCCHA context that might have strengthened any incentive inherent in the rent reform’s policy change for households to increase their employment and earnings. First, Santa Clara County and its surrounding counties had a robust job market during the study period. While this limits the ability to generalize the findings from this study to areas with weaker job markets, it is worth noting that even in this robust job market, households did

not increase their employment or earnings in response to an increased tenant contribution rate. Second, SCCHA has a 24-month recertification period, which is longer than the typical 12-month recertification period used in traditional PHAs. SCCHA households that were considering increasing their income in response to the rent reform (to compensate for lost net income) may have had a stronger incentive to do so than they would have in a PHA with a 12-month recertification period since they have a longer period of time for which their increased income would not have increased their rent share. If positive effects had been estimated on employment and earnings, these two factors would have needed to be taken into consideration when interpreting results. There was no evidence, however, of effects on employment and earnings, despite these two conditions that could have made it more possible or more likely for households to respond to the “income effect,” that is, to increase their income to compensate for their higher housing costs. This absence of earnings effects could mean that they were not important factors in households’ employment decisions. For example, the overall robust job market may not have translated to many employment opportunities for SCCHA tenants, who generally have lower education levels and less work history than non-subsidized residents in the county. And, the 24-month recertification period, which had already been in place for about 4 years before the rent reform was implemented, may not have provided a significant incentive to increase earnings beyond that which households may have already responded to before the rent reform. If they were meaningful factors in households’ employment decisions, it is unknown the extent to which they balanced out a disincentive to earn more.

The combination of findings that overall the SCCHA rent reform did not increase residents’ average earnings levels and that it did, as intended, reduce households’ housing subsidies, means that households experienced reductions in their net income. For households that did not increase their income over time, these reductions in net income could have been persistent. Households who did increase their income over time would have experienced smaller increases in net income compared with the increases they would have experienced in the absence of the rent reform. This interpretation is consistent with SCCHA leadership’s impression that voucher households generally did not change their employment behavior but instead absorbed their increased housing costs.

This study did not include measures of households’ material hardship beyond rent burden, and therefore cannot assess how this increase in rent burden translated into experiences with material hardship. It is an important consideration, however, because increased housing costs for households without increased income to cover those costs could mean that households are reducing spending on other necessary goods and services, which may lead to increased material hardship or increased debt.

One study—the Rent Reform demonstration—that is currently underway in four PHAs can provide some context for potential effects on households’ material hardship. A baseline survey of the households participating in the demonstration—a population comparable to the sample for the present study, consisting of nonelderly, nondisabled households in the Housing Choice Voucher (HCV) program—revealed that households receiving housing subsidies under traditional rent rules commonly experience material hardship: almost 70 percent of survey respondents said they had experienced at least one form of material hardship during the last year. Forty-six percent

said they were not able to pay a utility bill, 34 percent said they were not able to pay a telephone bill, and 20 percent said they were not able to pay the (subsidized) rent in at least 1 month of the past year. Furthermore, 28 percent said they were not able to buy food, and 23 percent said they were not able to see a doctor or buy prescription drugs they needed during at least 1 month in the past year (Riccio, Deitch, and Verma, 2017). Given that HCV households in SCCHA were likely to be experiencing similar material hardship before the rent reform, there is a risk that the increase in housing costs and consequent decrease in net income caused by the rent reform may have worsened such hardship. A subgroup analysis explored how the SCCHA rent reform may have affected households subject to only the change in the tenant contribution rate differently from households who were *also* affected by the voucher size rule change. Like the findings for the full sample, there was no evidence that the rent reform had any effects on employment or earnings for the subgroup only affected by the tenant contribution rate change. There was, however, some evidence that the SCCHA rent reform reduced earnings for the subgroup of households that was affected by both policy changes. These households experienced particularly high levels of rent burden following the rent reform (measured as the tenant rent share as a proportion of household gross income). The negative effect on earnings for this subgroup did not occur immediately after the rent reform was implemented, suggesting that residents did not reduce their employment right away, but perhaps struggled with their increased housing costs before reducing their earnings. An exploratory analysis shows that, as expected, the SCCHA rent reform led to especially deep cuts in housing subsidies for this double policy change subgroup. To the extent that the steep increases in households' housing costs led some households to leave the subsidy program (of which there is only suggestive evidence), this housing instability might partially explain the employment and earnings effects for this subgroup of households, if having to relocate to a new unit or leave the subsidy program destabilized a person's employment situation. The true drivers of these delayed negative effects on household earnings for this subgroup cannot be identified within the scope of the present study.

These findings hint at some potential consequences of implementing a voucher size policy that causes steep increases in households' housing costs if they do not move to a smaller unit. The scarcity of affordable housing in Santa Clara meant that households had few options for less expensive units. Although the trends in the average number of bedrooms over time suggest that some households in this group did move to smaller units, it is likely that many were unable to, or that if they did, those units might not have been as affordable as their previous units.⁵¹ In a location with more affordable housing options, households that have to move to a smaller unit may have an easier time doing so.

SCCHA provided crucial safeguards for these households by partnering with local organizations to provide legal and financial assistance to prevent eviction. It is important for any PHA that implements a rent reform to identify the households that might be most adversely affected by the policy changes and provide them with adequate protection from severe hardship. This study provides evidence that can help inform that assessment for other PHAs considering these changes to the rent policy. For example, the SCCHA eviction prevention assistance program (SEPP)

⁵¹ A new unit with fewer bedrooms under the new policy could be less affordable than the former unit with more bedrooms if the new unit's gross rent exceeded the payment standard for the smaller voucher size more than the former unit's gross rent exceeded the payment standard for the larger voucher size.

provided important support that likely helped many households avoid eviction during the time that it was being operated. An attorney working in the program (and now a staff member of SCCHA) recalled that of the 293 households that SEPP assisted, only two cases at most resulted in an actual eviction. Other PHAs considering a similar policy change in a similar context (where finding an affordable smaller unit may be difficult) might consider that households who are vulnerable to adverse effects because of the policy change may greatly benefit from an effective safeguard such as the SEPP program that is offered over an extended period of time.

Study Limitations

Findings from this study contribute to the emerging body of evidence on how changing the rent policy for households receiving housing assistance can affect employment and earnings. Still, the study has some limitations that should be kept in mind when interpreting the results. An important limitation, as discussed earlier, is that aspects of material hardship beyond rent burdens, such as food insecurity and difficulty covering medical expenses or rent and utilities, are not measured in this study. A full assessment of the implications of increasing the tenant contribution rate—or any other rent reform that reduces housing subsidy levels—should consider the effects on the level of material hardship that households experience in response to the policy change.

Another limitation is that the study does not examine how the effects of the rent reform may vary for different types of individuals and households. It includes a subgroup analysis that compares effects for households only affected by the tenant contribution rate and households affected by both policies, but there may be other sources of variation that the study was not able to explore. It is possible, for example, that nonelderly, nondisabled adults who were already working at the time the SCCHA rent reform was implemented would have more flexibility than those who were not employed to increase or reduce their employment and earnings in response to the increased tenant contribution rate. Nonelderly, nondisabled individuals who are not yet working may have less of an incentive to begin a new job with a higher tenant contribution rate. The study was not able to estimate effects separately for these subgroups due to data limitations.

The primary analytic method in this study is a rigorous one: a CITS to examine the effects of the SCCHA rent reform on employment and earnings. The rent reform meets important conditions for CITS in that it was a consequential change that occurred for the full study cohort all at once, and there were data available for a comparison group that was subject to the same economic forces as SCCHA. As noted in the Analytic Approach section, it was not feasible to use CITS to examine effects on households' average housing subsidies or continued subsidy receipt because 4 years of historical housing subsidy data were not available for the full study sample, and therefore baseline trends could not be estimated for these measures. The autoregressive difference-in-difference design used to study the effects of the rent reform on these outcomes is not as rigorous as CITS because it does not account for potentially differing baseline trends in housing subsidy measures. Furthermore, it was not feasible to use either CITS or autoregressive difference-in-difference to examine effects on housing characteristics (including the number of bedrooms in the unit or neighborhood poverty) or household composition because these data were not available for households that were no longer receiving subsidies. The descriptive analysis used to explore these outcomes can only provide suggestive evidence of potential effects.

This analysis relies on UI wage data to assess effects on employment and earnings, and these data do not capture earnings from employment that is not covered by UI. While there is no strong reason to believe that the SCCHA rent reform would have affected informal employment differently from formal employment, this study cannot formally test that assumption. It is possible, however, that the increased rent contribution rate could strengthen the incentive to underreport earnings to the PHA, and underreporting would be easier with informal employment, especially if the worker is not paying taxes on the earnings.

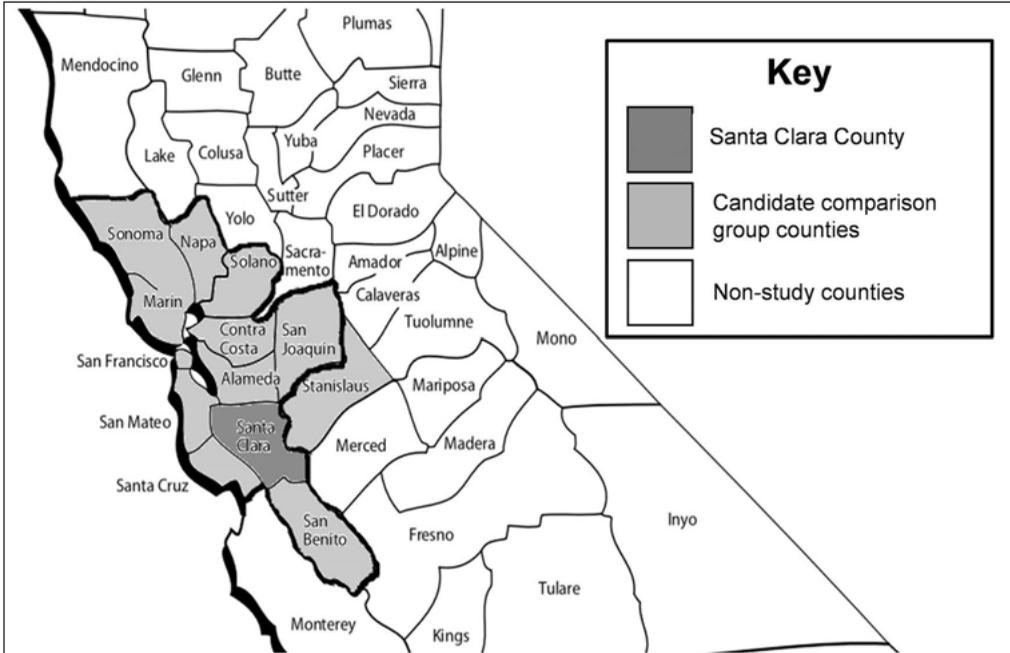
Finally, the present study focused on only one PHA in one location, Santa Clara County, that has a tighter housing market and a more robust job market than most of the country, though there are many PHAs in comparable situations—such as PHAs in New York City, Boston, Los Angeles, Seattle, Denver, Washington, and San Diego—serving large numbers of households. These findings provide an important contribution to the literature on the effects of rent reform on labor market outcomes; still, additional studies in multiple locations with diverse contexts are needed to draw more broadly applicable conclusions.

Conclusion

The present study of the effects of a rent reform implemented by SCCHA provides evidence, from one location, that a public housing agency can increase the tenant contribution rate by a moderate amount (30 percent of adjusted income to 35 percent of gross income, later to 32 percent of gross income) without creating a substantial disincentive to work and without significantly increasing the likelihood that households may lose their subsidies. It also provides suggestive evidence that implementing a voucher size policy that requires some households to relocate to a different unit (with fewer bedrooms) to avoid even deeper cuts in housing subsidies may have adverse effects in the context of a housing market where affordable housing options are very limited, and that short-term safeguards that PHAs provide to households may not fully prevent longer-term hardship.

Further research is needed in multiple locations that represent diverse housing markets and labor markets to examine how the effects of this type of rent reform may be expected to vary based on the context. Studies with a random assignment design would help overcome many of the methodological limitations of this study described above, for example, by providing a reliable counterfactual for outcomes where multiple years of pre-intervention data are not available for the full sample. Finally, future studies of rent reforms that might result in reduced housing subsidies for households should carefully measure households' experiences with material hardship, including food insecurity and their ability to cover medical expenses, in response to the rent reform. The present study is the first to investigate how increasing the tenant contribution rate affects households' employment, earnings, and housing subsidies.

Appendix A. Map of Santa Clara and Comparison Counties



Source: California State Association of Counties

Appendix B. Model Specifications

Comparative Interrupted Time Series Model

The following comparative interrupted time series (CITS) model was used to estimate effects on quarterly employment rates and average quarterly earnings:

$$Y_i = \sum_{p=14}^{\infty} \alpha_p \text{PHA}_{pi} + \sum_{p=1}^4 \beta_{0p} \text{PHA}_{pi} Q_i + \sum_{f=1}^{16} \beta_{1f} F_{fi} + \sum_{f=1}^{16} \beta_{2f} F_{fi} * S_i + e_i$$

Where:

Y_i = the value of the outcome variable for observation i , where observation i is defined as the value of the outcome variable for the public housing agency (PHA) p in quarter q ,

PHA = a series of four indicator variables, one for each PHA p ,

α = a series of four intercepts for baseline trends, one for each PHA p ,

Q = the quarter (a continuous variable),

β_0 = a series of coefficients representing the slope of the baseline trend for each of the four PHAs,

F = an indicator value for followup quarter f ,

β_1 = a series of coefficients representing the comparison group deviation from its baseline trend for each followup quarter f ,

$S = 1$ if the PHA is the Santa Clara County Housing Authority (SCCHA) (the treatment group) and 0 otherwise,

β_2 = a series of coefficients representing the treatment-comparison group difference between their deviations from their baseline trends for each followup quarter f , and

e = a random error term.

Autoregressive Difference-in-Difference Model

The following autoregressive difference-in-difference (DinD) model was used to estimate effects on housing subsidy outcomes:

$$Y_h = \alpha + \beta_1 S_h + \sum_{b=-1}^{-4} \beta_{2b} Y_{bh} + \sum_{b=-1}^{-4} \beta_{3b} R_{bh} + \sum_{m=1}^M \beta_4 X_{mh} + e_h$$

Where:

Y_h = the value of the outcome variable for sample household h ,

α = the intercept, representing the conditional mean outcome for the three comparison PHAs combined,

$S = 1$ if household h was in SCCHA (the treatment group) at the time of the rent reform and 0 otherwise,

β_1 = estimate of the effect of the SCCHA rent reform on outcome Y ,

Y_{bh} = a set of four variables representing the lagged value of the outcome variable Y for the 4 baseline years prior to the rent reform for household h

β_2 = a series of four regression coefficients, one for each of the four variables representing the lagged values of the outcome for the 4 baseline years prior to the rent reform,

R = a set of four variables representing whether the household received any subsidies in each of the 4 baseline years prior to the rent reform,

β_3 = a series of four regression coefficients for the 4 baseline years' indicators of any housing subsidy receipt,

X = a set of background characteristics for household h ,⁵²

β_4 = the set of regression coefficients for the background characteristics,

e = a random error term.

⁵² The background household characteristics included in the model as covariates include: the head of household's gender, age, race and ethnicity, and receipt of wage, Temporary Assistance for Needy Families (TANF), or Social Security/Supplementary Security Income/Pension (SSIP) income; number of adults in a household; age of the youngest child; annual household wage earnings; monthly family share; and whether the household's monthly gross rent exceeds the payment standard.

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This report reflects the efforts and important contributions of the study team at MDRC. James Riccio and Nandita Verma—the project director and project manager—provided valuable guidance and support throughout, from the research design to their careful reviews of each draft of this report. Howard Bloom, the senior technical reviewer, worked closely with the study team on developing the methodology and providing guidance and advice throughout the analysis. I am very grateful for the critical insights and expertise that he contributed. Gordon Berlin also provided critical advice on the report and its findings. Audrey Yu and Kali Aloisi carefully processed and analyzed all the earnings data and housing subsidy data for the study and contributed many important insights on the data to the interpretation of the findings. Jennie Kaufman skillfully edited the report. David Long from Princeton Policy Associates also contributed important insights during the research design, analysis, and report writing phases of the study.

This report has benefited greatly from the insights of the staff at the MTW housing agencies included in this study, particularly the Santa Clara County Housing Authority (SCCHA). Katherine Harasz, the executive director of SCCHA, and Janine Burrier, the assistant director of housing, generously shared extensive details about the housing agency's policies and safeguards and the policy and economic context in which the SCCHA rent reform was implemented. Jennifer Rainwater at the Housing Authority of the County of San Mateo and Dominica Henderson at the Oakland Housing Authority also shared important information on their agencies' policies and the housing and employment contexts where their housing agencies were located.

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Designing an Alternative Rent Policy for the Housing Choice Voucher Program

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Abstract

In 2013, four Moving to Work (MTW) agencies joined the Rent Reform Demonstration to design and test an alternative approach for subsidizing private-market rents paid by families participating in the Housing Choice Voucher program. The new policy's goals are to support tenants' efforts to increase their earnings, reduce the administrative burden on public housing agencies, and protect families from increased hardship, all while remaining cost-neutral relative to the existing rent policy. This article describes the trade-offs associated with different reform options and the process through which the four agencies considered those trade-offs and came to a consensus on an alternative policy to test.

Introduction

The Housing Choice Voucher (HCV) program, funded by the U.S. Department of Housing and Urban Development (HUD) and administered by local public housing agencies (PHAs), offers tenant-based rental subsidies to approximately 2.2 million low-income households, enabling them to live in privately-owned housing units. Authorized by an amendment to Section 8 of the U.S. Housing Act of 1937 (and commonly referred to as “Section 8”), this roughly \$24 billion program is a vital component of the nation’s safety net.¹

For decades, however, calculation and administration of rental subsidies for the voucher program have been controversial, especially as applied to families headed by working-age, nondisabled

¹ Funding level is for fiscal year 2020 (National Low-Income Housing Coalition, 2020). For a general description of the voucher program, see Center for Budget and Policy Priorities (2017a). Tenant-based vouchers are “portable” vouchers, meaning that if a household moves, the family may take the subsidy with it and use the voucher with a new landlord of its own choosing, as long as the housing unit meets the PHAs quality standards. The HCV program also includes “project-based vouchers,” which are subsidies tied to specific housing units through contracts between the PHA and managers or owners.

adults. Critics assail the policy as complex and expensive for PHAs to administer and difficult for families to comprehend. Many believe it discourages, rather than supports, tenants' efforts to increase their employment and earnings.² Numerous stakeholders have advocated reform of the traditional rent subsidy system to simplify the administration of vouchers, support work, and contain the system's average per-family costs to save taxpayers' dollars or serve more income-eligible families.³ Policy reform has been elusive, however, because balancing competing objectives related to the administrative burden on PHAs, system costs, tenant work incentives, and housing affordability has made it hard to achieve agreement and because there is no strong evidence of the effects of alternative approaches.

To produce evidence, HUD launched the Rent Reform Demonstration, an initiative to design and carefully evaluate an alternative rent system for tenant-based vouchers. HUD selected MDRC to coordinate the design process and evaluate the new policy through a randomized controlled trial, working closely with HUD and a small number of PHAs that have Moving to Work (MTW) status. Only MTW agencies were considered for the Rent Reform experiment because they are the only PHAs authorized by Congress to make changes in rent rules. Although some MTW agencies (not in the demonstration) were already experimenting with alternative policies, none of those reforms had been subject to rigorous evaluations with random assignment research designs or other strong research methods using comparison groups.

This article discusses how the demonstration design team, composed of staff from HUD, several PHAs, and MDRC (including this author, who led the MDRC team) and its partners,⁴ formulated the alternative rent policy. Drawing on the study's baseline report that I co-authored (Riccio, Deitch, and Verma, 2017), I highlight the reforms the team considered, trade-offs associated with different reform options, and the process for coming to consensus on a consistent alternative rent policy that several PHAs agreed to test.

We began design of the demonstration in 2013, selected PHAs to participate in 2014, and identified eligible families for the study sample in 2015. The evaluation is currently underway, and early and interim results are available in published reports (Riccio and Deitch, 2019; Riccio, Verma, and Deitch, 2019). Four PHAs joined the demonstration:

- Lexington-Fayette Urban County Housing Authority in Lexington, Kentucky (generally referred to as the Lexington Housing Authority)
- Louisville Metropolitan Housing Authority in Louisville, Kentucky

² Abt Associates Inc., Urban Institute, and Applied Real Estate Analysis, Inc. (2010). See also Government Accountability Office (2012) and Public Housing Authorities Directors Association (2005).

³ Only about one-fourth of income-eligible families receive Housing Choice Vouchers due to funding limitations (Center for Budget and Policy Priorities, 2017b).

⁴ The MDRC design team included technical-assistance housing experts from the Bronner Group and Quadel Consulting, research experts from Urban Institute and Branch Associates, and professors John Goering (City University of New York) and Ingrid Gould-Ellen (New York University).

- San Antonio Housing Authority in San Antonio, Texas
- District of Columbia Housing Authority in Washington, D.C.⁵

These four MTW agencies agreed to help finalize the new policy to be tested, to operate that policy alongside HUD's traditional rent policy, and to comply with the needs of the evaluation, which included randomly assigning eligible households to a group that would be subject to the new policy or to a control group that would remain subject to the existing rent rules. A total of 6,665 households are included in the study. Households that were headed by elderly or disabled adults (as defined by HUD) were not eligible for the study. The nonelderly/nondisabled households that were eligible for the study could include other members who were elderly or disabled, however.

The Rent Reform Debate

HUD's traditional rent rules for HCV families establish how much of its income a family must contribute toward its rent and utilities and how expensive a housing unit a family is permitted to rent with a government subsidy.⁶ A typical voucher family is expected to contribute 30 percent of its adjusted monthly income—that is, its *net* income after certain deductions are made from its pretax income—or 10 percent of gross income (whichever is greater).⁷ Moreover, monthly income is derived from the family's annual *anticipated* adjusted income, which itself is an annualized estimate of current income. The family's expected contribution based on its current/anticipated adjusted income is referred to as the family's "total tenant payment" (TTP).

The concept of tying families' rent contributions to their incomes was incorporated into law through a provision of the Housing and Urban Development Act of 1969, which amended the Housing Act of 1937. Sponsored by Massachusetts Senator Edward Brooke III, and commonly known as the "Brooke Amendment," it pegged tenant contributions in public housing at 25 percent of adjusted household income. Brooke rents, as they were called, were applied to the Section 8 program when it was established in 1974 and were incorporated into the HCV program when it succeeded Section 8. The tenant contribution was raised in 1981 to 30 percent of a household's adjusted income (or 10 percent of gross income, if greater).

Once a family's TTP is established, the PHA calculates the amount of subsidy it will provide. The PHA pays the difference between the family's TTP and the housing unit's "gross rent." The gross rent is the amount of rent charged by the landlord for the unit (referred to as the "contract rent") plus an allowance for basic utilities that are not included in the contract rent. The subsidy amount cannot exceed the PHA's payment standard (or maximum subsidy) for the local area, which is based

⁵ The Washington, D.C. PHA ended its participation in the demonstration in September 2019.

⁶ Throughout this paper, mentions of HUD's "current" or "traditional" rent policy for voucher holders refer to the national rent policy in effect for traditional PHAs before the passage and implementation of the Housing Opportunity Through Modernization Act of 2016 (HOTMA).

⁷ HUD rules specify what resources count as income. For example, earnings and cash payments from welfare and other government benefit programs count, while food stamps and Earned Income Tax Credit payments do not. For a full explanation of HUD's existing rent rules, see HUD's *Housing Choice Voucher Program Guidebook* (U.S. Department of Housing and Urban Development, 2001).

on Fair Market Rents in the area.⁸ Payment standards, which vary by the number of bedrooms in a rental unit and by local housing markets, are intended to ensure that families have access to safe and decent housing, while also limiting the amount of the subsidy provided to any given family (to contain government costs). This subsidy is referred to as the housing assistance payment (HAP). If the gross rent exceeds the payment standard, the family is responsible for that extra amount in addition to its TTP. The TTP plus that extra amount make up the family's total housing cost, which HUD calls the "family share" of rent and utilities. At the beginning of a new lease, however, a family's total expenditures for the unit must not constitute more than 40 percent of its adjusted income to ensure that families do not enter leases they cannot afford. A family is only permitted to pay additional rent above 40 percent of adjusted income if the extra amount is necessary for the family to remain in a current housing unit (for example, if the landlord raises the rent).

Families are required to undergo annual recertifications through which the PHA determines whether they remain eligible for the voucher program and, if so, the PHA adjusts their TTPs and subsidies to reflect their anticipated incomes for the coming year. The PHAs also conduct interim recertifications to adjust families' TTPs and subsidies when their incomes change before their next annual review.

Since the enactment of the Quality Housing and Work Responsibility Act in 1998, PHAs have also been permitted to establish minimum TTPs, typically referred to as "minimum rents," of up to \$50 per month. A family subject to a minimum TTP would pay at least that amount, regardless of its income, unless it received a hardship exemption from the PHA.

Making housing affordable for low-income families has been the primary rationale embraced by Congress for the percentage-of-income rent policy. While this policy means that a family will pay more if its income grows, it will also pay less if its income falls—an important safety net feature. Low-income-housing advocates have staunchly defended this policy as essential to protecting vulnerable families and children.

At the same time, the percentage-of-income system has been criticized by public housing industry groups and others as allegedly having unintended negative consequences. One major concern is the belief that it depresses tenants' work effort. This belief is because 30 percent of every extra dollar they earn is added to their TTPs and reduces their subsidies. This implicit "tax" on their earnings may lead some tenants to conclude that work "doesn't pay," especially because increasing income may cause loss of other income-related government benefits, such as Supplemental Nutrition Assistance Program (SNAP) benefits (food stamps). Moreover, housing subsidies phase out entirely when income rises beyond a certain point. If, on average, tenants work less than they otherwise would because of this policy, it might also tie up subsidy dollars that could otherwise be used to provide housing assistance to other needy families. Income-based rents are also thought by some critics to discourage family formation and to keep some adult household members off the

⁸ An area's Fair Market Rent represents a point on the distribution of all rents charged by private landlords for standard housing units. It is typically set at the 40th percentile, meaning that 40 percent of all housing units in the area would rent for no more than that amount. A PHA may set its payment standards, for units of varying sizes, from 90 percent to 110 percent of the published Fair Market Rents for its area and may adopt higher or lower levels with HUD approval.

lease because the incomes of those adults, if counted toward household income, would decrease a family's HAP and increase the family's contribution to rent and utilities.

Other criticisms focus on the complexity of the rules that must be followed to determine and verify families' incomes and calculate their TTPs and subsidy amounts and the staff time and effort required to revise these calculations when families' incomes rise or fall, generating a substantial administrative cost for PHAs. Many of these rules are also thought to be difficult for tenants to understand.

These criticisms, described in the HUD-funded Study of Rents and Rent Flexibility (Abt Associates Inc., Urban Institute, and Applied Real Estate Analysis, Inc., 2010). and other papers (Castells, 2020; Government Accountability Office, 2012; Public Housing Authorities Directors Association, 2005; Riccio, Deitch, and Verma, 2017), were a crucial touchpoint for HUD, the PHAs, and MDRC and its partners in designing the alternative rent policy for the Rent Reform Demonstration.

Goals Established for an Alternative Rent Policy

HUD set four main goals for the new rent policy that would be tested with the Rent Reform Demonstration. HUD sought a policy that would:

1. Increase the financial incentive for tenants to work, increase their earnings, and advance toward self-sufficiency.
2. Simplify the administration of the voucher rent system to improve transparency, reduce the burden on PHAs and households, and reduce administrative costs.
3. Minimize any increases in PHAs' average housing-subsidy expenditures and, ideally, reduce those costs, with the aim of making the alternative policy cost-neutral relative to the traditional policy.
4. Continue to provide a safety net for tenants who cannot readily work, who lose jobs, or who could not increase their incomes.

The Design Process

To develop a new rent model, the MDRC team worked closely with HUD and, initially, with nine PHAs that had expressed interest in joining the demonstration; the final group was made up of four agencies that actually joined.⁹ It was vital to design a policy in close partnership with PHAs because they brought real-world expertise to the process, and also because it was unlikely any PHA would implement a new rent policy and join an evaluation if it had little or no say in the policy design and no sense of ownership over the policy. The consultation process sought to identify a common set of approaches all candidate PHAs would be willing to adopt.

⁹ The housing agencies that did not join the demonstration are the Housing Authority of Baltimore City, the Cambridge Housing Authority, the Chicago Housing Authority, the Massachusetts Department of Housing and Community Development, and the Santa Clara County Housing Authority. Although these PHAs were helpful during the design process, they were contending with a variety of other policy reforms or new initiatives that made it difficult for them to participate simultaneously in the Rent Reform Demonstration.

The MDRC team reviewed with HUD and the PHAs a range of possible rent reform ideas, including those discussed in the *Study of Rents and Rent Flexibility* (Abt Associates Inc., Urban Institute, and Applied Real Estate Analysis, Inc., 2010). That study collected perspectives on rent reform options from voucher recipients, residents of public housing, waiting-list applicants, and PHA staff members.

When the four PHAs agreed to join the demonstration, HUD officials, the PHAs, and the MDRC team had reached a preliminary agreement on a general approach to a new rent policy. This approach included changes in how TTPs and subsidies would be calculated (such as eliminating deductions and setting a lower percentage-of-income rate), introducing or increasing minimum rents, extending the recertification schedule, limiting interim recertifications, establishing hardship policies and other safeguards to protect affordability for families, and simplifying the calculation of utilities costs. MDRC then used statistics to assess how the new approach might affect two types of outcomes: (1) families' net income, taking into account earnings, work-related expenses, housing subsidies, and other government income transfer benefits; and (2) PHAs' housing-subsidy expenditures. Each round of results was discussed with HUD and the PHAs as they considered adjustments to the preliminary alternative rent model.¹⁰

Throughout the design process, the HUD-PHA-MDRC team conferred with national and local representatives of the low-income-housing advocacy community and housing agency interest groups about the design options under consideration. Some of these experts, along with several academics and executive directors of other PHAs, were eventually included on an expert panel that reviewed the near-final alternative rent model and the evaluation research design.¹¹

The result of those consultations, analyses, and reviews is an alternative rent model that we arrived at through debate about the options and trade-offs described in detail in the next section. Exhibit 1 summarizes the end product of our design process, comparing HUD's traditional rent policy to the alternative tested in the Rent Reform Demonstration.

¹⁰ For details on these analyses, see Riccio, Deitch, and Verma (2017) and MDRC's demonstration design paper (MDRC, 2016), available upon request from MDRC. The analyses concerning family net income used Urban Institute's Net Income Change Calculator for a set of hypothetical families (for example, families where the number and ages of children varied). The PHA analysis used several years of national housing-subsidy expenditure data obtained from HUD covering all non-Moving to Work PHAs in the country, and similar housing-subsidy expenditure data covering several years from several Moving to Work agencies that were being considered for the Rent Reform Demonstration, including the four agencies that finally joined the study.

¹¹ These representatives included the Center on Budget and Policy Priorities and the National Low Income Housing Coalition. Other expert panel members included representatives from the Public Housing Authorities Directors Association, the National Association of Housing and Redevelopment Officials, and the Council of Large Public Housing Authorities; the executive directors of the Cambridge and Seattle housing authorities; and several academic experts.

Exhibit 1

Comparison of the Rent Reform Demonstration’s Alternative Rent Policy to HUD’s Traditional Policy (1 of 2)

Component	Traditional HUD Policy	Alternative Rent Policy
Total tenant payment (TTP)	30 percent of adjusted monthly income (that is, total countable anticipated income, minus deductions) or 10 percent of gross income, whichever is higher.	28 percent of gross monthly retrospective income (that is, gross monthly income over the previous 12 months), with no deductions or allowances. Countable income estimate for setting a family’s TTP and housing subsidy is based on 12-month retrospective income.
Minimum TTP	Up to \$50 per month, at public housing agency (PHA) discretion	\$50 to \$150 per month, depending on the PHA. All families pay a minimum amount of rent directly to their landlords, to mirror the landlord-tenant relationship in the unsubsidized rental market.
Assets	Family income from assets is counted in determining a family’s TTP.	Family income from assets is ignored when total asset value is less than \$25,000, and families do not need to document those assets.
Recertification period	Annual recertifications.	Triennial recertifications.
Interim recertifications when income changes	At an agency’s discretion, families report any income increases when they occur, before the next scheduled recertification. Families may request interim recertifications whenever their incomes fall by any amount.	Earnings gains do not increase TTP for 3 years (that is, until the next triennial recertification). Interim recertifications to account for income reductions are limited to a maximum of one per year (referred to as “restricted interim recertification”), and only when a family’s average gross income over the most recent 12 months drops by more than 10 percent from the retrospective estimate that was used to establish the TTP currently in effect.
Utilities	Where the contract rent does not include utilities, a utility allowance is provided based on a detailed schedule that takes into consideration voucher size (the number of bedrooms covered by a family’s voucher) and various other aspects of the type of housing unit.	A simplified utilities policy that is tailored to a standard base rate for utility costs that varies according to the voucher amount, with additional payments available to families paying higher costs related to the type of heating (for example, electric or oil heat) and water and sewer charges.

Exhibit 1

Comparison of the Rent Reform Demonstration’s Alternative Rent Policy to HUD’s Traditional Policy (2 of 2)

Component	Traditional HUD Policy	Alternative Rent Policy
Hardship policy	If the PHA has a minimum TTP, it must suspend that minimum TTP for families who are unable to pay it because of specified financial hardships. Short-term hardships (lasting 90 days or less) require the suspended minimum to be reinstated after the hardship period ends and to be repaid according to a reasonable payment plan.	Families qualify for consideration of a hardship-based remedy if: <ul style="list-style-type: none"> • The family’s monthly TTP exceeds 40 percent of its current or anticipated monthly gross income. • The hardship cannot be remedied by the one interim recertification permitted each year. • The family faces eviction for not paying rent or utilities. • The family meets other criteria determined by the PHA. Hardship remedy options include the following standardized list: <ul style="list-style-type: none"> • Allowing an additional restricted interim recertification beyond the normal one per year. • Setting the family’s TTP at the minimum level for up to 180 days. (This remedy can be renewed at the end of that period if the hardship persists.) • Setting the family’s TTP at 28 percent of its current gross income (which may be less than the minimum TTP), for up to 180 days (except in Lexington). (This remedy can be renewed at the end of that period if the hardship persists.) • Offering a “transfer voucher” to support a move to a more affordable unit.
Grace period	Not applicable. TTP is always based on current income.	At the triennial recertification, if a family’s current gross income is more than 10 percent lower than its average gross retrospective income over the last 12 months, the family will have its TTP calculated at that time based on current income rather than retrospective income, and this TTP will remain in effect for 6 months. During this grace period, families can still qualify for a hardship-based remedy.

Note: The “Traditional HUD Policy” column shows the national policy in existence for the non-Moving to Work tenant-based Housing Choice Voucher program population before the enactment of the Housing Opportunity Through Modernization Act of 2016. With a few exceptions, the PHAs participating in the Rent Reform Demonstration have continued to implement that policy.

Rent Reform Options and Trade-offs

As it began its work, the design team recognized that any reforms it considered would come with trade-offs related to the larger goals of the Rent Reform Demonstration. For example, some reforms, taken by themselves, might increase the financial incentive for tenants to work, but also increase the cost of the voucher program. They might even put some tenants at risk of greater hardship if they cannot work. Some reforms might substantially reduce the PHAs’ administrative burden and costs but come at the expense of work incentives, cost-containment, or tenant protection. The design team weighed these trade-offs for each element of reform under consideration.

(1) Flat rents or income-based rents?

One fundamental question was whether to stick with income-based rents or switch to flat rents. Flat rents base the subsidy a family receives on the size of the housing unit (for example, the

number of bedrooms) rather than on a family's income. This approach is simpler than the Brooke rent, and it prioritizes work incentives but weakens a rent policy's safety net functions. Because a family's rent contribution and subsidy amount would not be tied to its income, a family could increase its income without penalty, creating a strong work incentive. At the same time, families with the lowest incomes would experience a higher rent burden (that is, they would contribute a larger proportion of their incomes toward rent and utilities). In addition, a drop in income would cause families' rent burden to increase, and possibly increase their risks of material hardship and even eviction, unless mitigated by a hardship policy.

A stepped rent policy is a variant of this approach, whereby the flat rent based on the size of the unit increases gradually over a period of years, regardless of changes in a family's income. By raising the rent gradually, it would give families time to increase their incomes.¹² Still, fixed or stepped rents might increase financial hardships and risk of eviction, especially for the lowest-income families, even if the policy led some families to increase their earnings. Worried about this possibility and the challenge of winning the support of housing advocates for such a policy, the design team chose to stick with an income-based approach for the Rent Reform Demonstration.

(2) Tiered rents?

One popular reform idea that continues to link families' rent contributions to their incomes is a tiered rent policy. Under this approach, income bands are created, and a fixed rent is established for each band or tier. All families with incomes falling within the same tier pay the same TTP. The primary purpose of a tiered rent is simplification. It is presumed to be a policy that is easier for PHA staff to explain to tenants and for tenants to understand. In addition, if income bands are wide enough, families with incomes at the low end of the band would have some incentive to increase their earnings, because their rent contributions would not go up as long as their incomes stayed within the band.

One potential drawback to a tiered rent policy with wide bands is that, because all families within a given band would pay the same TTP, those families at the low end of the band would have a relatively higher rent burden than families at the high end. In addition, wide income bands with large differences in TTPs from one band to the next could create sizable work disincentives for tenants whose incomes approached the top of a band (so that a small jump in income resulting in a shift up to the next band could result in a big increase in TTP). These problems could be mitigated by creating narrow income bands. Narrow bands, however, would reduce the potential work incentive derived from keeping TTPs constant within an income band.

The design team ultimately did not choose this approach primarily out of a concern that the income tier strategy might not offer a powerful enough work incentive. Furthermore, the team was also concerned that such a policy would not be much simpler to administer than HUD's traditional rent rules if other reforms in the rent determination process were not also addressed.¹³

¹² A separate HUD demonstration with newly designated MTW agencies is intended to test a version of a stepped rent policy. For more information, see "Moving to Work (MTW) Expansion—Cohort #2" at https://www.hud.gov/program_offices/public_indian_housing/programs/ph/mtw/expansion/cohort2.

¹³ HUD's separate rent reform demonstration focused on new MTW agencies is expected to test a tiered rent strategy combined with a number of other reforms, alongside a stepped rent policy. For more information, see "Moving to Work (MTW) Expansion—Cohort #2" at https://www.hud.gov/program_offices/public_indian_housing/programs/ph/mtw/expansion/cohort2.

(3) A longer recertification period?

A potentially strong incentive to encourage increased work and earnings would be to allow more years to pass before families are required to have their eligibility for the voucher program and their TTPs redetermined—a process commonly referred to as “recertification.” A change in the recertification timeframe from an annual recertification schedule to a longer recertification period means that no matter how much families earned during that period, none of the increased earnings would go toward higher contributions for rent and utilities (as would be true under traditional rules). An extended recertification period could also reduce the administrative burden: PHA staff would spend less time conducting one-on-one sessions with families, and families would spend less time having to document and report their incomes to the PHA.

A 3-year recertification approach also risks increasing PHAs’ HAP expenditures. Some tenants will increase their earnings from one year to the next, despite having to pay higher TTPs. A cap on their TTPs, which prevents their subsidies being reduced, means that PHAs would forego naturally occurring subsidy reductions for as long as the cap remains in place. These higher-than-normal HAP expenditures could more than outweigh the savings that might be achieved in administrative expenses. Thus, when lengthening the recertification time period, potential benefits of increasing work incentives and reducing administrative burden must be balanced against the likelihood of increased HAP expenditures. With these concerns in mind, the design team initially considered limiting the extension of the recertification period to 2 years. It ultimately decided, however, to adopt a 3-year recertification schedule, with the view that the demonstration should test a bolder strategy for increasing work incentives.

The triennial recertification schedule adopted for the Rent Reform Demonstration means that families assigned to the alternative rent are not required to report any increases in income to the PHAs during that 3-year period. In addition, any increases in income to the household that come from adding new spouses, domestic partners, or other adults to the lease during that period will not affect their TTPs or housing subsidies (as long as those additions do not require a larger unit size).

Of course, some employed tenants may lose their jobs during the 3-year period, which would make it difficult for them to pay their expected TTPs if those TTPs were to remain fixed. To protect such families against financial hardship, it was important for the new policy to include a number of safeguards, which are described in a later section.

According to the alternative policy, families whose earnings increased during the 3-year period would begin paying a higher TTP in the fourth year, after completing their triennial recertifications. This policy would allow the PHAs to begin recouping some of the subsidy reductions they had to forego for families whose incomes grew while their TTPs were capped. Although these families would begin paying higher TTPs in the fourth year, their new TTPs would be capped for another 3 years, allowing them to avoid until the next triennial recertification the implicit tax on their subsequent earnings gains that might discourage them from working more. This cycle would continue for as long as the families received Housing Choice Vouchers (assuming the alternative rent rules were an ongoing policy).

(4) Gross or adjusted income?

Under traditional rent rules in the HCV program, a family generally pays 30 percent of its adjusted income (after certain deductions from its pretax income) for rent and utilities, or 10 percent of its gross income, whichever is higher. Under those traditional rules, the amount of annual income counted toward the TTP is reduced using the following deductions: \$480 for each dependent; \$400 (total) for having one or more elderly family members or family members with disabilities; reasonable child care expenses that enable a family member to be employed, actively seek employment, or further his or her education; certain medical, attendant, and auxiliary apparatus expenses for elderly family members and those with disabilities; and expenses for the care of household members with disabilities. (As previously mentioned, households in which the head of household was elderly or disabled according to HUD's definitions were not eligible for the Rent Reform Demonstration, but otherwise eligible households could include other members who were elderly or disabled.)

The process for computing a household's TTP under these rules, particularly when it involves estimating childcare and medical-related and disability-related expenses, is widely considered to be complex and error-prone. For the Rent Reform Demonstration, the design team generally favored eliminating all deductions and basing the calculation on gross income to simplify the calculation process and reduce errors. The idea of eliminating childcare deductions, however, which could represent a substantial loss to families with high childcare costs and possibly discourage parents from working, raised special concerns.

Under the traditional rent rules, childcare deductions are based on *anticipated* unreimbursed childcare expenses for the coming year (or until the next scheduled review of income). In practice, actual costs can be difficult to anticipate, particularly for parents who move in and out of jobs, whose childcare providers change, whose childcare needs change (for example, if their work shifts change), whose children make a transition to a free preschool program, or who become eligible for an external childcare subsidy during the course of the year, and when more than one adult in the household is working.¹⁴ It is not clear how reliably these types of changes—some of which might result in TTP increases or decreases—are reported to PHAs between annual income reviews under the traditional rent policy. The design team recognized, however, that it would be vastly more difficult to estimate anticipated childcare expenditures accurately 3 years into the future, as

¹⁴ The potential complexity is readily apparent from the following HUD guidance for PHAs on how to estimate the child care deduction when calculating a family's TTP: "Reasonable child care expenses for the care of children including foster children, age 12 and younger, may be deducted from annual income if all of the following are true: the care is necessary to enable a family member to work, look for work, or further his/her education (academic or vocational); the expense is not reimbursed by an agency or individual outside the household; and the expenses incurred to enable a family member to work do not exceed the amount earned. When more than one family member works, the PHA must determine which family member is being enabled to work because child care is provided. This is necessary because the child care allowance cannot exceed the income that family member earns. A good general rule is to assume that the child care expenses enable the lowest paid individual to work, unless this is obviously not the case. When a family member works and goes to school, the PHA must prorate the child care expense so that the portion of the total child care expense that is specifically related to the hours the family member works can be compared with the amount earned. PHAs must determine whether child care costs are 'reasonable.' Reasonable means reasonable for the care being provided. Reasonable costs for in-home care may be very different from reasonable day-care center costs. Families may choose the type of care to be provided." See Chapter 5 of *HUD's Housing Choice Voucher Program Guidebook* (U.S. Department of Housing and Urban Development, 2001).

would be required for a rent policy using triennial recertifications. Retaining such deductions in the context of triennial recertifications, it was feared, might have imposed even more administrative burden on staff and more unfairness in the determination of families' rent contributions.

The design team also considered that only a small percentage of households make use of the existing childcare allowance under traditional rent rules. MDRC analyses showed that fewer than 9 percent of working-age, nondisabled voucher holders assisted by non-Moving to Work agencies nationally, and fewer than 11 percent in the PHAs participating in the Rent Reform demonstration, used these allowances.¹⁵ In part, these low rates reflected the fact that many families who might have benefited from the deductions were not employed. It is also possible that some employed parents relied on family members or friends to care for their children while they worked.

Although it eliminated the childcare deduction, the design team decided that, for the purposes of the Rent Reform Demonstration, all families already receiving that deduction at the time of random assignment would be excluded from the study so that they would not have to forfeit an existing benefit. Families who were enrolled in the study and assigned to the new rent rules group, however, would not have access to the childcare deduction as long as the study continued. Although this policy would constitute a loss to the minority of families who would otherwise have used the deduction, those families, like others, stood to benefit from the 3-year cap on their TTPs, which could leave them with more resources to help cover at least some of their future childcare expenses.

(5) Exclude income from assets in calculating gross income?

Under the traditional rent policy, if a family has assets (such as bank accounts, stocks, and bonds), the income from those assets (such as interest or dividends) must be reported, verified, and included in the income base used to calculate the family's TTP. HUD guidelines state that when assets are \$5,000 or less, the actual income from assets is to be counted. When assets exceed \$5,000, the PHA must determine the actual income from those assets and an imputed income based on a passport savings rate established by HUD. It then applies the greater of these two estimates to the income base.¹⁶ Typically, however, few voucher holders have assets that produce enough income to have a meaningful effect on their TTPs. Thus, in another step toward the demonstration's simplification goal, the design team decided that, under the alternative policy, if a family had assets worth less than \$25,000 in total, any income generated by those assets would be ignored for the purposes of computing the family's TTP. In the rare instances that assets exceed that threshold, the income from those assets above the threshold would apply. Moreover, the families would not be required to document assets that they attested were worth less than that amount. In addition to reducing the administrative burden on staff (and families), ignoring income from assets worth less than \$25,000 might also encourage families to try to increase their assets through increased earnings and savings.

¹⁵ This estimate is based on MDRC calculations using 2011 HUD national data from PHAs included in the modeling exercise.

¹⁶ See U.S. Department of Housing and Urban Development (2001). HUD streamlining provisions issued in 2016, however, allowed PHAs to accept families' certification without third-party verification that they did not own assets valued at \$5,000 or more.

(6) What percent of gross income?

The decision to rely on gross income rather than adjusted income in calculating a family's TTP under the new rent policy raised some concerns that initial TTPs would be higher for families than they would be under traditional rules. Although their TTPs would be capped for the subsequent 3 years, families might experience a higher rent burden at the start of that period. To address this concern, the design team considered applying to the income base a rate lower than the traditional 30 percent to determine a family's TTP. It first had to consider what the implications might be for PHAs' subsidy payments because lower TTPs would mean higher subsidies, and the higher subsidy expenditures would continue through the 3-year recertification period when TTPs were capped.

Before the design team agreed to adopt a lower rate, MDRC's statistical modeling analysis compared how the TTPs and net incomes of certain types of families might change if TTPs were calculated using different percentages of family income (20 percent, 27 percent, and 28 percent), after taking into account families' housing costs, earnings, work-related expenses, taxes, and government benefits. The analysis also showed how those different rates might affect each of the four PHAs' total housing assistance payments on behalf of families during a 4-year period and the possible effect of such a policy on national housing assistance expenditures. The 28-percent rate was selected because a lower rate would have put the PHAs (and HUD's national budget) at risk of incurring much higher HAP costs, reducing the likelihood the alternative rent policy would achieve its cost-neutrality goal over 4 years.¹⁷

(7) Current/anticipated or retrospective gross income?

The traditional rent policy's method of calculating a family's TTP applies the 30-percent-of-income rate to the family's annual *current/anticipated* adjusted income. Of course, families' incomes can rise and fall unexpectedly. The traditional rent policy addresses income volatility by scheduling income reviews annually and allowing unlimited interim recertifications to adjust TTPs between annual reviews. The demonstration design team recognized, however, that offering families the opportunity to lock in a TTP based on current/anticipated income for 3 years may create an incentive for some families to lower incomes just before their scheduled recertifications. In theory, some family members might be tempted to quit their jobs, reduce their hours of work, or avoid looking for new jobs, so that the family's base income used in calculating its TTP for the next 3 years would be as low as possible (thus maximizing the family's subsidy for that period). This practice could result in unnecessarily low TTPs and unnecessarily high public subsidies. The extent to which voucher holders would actually resort to such practices was unknown. The design team had to weigh the relative merits of relying on an arguably simpler strategy (current/anticipated income) that risked generating higher HAP expenditures versus a more administratively burdensome strategy (retrospective income) that might help limit extra HAP expenditures and also protect the new policy from claims that it encouraged families to "game the system," potentially harming its public reputation and support.

¹⁷ Further details on the modeling work are available in MDRC's demonstration design paper (MDRC, 2016) available upon request from MDRC.

With these trade-offs in mind, the design team decided to base TTP calculations on *retrospective* income. In practice, this policy means that under the alternative rent policy, a family's TTP is calculated using their reported and verified income during the prior 12 months—the “look-back” period—unless the family qualifies for a safeguard option.¹⁸ The average monthly gross income during the prior 12 months is multiplied by 28 percent to determine the TTP.

Simply relying on retrospective income, however, could put some families at risk of excessive rent burdens. For example, if a family member had been working steadily but was laid off just before the family's recertification that will set its TTP for the next 3 years, the family may not be capable of paying a TTP based on its retrospective income. Furthermore, a tenant may have difficulty finding a new job quickly, or finding a new job that pays as much as the old one, no matter how hard the person tries, especially during a weak economy. Alternatively, a family member may have recently suffered a disability or may have retired from work and moved to a lower, fixed income. Thus, simply setting a family's TTP on the basis of its prior income—income that may be impossible to restore in future years—could leave some families with too high a rent burden, creating financial hardship for them and even putting them at risk of eviction. The alternative rent policy's safeguards (discussed later in this paper) were intended to accommodate the fact that some losses in family income will be permanent or long-lasting, whereas others will be transitory, and that it is not always possible to tell in advance which will be which.

(8) A limited number of interim recertifications?

The adoption of a 3-year recertification schedule meant that interim reviews and adjustments would no longer be made when families' incomes grew during that period. What should be done, however, when their incomes dropped? Under HUD's existing rent policy, families who lose income can get their TTPs reduced and subsidies increased at any time. Some PHA representatives on the demonstration design team advocated changing this feature by placing restrictions on interim recertifications when families' incomes fall. In their experience, many tenants requested TTP reductions repeatedly during the year, and often for small reductions in income, which took staff time to complete. They and others on the design team recognized, however, that some access to interim adjustments was necessary to help families avoid falling into hardship in the face of substantial income losses, which they may have incurred through no fault of their own. Therefore, a balance had to be found between minimizing frequent, and small, interim TTP adjustments and protecting families from increased financial hardship.

It was decided that families would be allowed one interim recertification each per year, at which time its TTP could be lowered. In addition, to keep the PHAs from having to make frequent adjustments for relatively small changes in income, an interim reduction would only be permitted when a family's average income from the prior 12 months fell by more than 10 percent below the

¹⁸ This calculation excludes any nonwage sources that stopped providing income by the end of that period because the family can no longer count on them. For example, if a family had been receiving Temporary Assistance for Needy Families (TANF) or unemployment insurance benefits but is no longer receiving them, the income from those benefits would be excluded. Income from family members who were removed from the voucher program is also excluded (for example, income from a spouse or other adult who died, who was incarcerated, or who was removed for other reasons during the previous 12 months). Imputed welfare income—that is, TANF income forfeited when a parent does not meet her or his TANF work requirement—is still counted if the family is still enrolled in TANF.

retrospective income previously used to compute its TTP. As discussed in a later section, however, the new policy's hardship provisions allowed families to apply for a TTP reduction *anytime* its TTP exceeded 40 percent of its *current/anticipated* gross income. In other words, the restriction on interim recertifications would limit families' options for counteracting small-to-moderate income losses, but another strategy would address severe income losses.

(9) A minimum TTP?

A potentially controversial issue was whether to include a minimum TTP (also commonly referred to as a "minimum rent") in the alternative rent policy, and if so, at what amount. All PHAs across the country were already authorized to set minimum TTPs of \$50 per month under the Quality Housing and Work Responsibility Act of 1998, although not all did so. Given enduring policy questions about minimum TTPs as part of a rent subsidy policy, HUD urged that this provision be tested as part of the Rent Reform Demonstration. Among the four participating PHAs, however, some were concerned that introducing this feature would provoke strong local opposition from tenant advocacy groups. Two decisions helped to secure agreement on this issue: (1) each PHA would be able to set the amount of its minimum TTP, and (2) the new rent policy's hardship provisions would protect the lowest income tenants from severe hardship.

The minimums the PHAs set varied widely. At the low end, the Louisville Metro Housing Authority selected a \$50 minimum, which is the minimum rent permitted under the existing federal legislation. The District of Columbia Housing Authority implemented a \$75 minimum, which was roughly equivalent to the inflation-adjusted value of the \$50 minimum permitted when that law was enacted. The San Antonio Housing Authority introduced a \$100 minimum, which was double the \$50 minimum that the PHA had already implemented for its general voucher population before the Rent Reform Demonstration began. The Lexington Housing Authority implemented a \$150 minimum TTP, which it had adopted before joining the demonstration.

If families paying the minimum TTP early in the 3-year period steadily increased their incomes, they would continue to pay only the minimum TTP for the remainder of that period. This offered a substantial financial benefit for such families, but it was also a reason not to set the minimum too low because it could remain in place for several years, even as families' earnings rose, a very low minimum could substantially increase the PHAs' housing subsidy expenditures (relative to traditional rent rules). It was expected, however, that only a minority of families would be affected by the minimum TTP, because most were already paying above the specified levels before being enrolled in the Rent Reform Demonstration.¹⁹

(10) Who should pay the landlord the minimum rent?

Under the traditional rent policy, families are responsible for paying the rent portion of their TTPs directly to their landlords, and for paying the utility companies for their utility costs (if utilities are not included in the lease). The PHAs pay directly to the landlords whatever rent subsidy amount is

¹⁹ Using HUD data from December 2012, MDRC estimated that about 69 percent of households in non-Moving to Work agencies paid \$100 or more in rent, and 85 percent paid at least some amount to owners.

owed to them. In some cases, however, families' TTPs are so low that their utilities payments consume most or all of their TTPs, so the PHA directly pays most or all of the rent owed to the landlords.

During the demonstration design phase, HUD officials expressed concern that families in this situation would have no direct financial relationship with their landlords. This aspect was considered undesirable for at least two reasons. First, HUD officials worried that it would not help families get in the habit of making an on-time rental payment each month, as they would need to do if they rented in the private housing market after exiting the voucher program. Second, in the absence of a regular, rent-paying relationship, they may be less inclined to demand from landlords the level of maintenance and other services they are entitled to receive.

The design team therefore decided that under the new rent policy, all families would be required to pay at least the minimum TTP amount to their landlords. This practice would not put families at any additional risk of not paying or underpaying their utility bills because it does not change the family's total subsidy amount. Rather, part of the subsidy that the PHA would normally pay a landlord in these circumstances would be redirected to the family in the form of a higher utility allowance reimbursement payment (or UAP), allowing the family to meet its utility costs *and* pay the landlord the minimum rent.

(11) Protections from excessive rent burden?

The adoption of minimum TTPs, the elimination of deductions, and the reliance on retrospective income posed a critical challenge for the demonstration design team: How would the new policy ensure that families would not be placed at a greater risk of incurring an excessive rent burden that would cause serious financial hardship, and possibly eviction? Here the goals of increasing the financial incentive to work, simplifying the administration of the rent subsidy system, and containing HAP expenditures came into some tension with the goal of protecting families. The design team thus had to identify a set of safeguards to protect families from being required to pay TTPs they simply could not afford, without disregarding the other goals of the Rent Reform Demonstration. The approach they finally adopted included several basic safeguards that would be routinely applied and a hardship policy that included standardized elements but also allowed some PHA discretion.

One safeguard concerned disabilities. If at any time a family became designated as a disabled household (according to HUD's definition), the PHA would immediately recalculate the family's TTP based on its current/anticipated gross income (rather than retrospective income), without waiting for its next triennial recertification.

For other families, interim recertifications were an important safeguard when reductions in income occurred. As previously discussed, however, interim recertifications were restricted to one per year and only when a family's more recent retrospective income fell by more than 10 percent of its previously calculated retrospective income.

Another provision applied at the beginning of each 3-year period between triennial recertifications. If at that time a family's current/anticipated gross monthly income for the coming year was substantially lower than its average gross monthly income for the past 12 months (that is, more than 10 percent

lower), the PHA would automatically set a temporary TTP based on the family's current/anticipated income (or the minimum TTP, whichever is higher) for a full 6-month "grace period."

This grace period was intended to protect the family temporarily from a high rent burden while it tried to restore its income to its prior level (for example, through a new job search for a voucher holder who recently lost a job). At the end of the 6-month grace period, the temporary TTP expires and the family is switched *automatically* to the "regular" TTP amount based on its retrospective income. Six months was chosen as a grace period to align with the normal period allowed for recipients of federal unemployment insurance benefits to find new work. Of course, some tenants will have difficulty replacing their lost earnings within 6 months—or, perhaps, ever—making other protections necessary, which included an interim recertification or hardship remedy that would commence at the end of the grace period.

The design team recognized that a family could suffer a severe drop in income at any time during the 3 years before the triennial recertification, and that the more routine grace period and interim recertification features would not be enough to protect them from an excessive rent burden. A more robust hardship policy would be needed. To address this challenge, the design team had to make decisions pertaining to three critical issues: (1) what circumstances should qualify families for a hardship remedy, (2) what should those remedies be, and (3) what process should be followed in administering the remedies and responding to complaints by tenants who contend that they were unjustly denied a hardship remedy? The design team sought to standardize the hardship policy as much as possible across the four PHAs, so that the protections offered to tenants by the rent policy would not vary with contrasting ideologies or tendencies toward greater or lesser leniency, or with idiosyncratic administrative practices.

Conditions that qualify a family for a hardship remedy

All four PHAs and HUD agreed that a family would be considered eligible for a hardship remedy if at least one of the following criteria was met:

- The family's total monthly rent exceeds 40 percent of its monthly current/anticipated gross income (including imputed welfare income).
- The family faces a risk of eviction for nonpayment of rent—including utility shutoffs for nonpayment of utility bills that could lead to eviction.
- Other exceptional circumstances, as determined by the PHA (expected to be rare).

In arriving at the 40-percent threshold, the design team recognized that how much of rent burden was "excessive" was a subjective decision, and it looked to other benchmarks to help it decide. For example, it took into account the fact that HUD regulations set an affordability standard that allowed voucher holders to enter into new leases that would require them to pay up to 40 percent of their adjusted income in rent and utilities. (In these cases, the household's family share would exceed its TTP.) The design team also looked at other subsidy programs and noted that SNAP rules include excess shelter costs in calculating SNAP benefits when an applicant's shelter costs exceed

50 percent of net income. With these benchmarks in mind, 40 percent of gross income seemed to be a reasonable threshold for defining excessive rent burden for the alternative rent policy.

This hardship criterion was intended to allow the PHAs to waive the minimum TTP when the minimum TTP accounted for more than 40 percent of a family's current/anticipated gross income, and to reduce TTPs for families who were paying above the minimum but nevertheless met the 40-percent threshold. Three of the four PHAs agreed fully with these provisions; Lexington was the exception. It objected to reducing families' TTP below the agency's previously established \$150 per month minimum TTP under any circumstances short of a household becoming defined as disabled. Thus, the hardship criterion that applies in Lexington specifies that a family's TTP must exceed the 40 percent threshold and be greater than the \$150 minimum rent.

Two other options were considered but rejected in defining qualifying conditions. One was to exclude from eligibility any families whose incomes fell because tenants quit their jobs. Concern was expressed about using public subsidies to compensate for voluntary unemployment. It was agreed, however, that the circumstances surrounding a tenant's exit from a job were often murky, and investigating those circumstances could take considerable staff time. Also, in some cases, these investigations may never clearly conclude whether the tenant quit for what were deemed "justifiable" reasons. This qualifying condition was thus considered impractical for the alternative rent policy.

A second concern related to families hit with a household member's unexpected medical bills and drug costs not covered by insurance, making it difficult for the families to pay their rent and utilities; this circumstance could possibly expose them to eviction, even if their incomes did not fall. It was decided that the circumstances of such families could vary widely, and other families may face serious financial emergencies unrelated to medical costs, making it difficult to establish a blanket policy that would be appropriate in such cases. Instead, the design team opted to include two other qualifying conditions for a hardship remedy: a high risk of eviction and other special (and unusual) circumstances. PHAs would have the flexibility to deem certain families facing those circumstances as worthy of a hardship remedy on a case-by-case basis, with the expectation that these criteria would be used sparingly.

Hardship remedies

As part of its effort to standardize the hardship provisions, the design team specified a menu of four remedies from which all PHAs would choose while allowing each agency the discretion to decide which to apply in any given situation:

1. Allowing an additional interim recertification beyond the normal one-per-year option. This additional recertification could lower a household's TTP (but only as low as the minimum TTP) until the next triennial recertification.
2. Setting the household's TTP at the minimum TTP level for up to 180 days.
3. Setting the household's TTP at 28 percent of current income (which may be less than the minimum TTP, except in Lexington) for up to 180 days.

4. Offering a “transfer voucher” to support a move to a more affordable unit (including a unit with lower utility expenses).

At the end of the hardship period, the family’s regular TTP would be reinstated, and the family would not be required to repay the amount it would have paid otherwise. If the hardship continues, the family may request an extension of the hardship remedy. The hardship remedy period cannot be scheduled to end after the family’s next scheduled triennial recertification.

The hardship process

Despite having standardized criteria for qualifying for a hardship remedy and a standardized menu of remedies, PHAs retained considerable discretion in operationalizing aspects of this policy. In most cases, families had to request a hardship remedy in writing by completing the hardship request form and supply information and documentation that supported their hardship claims.²⁰ It was important that the PHAs establish processes for reviewing and acting on these requests in a fair and impartial manner, and that families had a reasonable opportunity to appeal if their requests were denied. To that end, the demonstration design team considered a multi-step process in which each PHA would set up a similar hardship committee to review hardship requests and address tenants’ grievances. The PHAs argued, however, that this process would be too cumbersome and burdensome to administer, and that their pre-existing procedures for handling tenant disputes of any kind would suffice. Ultimately, with the understanding that all PHAs would adopt the same hardship criteria and set of remedies, and that families whose requests were denied would have adequate opportunities to appeal, it was decided that each PHA would determine its own procedural steps for granting hardships and processing appeals.

(12) What about utilities?

Utility expenses are a crucial component of shelter costs, and calculating them is complex for PHAs. For many voucher holders, some or all utilities expenses are included in the contract rent paid to the landlord, but for others, utilities are a separate cost. Under traditional rent rules, PHAs help to cover these expenses through a “utility allowance.”

PHAs review and, if necessary, update their utility allowance tables annually (through market surveys and analyses that take into consideration the type of dwelling), and apply them in determining each family’s gross rent, taking into account particular characteristics of the family’s dwelling unit and type of heating system. The process is widely viewed as complicated and error prone. The PHAs in the Rent Reform Demonstration therefore agreed that the new rent policy should include a more streamlined (and less error-prone) approach to calculating the utilities component of a family’s TTP.

²⁰ For example, a family must provide proof of the following: loss of eligibility for a federal, state, or local assistance program; loss of employment or reduction in work hours; an eviction letter; a document indicating utilities may be shut off; or a document indicating the family is at risk of eviction. To request a hardship remedy based on the risk of eviction for nonpayment of rent or utilities, a family must provide to the PHA a notice from the landlord of nonpayment of rent and the landlord’s intent to terminate the family’s tenancy or a notice from a utilities company warning of a utilities shutoff. PHAs may set a time limit within which they must receive a copy of this notice from the tenant (for example, no more than 10 business days from the date that the tenant received the notice from the landlord or utility company).

The design team explored a variety of options, looking most closely at the following four strategies:

1. Eliminating utility allowances altogether and basing a family's subsidy on the payment standard, even if its gross rent (that is, the contract rent owed to the landlord plus expected utilities costs, if utilities are not included in the lease) is below the payment standard.
2. Eliminating utility allowances and basing a family's subsidy on a payment standard set equal to 100 percent of the small area Fair Market Rent for rental costs in the area in which its unit is located, and paying up to that payment standard.
3. Applying the SNAP (food stamp) standard utility allowance set by state or local SNAP agencies and used in calculating SNAP benefits.²¹
4. Paying a flat rate utility allowance based on the number of bedrooms required for a given household size (voucher size), with some provision for extra costs.

MDRC's statistical modeling exercise examined how these options were likely to affect families' net incomes and TTPs, as well as PHAs' HAP expenditures (relative to the traditional rent and utilities rules). The analyses revealed that the likely effects of the first three alternatives varied across housing agencies to a degree that was considered unacceptable for a potential national rental policy. In addition, they were likely to increase HAP expenditures (relative to estimated expenditures under traditional rules) by amounts deemed to be too high, putting the cost-neutrality goal beyond reach.

The design team settled on the fourth option, which was based on an approach previously developed by the District of Columbia Housing Authority. According to this approach, using local area utility rates (which were to be updated periodically), each PHA in the demonstration specifies a standardized utilities *base rate* that varied only according to the size of the voucher (that is, the number of bedrooms covered by a family's voucher). It then specified a few "add-on" amounts for units that were dependent on more expensive utilities. The particular add-ons varied from agency to agency depending on the types of utilities more common in the area. For example, the PHA in Washington, D.C., includes an add-on payment for units relying on electric heating, which is more expensive than gas heating. It includes another add-on for water and sewer costs when the tenant is responsible for these expenses.²²

It was hoped that the new utility schedule would result in fewer errors in calculating utility allowances, primarily because it requires housing specialists to gather and take into account much less information about the characteristics of a rental unit.

Predicting the overall effects of the alternative rent policy

Exhibit 1 summarizes the key features of the final policy that emerged from the design process and how these features compare with HUD's traditional rent policy. Taking all of these features

²¹ This number is a fixed dollar amount that states update annually. It applies statewide and is not based on an individual household's actual costs. Some states set separate amounts for heating and cooling, non-heating/cooling (for example, other electricity, water, trash collection), and telephone only.

²² The PHA estimated that its new approach cost the agency about the same as the existing utility allowances.

into account, MDRC's statistical modeling showed that under the new rent rules, when families increased their earnings (especially through full-time employment), their net family incomes were likely to increase *more* than they would under the traditional rent rules. These increases would be achieved primarily by holding their TTPs and housing subsidies constant in the face of earnings gains during the 3 years leading up to their next triennial recertifications, thus allowing them to keep more of their increased earnings.

For PHAs, the statistical modeling predicted that the new policy would cause the agencies' total expenditures on housing subsidies for the families receiving the new rent rules to be higher during the first 3 years than they would be under traditional rent rules. This increased expenditure was expected largely because families who increased their earnings, and who would therefore have had their subsidies reduced under traditional rules, would instead receive the same level of subsidy until their triennial recertifications took place. However, the analysis also predicted that in Year 4, housing-subsidy expenditures under the alternative rent policy would be somewhat lower than under the traditional policy, even assuming that the new policy did *not* have a positive effect on families' earnings. In part, this prediction reflects the assumption (supported by the modeling exercise) that, on average, TTPs recalculated in Year 4 would be based on average earnings that would be higher than the average earnings of the same families' recertifications 3 years earlier because of normal increases in work and earnings over that period of time (that is, increases that would have occurred even in the absence of the new policy). In addition, the policy's minimum rent, the absence of deductions, and limits on interim recertifications in the face of income declines would begin to generate higher TTPs for families still on the voucher program in Year 4. It is at the point of that triennial recertification that PHAs would begin to recoup the housing-subsidy reductions they had foregone during the previous 3 years when TTPs were capped.

The modeling exercise also showed that in the absence of an employment impact, the *cumulative* housing-subsidy expenditures through the first 4 years of the policy may be somewhat higher for families receiving the new rent rules compared with families subject to the traditional policy. If the new policy has a modest employment impact, however, those subsidy expenditures may reach (or come very close to) a "break-even" level, achieving the cost-neutrality goal of the new policy.

Of course, it was impossible to predict with certainty what would really happen under the new rent policy. The exercise was helpful to the policy designers, however, because it illustrated possible trade-offs among different options considered for the demonstration. The randomized trial now underway is providing more definitive evidence on how the new policy affects families and PHAs.

Conclusion

Designing the new rent policy for the Rent Reform Demonstration was a challenging process because it sought to balance multiple, sometimes competing, objectives related to tenants' work incentives, administrative simplification, cost-neutrality, and tenant protection. The demonstration design team weighed the pros and cons of a variety of reform options, from entirely jettisoning the Brooke Amendment linking rent to family income, to myriad ways of altering exactly how rents could be tied to income. The process had to contend with initially different views on features like minimum rents, adjusted vs. gross incomes, retrospective income, recertification schedules,

hardship policies, and utilities policies. It is thus noteworthy that, despite some differences in perspectives, all four very different PHAs and HUD reached a consensus on the core elements of the new policy.

On many issues, these different views were not cleanly split along the lines of institutional affiliation. Rather, they simply reflected different insights, ideas, and experiences that individual members of the design team brought to the discussions. Perhaps most critical to reaching a consensus, however, was finding a way to accommodate some local adaptations important to the PHAs. These adaptations especially involved the issue of minimum rents, which they knew would be of great concern to the local advocacy groups in their communities, and on the procedures for administering the agreed-upon hardship remedies. Also important to getting PHA buy-in on a common policy was the care taken by HUD to avoid creating the impression that it was trying to pressure the PHAs to adopt any particular approach, rather than allowing the collaborative process to play out. The fact that HUD chose an intermediary (in this case, MDRC) to organize and manage the design process may also have helped. The evaluation of the final model is slated to be completed by 2024.²³

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²³ An overview of the demonstration and links to published reports can be found on MDRC's website at <https://www.mdrc.org/project/rent-reform-demonstration#overview>. Links to individual reports can also be found on the HUD User website at <https://www.huduser.gov/portal/home.html>.

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Can Diverse Activities Have a Combined Impact? Examining the Effects of the Moving to Work Demonstration on Housing Choice and Self-Sufficiency Outcomes

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Abstract

Public housing agencies (PHAs) participating in the Moving to Work (MTW) demonstration can use funding and policy flexibilities to further the three statutory objectives of the demonstration—to (1) reduce cost and achieve greater cost-effectiveness, (2) promote family self-sufficiency, and (3) increase housing choice. This report examines the success that MTW agencies had in meeting the housing choice and self-sufficiency objectives. Using longitudinal HUD administrative data and a database of publicly available MTW Annual Plans, we conduct comparative interrupted time series (CITS) analysis to compare MTW groups with traditional PHAs to identify whether MTW status or policies are associated with progress toward meeting the second and third statutory objectives. Results indicate some signs of a positive relationship between MTW and outcomes of interest. Of the three indicators we detail in this paper, we find that MTW status and activity are associated with an increased share of new households, not associated with the share of tenant-based vouchers in low-poverty tracts, and may be associated with an increase in the share of households with incomes higher than when they entered housing.

Introduction

The Moving to Work (MTW) demonstration gives participating public housing agencies (PHAs) funding and policy flexibility not available to traditional PHAs. MTW agencies can use flexibilities to implement activities that further the three statutory objectives of the demonstration, which are

to (1) reduce cost and achieve greater cost-effectiveness in federal expenditures; (2) give incentives to families with children when the head of household is working, seeking work, or preparing for work by participating in job training; and (3) increase housing choices for low-income families.¹ This study examines the success that MTW agencies had in meeting the statutory objectives to increase housing choice and encourage self-sufficiency (see Stacy et al., 2020, for an analysis of the cost-effectiveness objective).

HUD does not explicitly define those statutory objectives, and agencies may define them in their own ways (Government Accountability Office, 2018; GAO, 2012). Agencies are expected to experiment with policy reforms or housing assistance models that respond to local contexts and needs. Further, MTW agencies vary widely in terms of the year they received MTW designation, total households served, local housing market characteristics, the mix of housing assistance provided, the characteristics of assisted households, the context in which they received the MTW designation, and their goals.

Our review of agency MTW plans showed that as of 2015, three or more MTW PHAs included 20 distinct housing choice initiative types that were currently active and 14 distinct and active self-sufficiency initiative types (Treskon, Gerken, and Galvez, forthcoming). For housing choice, common initiatives were non-traditional programs (involving rental subsidy, housing development, or service provision); comprehensive, project-based voucher programs; expedited acquisition of public housing; housing mobility programs; local payment standards; and revised waitlist policies. For self-sufficiency, local non-traditional service provisions were, again, prevalent; so were policies changing how income was used to calculate rent, alternate Family Self-Sufficiency (FSS) programs, minimum rent, and work requirements.

Given the wide variety of goals and initiatives across the MTW agencies, this study analyzes the effects of MTW on outcomes for two differently defined treatment groups: an “MTW status” group to measure the effect of MTW designation itself, and an “MTW activity-specific group” to measure the effect of activities directly related to self-sufficiency and choice. Our data come from a combination of longitudinal HUD administrative data and a unique database of publicly available MTW annual plans.

To reflect the diversity of potential effects from MTW status or initiatives, we posed seven research questions—three about housing choice and four about self-sufficiency:

- Do MTW agencies promote housing choice?
 1. Do MTW agencies create more housing opportunities relative to traditional agencies?
 2. To what extent are households served by MTW agencies reaching lower poverty, higher opportunity neighborhoods than households served by traditional agencies?

¹ See Public Law Section 204 C(3) (A-E): <http://www.gpo.gov/fdsys/pkg/PLAW-104publ134/pdf/PLAW-104publ134.pdf> (p. 283). Agencies participating in MTW are also required to have at least 75 percent of admitted families be very low income, create a rent policy encouraging self-sufficiency and employment, assist “substantially” the same number of low-income families and maintain a similar family mix as they would have otherwise, and ensure that housing meets quality standards determined by HUD.

3. To what extent are households served by MTW housing agencies living in higher quality public housing² dwellings relative to households in traditional agencies?
- Do MTW agencies promote self-sufficiency?
4. How do incomes of existing work-able households served by MTW agencies compare with those served by traditional agencies?
5. How does the use of escrow accounts as a tool for promoting self-sufficiency differ between MTW and traditional agencies?
6. Are existing work-able households in MTW agencies moving to minimal housing subsidy at greater rates than households at traditional agencies?
7. Are existing work-able households in MTW agencies making positive exits from housing assistance at greater rates than households at traditional agencies?

After providing an overview of the literature on housing choice and self-sufficiency, this report presents the study goals, methods, and findings related to MTW activities and outcomes of interest, followed by a discussion and conclusions. This article provides an overview of a longer report, “Housing Choice and Self-Sufficiency Outcomes at Moving to Work Agencies” (Treskon, Gerken, and Galvez, forthcoming), which discusses the methodology and findings in more detail and includes results from an analysis of the outcomes of individual MTW agencies.

Literature Review

This section situates the present study in the context of the existing work on how MTW agencies approach the housing choice and self-sufficiency statutory requirements.

Housing Choice

With one exception, studies of MTW and housing choice are primarily descriptive. Those studies show that most MTW agencies have pursued the housing choice objective but with wide variation in how housing choice is defined and what the efforts entail (Buron et al., 2017; Galvez et al., forthcoming; Galvez, Gourevitch, and Docter, forthcoming; Galvez, Simington, and Treskon, 2017; Khadduri et al., 2014; Oppenheimer, Haberle, and Tegeler, 2013; and Webb, Frescoln, and Rohe, 2015). One study that went beyond a descriptive approach assessed the effect of MTW on housing choice and found that MTW agencies generally performed better than comparable PHAs in their public housing and affordable housing programs—as measured by Real Estate Assessment Center (REAC) physical inspection scores and number of rental units preserved—but had lower voucher utilization rates (Buron et al., 2017).

² Using a measure of housing quality for the housing choice voucher (HCV) program was not feasible because of data limitations.

What is “Housing Choice”?

HUD does not define what *housing choice* is, so MTW agencies and researchers have defined it in a wide variety of ways. In a study of MTW innovations, Khadduri et al. (2014) identified three types of initiatives relevant to housing choice: increasing the quantity and quality of affordable housing, promoting residential stability, and improving geographical choice. They described several categories of activities within each initiative, which informed the performance measure outcomes examined separately by Buron et al. (2017). Buron et al. (2017), in turn, found that MTW agencies have lower voucher utilization rates, higher public housing physical inspection scores, a smaller share of public housing units with unmet capital needs, and a higher share of project-based units. MTW agencies have found success in areas that cannot be compared well to traditional agencies, such as the use by MTW agencies of local, non-traditional assistance to stabilize hard-to-serve populations.

In one of the first comprehensive efforts to describe MTW activities related to statutory objectives, Webb, Frescoln, and Rohe (2015) found diverse categories of the efforts that MTW agencies made to increase housing choice: broadening supportive housing options, improving access to high-opportunity neighborhoods, administering assistance to households at risk of foreclosure, project-basing units, improving access to housing, using landlord outreach, and promoting homeownership programs.

Galvez, Simington, and Treskon (2017) examined the 2015 annual plans for all 39 MTW agencies. The researchers identified 187 ongoing activities from 37 MTW agencies that indicated increasing housing choice as an objective—with 45 of those activities (from 24 agencies) related to neighborhood mobility. Those activities included some that restricted moves (by limiting the ability of households to move to a different PHA jurisdiction), and some activities intended to encourage moves to low-poverty areas. In their investigation of the extent to which MTW agencies promoted neighborhood mobility, Oppenheimer, Haberle, and Tegeler (2013) found that some MTW agencies defined neighborhood mobility to include self-sufficiency efforts that could indirectly affect movement to new neighborhoods through economic mobility and redevelopment of assisted housing in high-poverty areas that might improve housing quality but could also reinforce existing residential segregation.

Measuring MTW Housing Choice Outcomes

Buron et al. (2017) developed performance measures to assess agency-level outcomes for MTW agencies in 2014 compared with those of a subset of traditional PHAs. They created five measures of housing choice, defined as increasing the quantity and quality of affordable housing: voucher utilization and public housing occupancy; public housing physical inspection scores; unmet public housing capital needs; the amount of affordable housing preserved; and the amount of local, non-traditional assistance that MTW agencies provide.³ Those researchers also looked at measures of neighborhood mobility, including portability, project-basing of voucher assistance, and census tract poverty rates. Looking at data for one point in time, using fiscal years 2013 and 2014 Voucher

³ As described in PIH Notice 2011-45, MTW agencies can implement local, non-traditional activities that fall outside the HCV and public housing programs, provided those activities target low-income households and meet one of the three MTW statutory objectives.

Management System reports and 2014 American Community Survey 5-year estimates, they found mixed results.

Specifically, in relation to comparison PHAs, Buron et al. (2017) found that MTW agencies had lower average voucher utilization rates but comparable outcomes for some measures (public housing occupancy rates) and better outcomes on others (physical inspection scores, public housing units with unmet capital needs, and the number of units preserved). They also assessed how well MTW agencies expanded the geographic scope of assisted housing, considering portability, project-basing of units, and neighborhood poverty rates. They found that MTW agencies, with respect to comparison PHAs, ported out a smaller share of vouchers, had a higher share of project-based units, and had comparable neighborhood poverty rates for voucher holders.

Two studies that compared MTW agencies to comparably sized traditional PHAs found that location patterns for MTW-assisted households resembled those of households assisted by traditional PHAs. MTW-assisted households lived in neighborhoods with an average poverty rate that was almost identical to that of households served through comparably sized traditional agencies. Results were consistent across the tenant-based voucher (TBV), project-based voucher (PBV), and public housing programs (Galvez, Gourevitch, and Docter, forthcoming; Galvez et al., forthcoming).⁴ Galvez et al. (forthcoming) compared PBV location outcomes using measures adjusting for regional differences and found that, relative to the average neighborhood in their jurisdictions (approximated as primary counties), MTW-assisted PBV units were in neighborhoods with a greater concentration of poverty than were PBV units at traditional PHAs, although the difference was not statistically significant.

Finally, Galvez, Gourevitch, and Docter (forthcoming) found that MTW agencies added relatively more households between 2008 and 2016 compared with traditional agencies, whose assistance remained fairly flat over the same time period. The rigorous study of cost effectiveness in the MTW retrospective evaluation also found that MTW agencies added relatively more households than did comparable traditional PHAs (Stacy et al., 2020). Both studies also documented increased funding for MTW agencies relative to traditional agencies.

Self-Sufficiency

Six published studies explored MTW efforts to encourage self-sufficiency (Buron et al., 2017; Castells, 2020; Khadduri et al., 2014; McClure, 2017; Rohe, Webb, and Frescoln, 2015; and Webb, Frescoln, and Rohe, 2015). Four of those studies assessed MTW agencies as a group, whereas Rohe, Webb, and Frescoln (2015) and Castells (2020) evaluated the effects of self-sufficiency-related efforts at individual MTW agencies. The studies measured self-sufficiency primarily in terms of MTW agency efforts to increase employment and income over time and to transition households off housing assistance, such as through case management and self-sufficiency programming, escrow accounts, and time limits. The studies considering MTW agencies as a group found that the

⁴ An abundance of literature documents the locations of PBV-assisted units—particularly in relation to the Housing Choice Voucher program—but those studies do not break out MTW agencies specifically to determine if MTW agencies have improved location outcomes. See, for example, national and state housing data fact sheets and similar ongoing analysis by the Center on Budget and Policy Priorities (<http://www.cbpp.org/research/national-and-state-housing-data-fact-sheets>), Devine et al. (2003), and McClure, Schwartz, and Taghavi (2015).

earnings of households were more likely to increase at MTW agencies than at comparable agencies and found conflicting evidence on length of stay. A study of the Charlotte Housing Authority found a higher likelihood of employment for public housing residents with a work requirement and case management and self-sufficiency programming, compared with residents at the PHA not subject to the work requirement (Rohe, Webb, and Frescoln, 2015). A study of the Santa Clara County Housing Authority found its rent reform program had no significant effects on the relationship between increased rent and employment and earnings (Castells, 2020).

Defining Self-Sufficiency

As with housing choice, Webb, Frescoln, and Rohe (2015) categorized activities found in MTW annual reports that sought to promote self-sufficiency. They found that self-sufficiency efforts at MTW agencies included case management and self-sufficiency programming (such as through Family Self-Sufficiency programs and similar models), escrow accounts and other incentives to promote work through work requirements, time limits on housing assistance, training and vocational programming, and initiatives to improve educational and health outcomes.

Khadduri et al. (2014) defined self-sufficiency as increased earnings of work-able assisted households and focused on initiatives supporting, incentivizing, or requiring work. As with the housing choice performance measures, analyses by Buron et al. (2017) built off the Khadduri et al. (2014) assessment to develop performance measures for agencywide outcomes related to self-sufficiency for MTW agencies in 2014. Buron et al. (2017) identified three measures of increasing self-sufficiency: earnings growth among nonelderly and nondisabled households,⁵ the share of households without reported earnings, and the length of stay in assisted housing.

Measuring MTW Self-Sufficiency Outcomes

An evaluation of the effort by the Charlotte Housing Authority to promote self-sufficiency by requiring public housing residents to work and offering them case management and supportive services found that those subject to the work requirement were more likely to be employed. Case management alone, when not coupled with work requirements, did not have any statistically significant effect on employment. The authors did not find evidence that work requirements led to more evictions or other types of negative move-outs (Rohe, Webb, and Frescoln, 2015).

Buron et al. (2017) found that household earnings at MTW agencies were more likely to increase than were household earnings at comparable agencies and had a smaller share of households with no earnings than did comparable agencies. They also found that HCV households, on average, had a shorter length of stay at MTW agencies than at comparison agencies. MTW agencies, however, also had a higher share of households with decreasing earnings than at comparison agencies.

Length of stay is one measure of self-sufficiency that considers how long households use housing assistance. McClure (2017) examined the length of time that cohorts of assisted households stay in assisted housing across several categories of housing assistance using household dates of admission and exit. He found that the average length of stay had increased over time for all programs, including HCV-assisted households at MTW agencies. When calculating the average and median

⁵ All residents of working age not identified as elderly or disabled were defined as work-able.

lengths of stay by admission year, he found, in contrast to Buron et al. (2017), that HCV-assisted households at MTW agencies had a higher average and median length of stay than did both HCV-assisted and public housing households at traditional agencies.

Castells (2020) assessed the effects of the Santa Clara County Housing Authority rent reform initiative that increased the percentage of income that tenants paid toward rent. Specifically, Santa Clara increased the rent contribution required of tenants from 30 percent of adjusted income to 35 percent of gross income in September 2013 and then decreased that percentage of gross income from 35 percent to 32 percent in September 2014. The rent increase did not affect average employment and earnings of work-able HCV households in the 4 years following the rent reform. HCV households increased their employment and earnings on average during that time, but that increase was similar to the increase that households from surrounding comparison communities saw who were not subject to rent reform. The study found that a subset of families who were affected by a changed bedroom standard in addition to rent reform may have reduced their earnings, suggesting families affected by both policy changes may have decreased their level of employment.

Goals of the Present Study

Although existing studies of the activities intended to promote housing choice and self-sufficiency among MTW agencies have documented a broad range of definitions for those objectives and of activities intended to achieve them, only one study to date, Buron et al. (2017), has attempted to assess the effect of the MTW demonstration on housing choice and self-sufficiency outcomes among MTW agencies as a group. Although two impact studies have examined specific MTW initiatives (Castells, 2020; Rohe, Webb, and Frescoln, 2015), much is still unknown about the overall effects that MTW has had in helping PHAs meet their statutory objectives.

This study builds on previous work by systematically examining both the diversity of ways in which housing choice and self-sufficiency could be understood and measured and by analyzing the effects of MTW in two ways: through MTW status and through MTW-specific activities. The root question of this study is, are MTW agencies more effective at increasing housing choice and self-sufficiency than comparable traditional PHAs?

Methods

Our analysis examines the effect of MTW by considering whether posttreatment outcomes for groups of MTW agencies diverge in a statistically significant manner from those of matched comparison groups of traditional agencies. We use comparative interrupted time series (CITS) analysis, which is a type of multivariate regression that uses longitudinal data to compare changes over time in an outcome measure for a group that experienced a treatment to changes for a matched comparison group that did not receive the treatment.⁶ CITS tests for a change in differences in an outcome between two groups at two points in time (level differences), and it tests for differences in trends during two time periods (slope or trend differences). CITS relies on multiple years of pre- and posttreatment data. Pretreatment data provide a baseline for analysis

⁶ See Bloom (2001), Bloom et al. (2005), Linden (2015), Somers et al. (2013), and St. Clair, Cook, and Hallberg (2014) for examples of CITS analysis and methodological discussion.

and for identifying a comparison group. Posttreatment data identify any significant divergence in outcomes between the treatment and comparison groups.

Treatment

Given the substantial diversity in how MTW agencies interpret and approach the statutory objectives, we selected the MTW groups for analysis in two different ways. First, we selected one group of MTW agencies on the basis of when they received the MTW designation. Second, we identified groups of MTW agencies on the basis of their engagement in broadly defined efforts to increase housing choice or to encourage self-sufficiency. In separate analysis steps, each type of MTW agency group is compared with a matched group of traditional PHAs for a set of seven research questions.

Timeframe

Our analysis timeframe is broken into three periods: one pretreatment period and two posttreatment periods. The time up to 2009 is the pretreatment period, 2010–2012 is the initial posttreatment period, and 2013–2016 is the second posttreatment period. Those periods were chosen in part due to data and analysis issues. We had access to data through 2016, so working backward to obtain at least 3 years of data for each posttreatment analysis period resulted in the 2013–2016 and 2010–2012 period definitions. The pretreatment periods also vary depending on data quality and availability. For agencies that joined MTW in 2008 or later, Public and Indian Housing (PIH) Information Center (PIC) data are reliable back to at least 2001; however, agencies that joined MTW before 2008 had limited reporting requirements before that year (Galvez, Gourevitch, and Docter, forthcoming),⁷ so the exact pretreatment period analyzed depends on the MTW agencies we included in a given analysis group.

Posttreatment Period 1 (2010–2012) reflects an initial posttreatment period when effects may begin to emerge following the date that MTW-status group agencies first joined the program (from 2008 to 2011) or the MTW activity-specific groups first enacted relevant activities (from 2009 to 2012). In the CITS analysis, we measured changes and differences in outcome levels and trends. The level difference compares the change from 2009 (the last pretreatment year) to 2010 for the MTW group to that of the comparison group. The trend difference compares the 2010–2012 trend for the MTW group with that of the comparison group.

Posttreatment Period 2 (2013–2016) reflects the period when MTW-status group agencies had MTW status for at least 1 year, and activities started by agencies in the MTW activity-specific groups had all been implemented for at least 1 year. In the CITS analysis, the level difference compares the change from 2012 (the last year of the initial implementation treatment period) to 2013 for the MTW group with the change for the comparison group. The trend difference compares the 2013–2016 trend for the MTW group versus the comparison group.

⁷ Although MTW agency data are generally poor before 2008 (when reporting requirements changed for MTW agencies), we assessed data coverage and quality for 2007 for the agencies in our MTW activity-specific group and found them to be reliable for that year.

Sampling

The goal of sampling was to create a group of MTW agencies chosen solely for having received MTW designation and groups composed of MTW agencies engaged in activities expected to affect selected indicators of housing choice and self-sufficiency. The MTW-status group includes the nine MTW agencies that signed an MTW agreement between 2008 and 2011.⁸ MTW agencies in that study may belong to one or more groups (see exhibit 1).

MTW Activity-Specific Groups

To identify MTW agency activities expected to affect our selected indicators of housing choice and self-sufficiency, we reviewed the MTW evaluation database and MTW plans and reports. The review identified 143 activities implemented between 2009 and 2012 related to either housing choice or self-sufficiency and active as of 2015, and we determined that 42 activities were likely to affect assisted households agencywide and across housing programs. Through that review, we identified for analysis 15 MTW agencies that undertook significant housing choice activities and 18 MTW agencies that undertook significant self-sufficiency activities. Agencies may be in multiple groups (exhibit 1).

Exhibit 1

Moving to Work Agencies by Analysis Group (1 of 2)

PHA	State	MTW Status	MTW Activity-specific: New Housing Choice, 2009-2012			MTW Activity-specific: New Self-Sufficiency, 2009-2012		
			New Household Share	Poverty	Quality	Income Increasing	Escrow	HAP
Alaska	AK	✓	✓					
Oakland	CA		✓					✓
San Mateo	CA		✓		✓			✓
San Bernardino	CA	✓	✓	✓		✓		✓
Tulare	CA		✓			✓		✓
Santa Clara/ San Jose	CA	✓	✓			✓		✓
San Diego	CA		✓	✓	✓	✓		✓
Boulder	CO	✓						
Orlando	FL	✓				✓		✓
Chicago	IL					✓		✓
Champaign	IL	✓					✓	✓
Louisville	KY					✓		✓

⁸ We exclude one agency (Baltimore) from the MTW-status group due to data quality issues and its early participation in MTW as part of the Jobs Plus program. Restricting our MTW-status sample to those agencies also coincides with the implementation of MTW standard agreements in 2008, which standardized reporting requirements; before that implementation, reporting consistency and completeness varied for agencies already participating in MTW.

Exhibit 1

Moving to Work Agencies by Analysis Group (2 of 2)

PHA	State	MTW Status	MTW Activity-specific: New Housing Choice, 2009-2012			MTW Activity-specific: New Self-Sufficiency, 2009-2012		
			New Household Share	Poverty	Quality	Income Increasing	Escrow	HAP
Lexington	KY	✓						
Massachusetts	MA					✓		✓
Minneapolis	MN					✓		✓
Charlotte	NC	✓	✓	✓	✓	✓	✓	✓
Lincoln	NE			✓				
Portage	OH		✓			✓		✓
Portland	OR		✓	✓				
Pittsburgh	PA					✓	✓	✓
San Antonio	TX		✓					
King County	WA			✓		✓		✓
Tacoma	WA	✓	✓			✓		✓
Vancouver	WA		✓			✓		✓

MTW = Moving to Work; HAP = housing assistance payments; PHA = public housing agencies

Notes: Although initially selected for MTW in 1999, we include Charlotte in the MTW Status Group because it did not sign an MTW agreement until December 2007 and has been actively in MTW for a similar length of time as others in this group. Jurisdiction names are used for MTW agencies; official agency names may be different. The housing authority of Portland and Multnomah Count, OR, for example, is named Home Forward.

Source: Analysis by the authors of activities related to statutory objectives identified through MTW agency annual plans

Comparison Groups

For each MTW agency group, we identified a separate comparison group. We began by limiting our comparison group selection to traditional PHAs with more than 500 households to exclude small PHAs (which differ from the MTW agencies).⁹ To ensure that comparison groups are similar in ways appropriate for CITS analysis, we selected agencies whose pretreatment levels and trends for each outcome measure of interest closely resembled those of the average MTW group. We used a Stata protocol that selects a matched comparison group on the basis of pretreatment levels and trends, discussed in more detail in Treskon, Gerken, and Galvez (forthcoming).¹⁰

⁹ Galvez, Gourevitch, and Docter (forthcoming) document that MTW agencies tend to be larger than traditional comparison PHAs and that larger PHAs tend to more closely resemble MTW agencies than smaller traditional agencies in terms of program mix and local housing market characteristics.

¹⁰ We use the Stata protocol “itsamatch.”

Data

This study uses five data sources:

HUD Public and Indian Housing (PIH) Information Center (PIC) data

PHA staff regularly report detailed information on every assisted household to HUD through the PIC data system using forms HUD-50058 and HUD-50058 MTW.¹¹ We used household-level PIC data for MTW agencies and traditional PHAs for 2001 through 2016 to identify total household counts and shares of households in each assistance program (HCV and public housing) and to identify household characteristics and locations. Unique household identifiers allowed us to track movement across assistance programs, exits from assistance over time, and movement across census tracts over time. Data for MTW agencies are not available before 2007 (see Treskon, Gerken, and Galvez, forthcoming, for further discussion).¹²

PHA Performance Measure Indicators

We use Physical Assessment Subsystem (PASS) scores as indicators of public housing agency performance for analysis of housing quality and standards. PASS scores only apply to the public housing stock in a PHA and are determined by an inspection satisfying the HUD Uniform Physical Condition Standards. A PHA can receive a maximum PASS score of 40 points. The PASS score is one component of a larger Public Housing Assessment System, or PHAS score, which HUD uses to assess how well PHAs manage their public housing programs.

Supplemental HUD-Assisted Unit Counts

The HUD Moving to Work office provided data on the number of households assisted through MTW local, non-traditional housing assistance programs. Those units are not included in PIC data and are added to the total household counts for each MTW agency.

Decennial Census and American Community Survey (ACS)

We used publicly available tract-level census data to assign poverty rates to the census tract location for each household to identify the number and percentage of assisted households living in lower-poverty neighborhoods. We used 2011–2015 ACS 5-year estimates to identify tract poverty rates.

Database of MTW Activities

For the MTW retrospective evaluation, we created an agency-level database of MTW activities and flexibilities based on information reported in the 2015 and previous MTW annual plans and reports. The MTW plans and reports include information on all MTW activities implemented, such as activity name, activity status, year proposed, implementation year, the authorization(s) involved, activity description, and the statutory objectives that the activity addresses. We use

¹¹ Form HUD-50058 for traditional agencies can be found here: <https://www.hud.gov/sites/documents/50058.PDF>. Form HUD-50058 MTW can be found here: https://www.hud.gov/sites/documents/DOC_10236.PDF.

¹² MTW agencies did not consistently report household information into HUD's PIC system before 2007 (for some, 2008), resulting in significant gaps in the administrative data available for agencies that received MTW designation in the first 10 years of the demonstration.

this information to identify significant housing choice and self-sufficiency activities implemented between 2009 and 2012.

Variables

We examine seven main outcome variables of interest—three related to housing choice and four related to self-sufficiency (exhibit 2).

Exhibit 2

Outcome Variables			
	Outcome Variable	Data Source	Outcome Definition
Housing Choice	Newly admitted households as a share of all households	PIC: all program types	Share of households with 50058 Field 2a action codes 1, 4, or 14 ¹³
	Share of tenant-based voucher households in low-poverty census tracts	PIC: tenant-based vouchers	Percentage of tenant-based voucher households in census tracts with poverty rates no higher than 10 percent
	Physical Assessment Subsystem (PASS) scores	PIC/ REAC: public housing and multifamily assisted	Average PASS score per agency per year
Self-Sufficiency	Share of existing work-able households with rising income over time (annualized rate of change)	PIC	Percentage of existing work-able households in a given year with total annual incomes higher than at their year of entry into housing assistance (in 2016 dollars—adjusted for inflation). Includes only households assisted at the point of designation of the PHA as MTW.
	Percentage of work-able households reported to have an escrow account	PIC	Percentage of existing work-able households with a non-zero FSS program escrow account balance. Includes only households assisted at the point of designation of the PHA as MTW.
	Share of existing work-able households with housing assistance payment (HAP) less than \$50	PIC	Percentage of existing work-able households with a HAP less than \$50. Includes only households assisted at the point of designation of the PHA as MTW.
	Share of existing work-able households leaving PHA in year after attaining minimal HAP	PIC	Percentage of work-able households who reach a HAP less than \$50 and who exit in the following year (exit defined as having exit code or household missing in subsequent year). Includes only households assisted at the point of designation of the PHA as MTW.

FSS = Family Self-Sufficiency. HAP = Housing Assistance Payment. MTW = Moving to Work. PASS = Physical Assessment Subsystem. PHA = public housing agency. PIC = PIH Information Center. PIH= Public and Indian Housing. REAC = Real Estate Assessment Center.

Note: "Existing" households are households that are not new entrants to housing assistance in a given year.

Housing Choice Variables

The housing choice measures used reflect three approaches to interpret the objective, including increasing the number of households served, expanding access to low-poverty neighborhoods, and improving the quality of public housing. PHAs may view expanding housing availability and the number of low-income households served as expanding housing choice. Housing choice also may

¹³ We used annual extracts of PIC data. Households completing an interim recertification in their first year of housing assistance may not be counted as new because the record in our extracts would have an action code that would identify them as an existing household rather than a new household.

be interpreted as expanding the range of neighborhood locations that are accessible to low-income households—particularly low-poverty neighborhoods. Finally, agencies may define expanding choice as improving the quality of public housing units.

We identify newly admitted households as the share of all households served by an MTW agency that had an action code in PIC data (Form HUD-50058, Field 2a) associated with a new admission.¹⁴ We focus on new admissions as an indicator of the ability of agencies to expand the pool of households they serve over time. Agencies with a higher share of their total assistance going to newly admitted households are arguably expanding opportunities for low-income households to benefit from housing assistance.

To examine the share of tenant-based voucher households in low-poverty census tracts, we define low-poverty neighborhoods as census tracts with poverty rates below 10 percent. That threshold is commonly used to approximate neighborhood quality in the neighborhood effects and assisted housing location literature (Galvez, 2010). The relationships between poverty rates and health and economic outcomes are well documented, and census tract poverty rates are commonly relied on as a proxy for overall neighborhood quality—particularly at very low and very high levels (Galster, 2012).

We measure public housing quality using PHA average PASS scores, which are based on physical inspections to determine if public housing units are decent, safe, sanitary, and in good repair. PASS scores use a 40-point scale. Inspections are conducted in accordance with the HUD Uniform Physical Condition Standards, or UPCS, on a sample of units within a given development; scores are rolled into a composite PHA-level score.

Self-Sufficiency Variables

The self-sufficiency measures in this study are limited to work-able households and include the share with increasing incomes, the share with a Family Self-Sufficiency (FSS) program escrow account,¹⁵ the share with housing assistance payment less than \$50, and the share of those households who leave PHA assistance. Those measures reflect common goals for the self-sufficiency of assisted households. PHAs may encourage self-sufficiency by promoting work and through increases in wage income. They may also promote household savings, incentivize employment, and prepare households for independence through FSS programs.

¹⁴ We consider a household as having entered PHA assistance in a year if they have an action code that denotes a new admission (action code 1), a portability move-in (action code 4), or (in cases where no entry code exists for a household) a historical readjustment (action code 14). We consider cases in which the household's first appearance in the dataset does not have an action code associated with an entry to be newly assisted in that year.

¹⁵ Family Self-Sufficiency (FSS) programs are designed to enable assisted families to increase earned income and reduce dependency on welfare and housing assistance. These programs include an interest-bearing escrow account established by the PHA for each participating family. If participating households increase their income through wages, the resulting additional rent payments due to the PHA are instead credited to the family's escrow account, which is available to the family upon graduation from the FSS program. HUD staff noted that households in agencies participating in Jobs Plus may opt out of FSS escrow accounts to make use of the Jobs Plus Earned Income Disregard. Although we did not formally verify that assertion, Charlotte, an MTW agency that participates in Jobs Plus, had increases in escrow utilization during the analysis period.

To measure the potential effects of MTW status or activities on resident incomes, we measured the percentage of existing work-able households in a given year with total annual incomes higher than at their year of entry into housing assistance (in 2016 dollars—adjusted for inflation).

To measure the extent to which households are participating in Family Self-Sufficiency (FSS) programming, we measured the percentage of existing work-able households with a non-zero FSS program escrow account balance. That indicator measures the effect of MTW status or activities on FSS participation rather than longer-term effects of FSS participation.

We inferred positive exits from housing assistance from two indicators. First, we considered the share of existing work-able households who approach minimal HAP to determine whether existing work-able households at MTW agencies are moving to minimal housing subsidy at greater rates than households at traditional agencies. We define *minimal* as a HAP of less than \$50, based on our analysis of HAP amounts for assisted households as reported in PIC. We identify exits as cases where there is no recertification record for at least 1 year after attaining minimal HAP; that is, for our purposes, if a household reaches minimal HAP and does not have another record in PIC for at least 1 year, we count that household as having exited.¹⁶

Analysis

CITS analysis is designed to measure divergence between a treatment group and comparison group after the introduction of an intervention. To be valid, CITS requires both groups to have similar pretreatment levels and trends. Because we have two posttreatment periods of analysis, group averages could diverge in four ways:

- **The first posttreatment period (2010–2012):**
 - The 2009–2010 1-year level change.
 - The 2010–2012 trend.
- **The second posttreatment period (2013–2016):**
 - The 2012–2013 1-year level change.
 - The 2013–2016 trend.

Below, we present topline findings for the seven indicators of interest and include comparative graphs for three: the share of households that are new, the share of households in low-poverty tracts, and the share of existing work-able households with total annual incomes higher than they were at entry. For more detailed findings on all indicators (including regression tables) and details on the analysis approach used for this research, see Treskon, Gerken, and Galvez, forthcoming.

¹⁶ We defined exits in that way to account for how MTW agencies can use their MTW flexibilities to use biennial or triennial recertifications instead of annual recertifications. Based on internal analysis, MTW agencies that have revised their recertification schedules for work-able households have moved to a biennial calendar. Our approach may overestimate positive exits for households at MTW agencies who were not recertified within a 2-year window.

Results

Identification of Activities

Our review of MTW plans identified a range of activities that had the potential to lead to significant effects on housing choice or self-sufficiency indicators. Exhibits 3 and 4 indicate the specific activities used to identify the housing choice and self-sufficiency groups, respectively.

We identified 17 MTW agencies implementing one or more activities related to housing choice and potentially producing measurable effects (we excluded two of these agencies, Lexington and Minneapolis, from our final analysis due to data limitations).

Exhibit 3

Housing Choice Initiatives Used To Select Activity-Specific Groups

PHA	Activity Name
Alaska	Simplification of Utility Allowance Schedules (2011) HCV Maximum Family Contribution at Lease Up Raised to 50 Percent (2012)
Charlotte	Increase of Acquisition and Rehabilitation of Existing Multifamily Properties (2009-7) Land Acquisition for Future Use (2009-8) Community-Based Rental Assistance (2009-4)
King County	Community Choice Program (2012)*
Lexington**	HCV Tenant-Based Special Partners Programs (2012)
Lincoln	RentWise Tenant Education (2012)
Minneapolis**	Section 8 HCV Mobility Voucher Program (2010/2009-6)
Oakland	Elimination of Caps on PBV Allocations (2012)
Portage	Maximum Rent (2009)*
Portland	Measures to Improve the Rate of Voucher Holder Lease Up (2010)
San Antonio	Preservation and Expansion of Affordable Housing (2011)
San Bernardino	Local PBV Program (2010) Local Payment Standards (2012)
San Diego	Acquisition of affordable units (2010) Development of public housing units using combination of funds (2010) Choice Communities Component (2010)
San Mateo	MTW Funds for Leveraging Additional Affordable Housing (2012)
Santa Clara/ San Jose	Creation of Affordable Housing Acquisition and Development Fund (2012-3); Creation of Affordable Housing Preservation Fund for HACSC and Affiliate-Owned Properties (2012-4)
Tacoma	Creation and Preservation of Affordable Housing (2012)
Tulare	Development of Additional Affordable Housing (2009)
Vancouver	Renter Education Required for Applicants (2009)* Simplified Utility Allowance Schedule in HCV (2009)*

* Indicates initiative potentially affecting both housing choice and self-sufficiency.

** Not included in our final housing choice activity-specific analysis group due to data limitations.

HACSC = Housing Authority of the County of Santa Clara; HCV = housing choice voucher; MTW = Moving to Work; PBV = project-based voucher; PHA = public housing agency

In our review of 2015 (and previous) annual plans, we identified 18 MTW agencies implementing one or more activities related to self-sufficiency and potentially producing measurable effects.

Exhibit 4

Self-Sufficiency Initiatives Used To Select Activity-Specific Groups	
PHA	Initiative Name
Champaign County	Mandatory Local Family Self-Sufficiency Program (2011) Tiered Flat Rents and Minimum Rents by Bedroom Size (2011)
Charlotte	Rent Reform and Work Requirement (2010)
Chicago	Public Housing Work Requirement (2009-2)
King County	Community Choice Program (2012)*
Louisville	Mandatory Case Management (2010)
Massachusetts	Rent Simplification (2012)
Minneapolis	Public Housing Works Family Incentive (2011/2010-1)
Oakland	Program Extension for Households Receiving \$0 HAP (2010) \$225 Rent Floor for Nonelderly and Nondisabled Households (2012)
Orlando	Increase of Minimum Rent for Work-Able Households (2012)
Pittsburgh	Modified Rent Policy for Section 8 Housing Choice Voucher Program (2011)
Portage	Maximum Rent (2009)*
San Bernardino	Minimum Rent (2010); 5-Year Lease Assistance Program (2012)
San Diego	Adopt a Local Interim Certification Policy (2011)
San Mateo	Change Automatic Termination of HAP Contact from 180 to 90 Days (2012)
Santa Clara/San Jose	Expand Tenant Services at HACSC/Affiliate Properties (2012-5)
Tacoma	Local Policies for Work-Able Households (2012)
Tulare County	Encourage Self-Sufficiency/Transition Pre-1999 Families to MTW (2009)
Vancouver	Renter Education Required for Applicants (2009)* Simplified Utility Allowance Schedule in HCV (2009)*

** Indicates initiative potentially affecting both housing choice and self-sufficiency.
HAP = housing assistance payment; HCV = housing choice voucher; HACSC = Housing Authority of the County of Santa Clara; MTW = Moving to Work*

Comparative Interrupted Time Series Analysis

Detailed Findings

Housing Choice

Do MTW Agencies Create More Housing Opportunities Relative to Traditional Agencies?

- **Outcome measure:** the share of MTW agency-assisted households that are new admissions into an assisted housing program

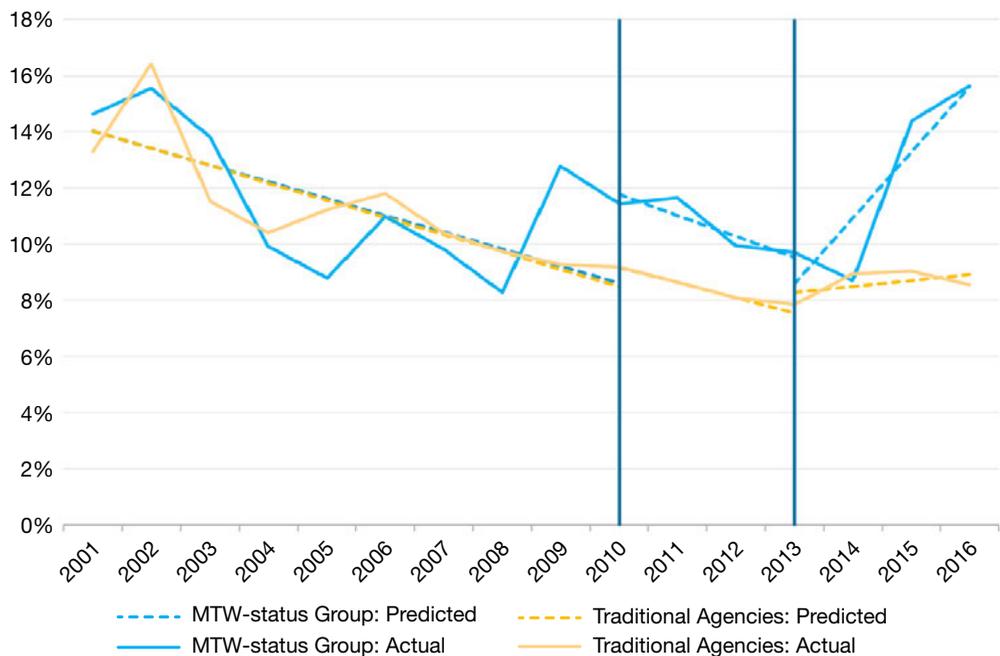
This measure is an indicator of the capacity of an agency to serve more households over time through either growth or increased turnover. Rather than count the new households served, we

examined the share of households that were new admissions each year—to control for the size of a PHA. MTW agencies have received additional funding relative to traditional agencies, so that can also be seen as an examination of the extent to which MTW agencies are using additional funding to assist additional households (see Galvez, Gourevitch, and Docter, forthcoming; Stacy et al., 2020).

During the pretreatment period and the initial posttreatment period (2010–2012), differences between the MTW-status group (N = 9) and the comparison group (N = 18) were small (see exhibit 5) and not statistically significant. During the 2013–2016 posttreatment period, however, the share of new households in MTW agencies increased from 10 percent to more than 15 percent (with most of the increase between 2014 and 2015), whereas the comparison group share did not increase. That divergence was statistically significant.

Exhibit 5

Share of Households That Are New: MTW-Status Group and Comparison Group



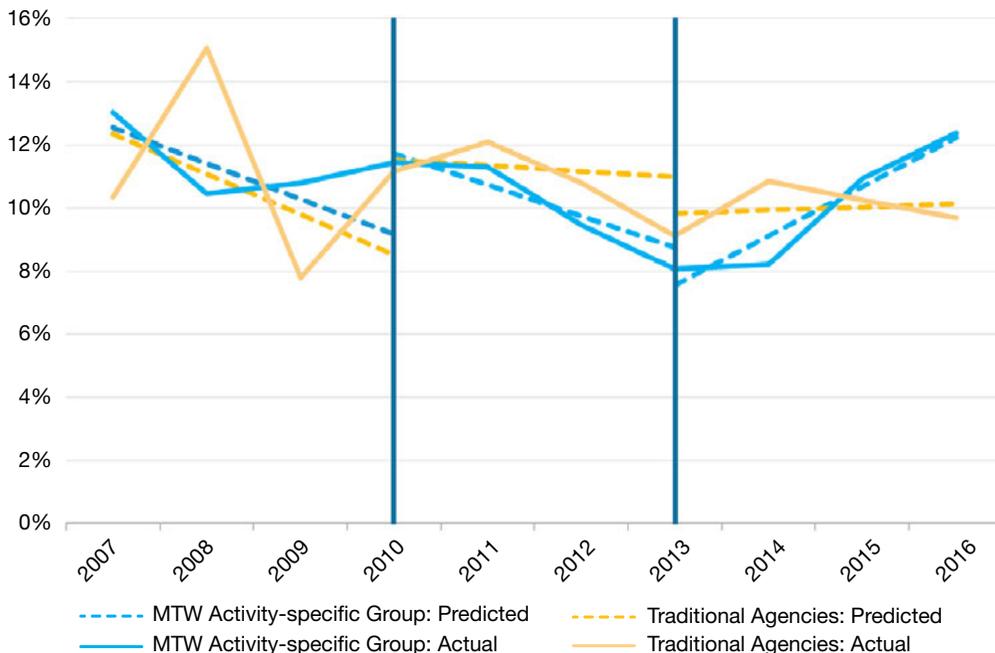
MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Results for the group of MTW agencies selected, based on their implementation of activities expected to increase the share of new households, are similar to findings for the MTW-status group (see exhibit 6). For that group, the share of new households grew from 8 percent to 12 percent between 2013 and 2016, whereas during that period, the average share of new households at the comparison group remained roughly stable at 10 percent.

Exhibit 6

Share of Households That Are New: MTW-Activity Group and Comparison Group



MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

To What Extent are Households Served by MTW Agencies Reaching Lower Poverty, Higher Opportunity Neighborhoods Than Households Served by Traditional Agencies?

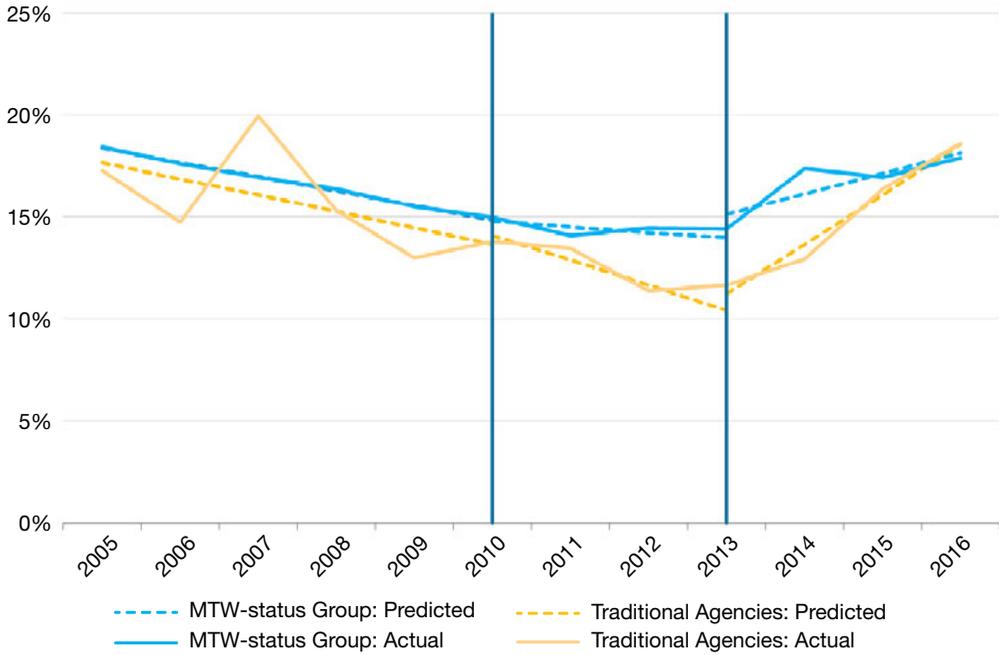
- **Outcome measure:** the share of tenant-based voucher households in low-poverty census tracts

For the MTW-status group (N=8; comparison group of 6 traditional agencies), the share of households in low-poverty census tracts dipped somewhat between 2005 and 2011 before increasing again through 2016 (see exhibit 7). The comparison group followed a similar pathway, dropping during the 2010–2013 period but increasing more quickly relative to the MTW group between 2013 and 2016. Those differences were not statistically significant.¹⁷

¹⁷ Results of an outlier sensitivity analysis were consistent. Removing Boulder, Colorado, produced some significant results, but results from a secondary outlier sensitivity analysis (excluding Boulder and then removing remaining PHAs one at a time) resulted in no significant findings.

Exhibit 7

Share of Tenant-Based Voucher Households in Low-Poverty Tracts: MTW-Status Group and Comparison Group



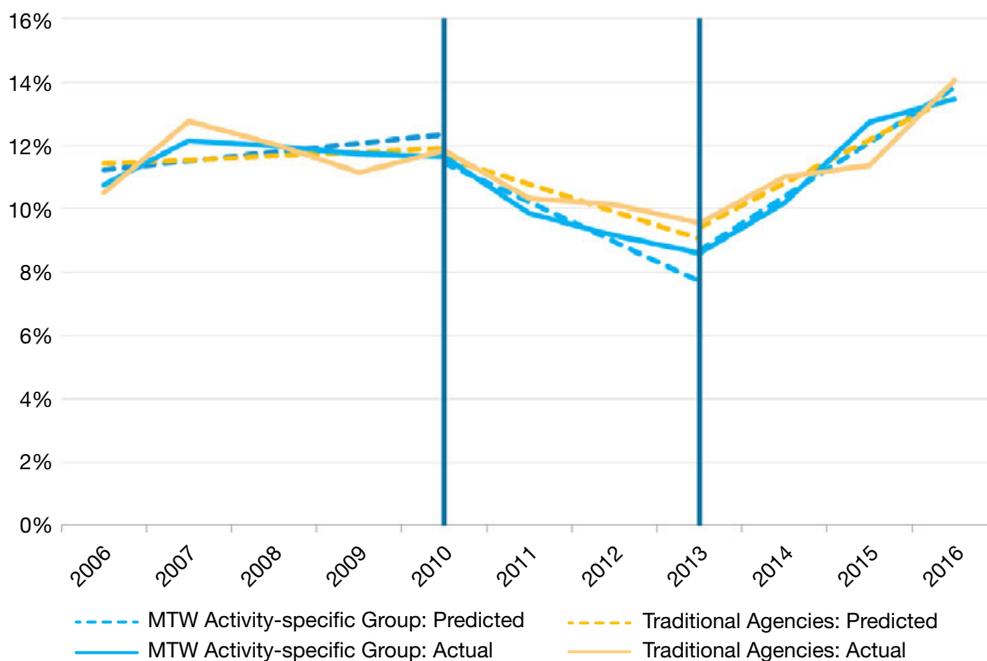
MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

The MTW activity-specific group analysis (N=6; comparison group of 16 traditional agencies) showed no significant divergence in levels or trends from the comparison group during the study period (see exhibit 8).

Exhibit 8

Share of Tenant-Based Voucher Households in Low-Poverty Tracts: MTW Activity-Specific Group and Comparison Group



MTW = Moving to Work.
 Source: Analysis of HUD Public and Indian Housing Information Center Data

To What Extent are Households Served by MTW Housing Agencies Living in Higher Quality Public Housing Dwellings Relative to Households in Traditional Agencies?

- **Outcome measure:** public housing physical assessment subsystem scores

We explored public housing PASS scores to understand the extent to which households served by MTW agencies are living in higher quality public housing dwellings relative to households at traditional agencies. Only three MTW agencies had implemented initiatives related to public housing quality, so we did the CITS analysis for the MTW-status group only. PASS scores for the MTW-status group and the comparison group generally remained aligned throughout the analysis period: steady at about 25 (out of a maximum of 40 points) before 2010, rising to about 34 from 2010 to 2013, and remaining between 32 and 34 from 2013 to 2016. The only statistically significant result was when the average PASS score for the MTW group increased from about 30 to 34 between 2012 and 2013, whereas the average for the comparison group remained unchanged. The substantive meaning of this result is minimal, however, because the average comparison group score had simply risen from 30 to 34 sooner (with most of the increase between 2010 and 2011).

Self-Sufficiency

How Do Incomes of Work-Able Households Served by MTW Agencies Compare With Those Served by Traditional Agencies?

- **Outcome measure:** the share of assisted existing work-able households that have total annual incomes higher than they were at housing assistance entry¹⁸

We measured whether households worked more after agencies joined MTW by identifying the share of work-able (nonelderly and nondisabled) households that have total annual incomes higher than they did in their first year of housing assistance (their year of admission recorded in PIC). Because MTW status could possibly be associated with changes in the overall composition of newly admitted households, we included only existing households in this analysis.

We dropped two agencies from our MTW-status group due to missing or anomalous income data.¹⁹ Of the seven MTW agencies analyzed here (comparison group of 21 traditional agencies), the share of households with income greater than at housing assistance entry remained between 50 and 60 percent during the 2001–2009 pretreatment period for both the MTW-status group and the comparison group. Between 2010 and 2012, the two groups diverged somewhat: both saw a decrease in that measure between 2010 and 2011, but the drop was more pronounced and statistically significant for the MTW group (see exhibit 9).

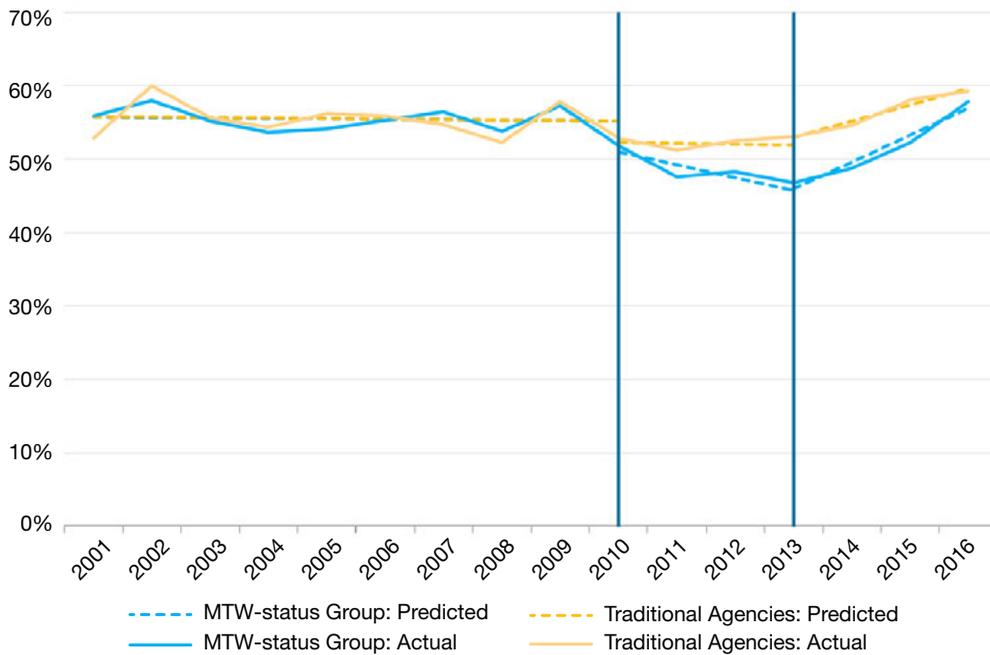
After 2013, the share of households with incomes higher than their baseline year increased for both groups. That increase for the MTW group was larger than it was for the comparison group, and that difference was statistically significant. The increase allowed MTW agencies to regain the losses of the previous period and catch up to and converge with the level of the traditional public housing agencies (PHAs) by 2016.

¹⁸ Households that exited in a given year are classified as an existing household for that year.

¹⁹ We removed Champaign because of missing income data for some of the analysis period years, and we removed Charlotte because our outlier sensitivity analysis determined that an anomalous 1-year drop in 2011 (from 51 percent of households with incomes higher than at entry in 2010, to 35 percent in 2010, and back to 50 percent in 2012) skewed the group results.

Exhibit 9

Share of Existing Work-Able Households With Total Annual Incomes Higher Than at Housing Assistance Entry: MTW-Status Group and Comparison Group



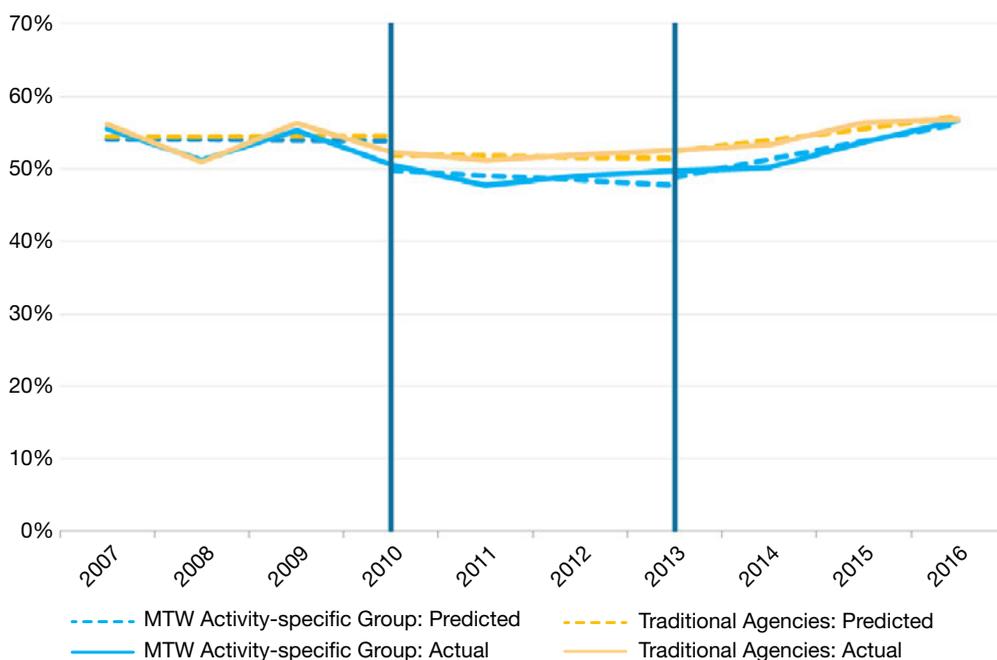
MTW = Moving to Work.
 Source: Analysis of HUD Public and Indian Housing Information Center data

Our activity-specific group compared 14 MTW agencies to a group of 77 traditional agencies.²⁰ The only significant divergence was in the 2013–2016 trend, when the MTW group share increased relative to that of the comparison group; however, as with the MTW-status group, the result was that the MTW group “caught up” to the comparison group rather than overtaking it (see exhibit 10).

²⁰ We excluded Chicago from the analysis. An outlier sensitivity analysis found that the agency had a significant effect on the grouped results, leading the 2013–2016 trend findings to no longer be significant. A secondary sensitivity analysis found that after excluding Chicago, rerunning the grouped analyses by sequentially removing each of the remaining PHAs one at a time produced consistently significant and positive results.

Exhibit 10

Share of Existing Work-Able Households With Total Annual Incomes Higher Than They Were at Housing Assistance Entry: MTW-Activity Group and Comparison Group



MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

How Does the Use of Escrow Accounts as a Tool for Promoting Self-Sufficiency Differ Between MTW and Traditional Agencies?

- **Outcome measure:** the share of existing work-able households with Family Self-Sufficiency program escrow accounts (a proxy for FSS program participation)

The share of existing work-able households with a positive FSS program escrow account balance—a proxy for FSS program participation—indicates whether the use of escrow accounts as a tool for promoting self-sufficiency differs between MTW and traditional agencies. Only three MTW agencies reported activities with the potential to influence escrow use during our study period, so we did CITS analysis only for the MTW-status group. We found no evidence that MTW agencies are more likely to use escrow accounts than traditional agencies. The one statistically significant divergence between the MTW group and the comparison group was that, between 2009 and 2010, the share of work-able households with escrow accounts remained steady for the MTW-status group but increased for the comparison group, which resulted in a statistically significant decrease for the MTW group relative to the comparison group. Subsequently, the share of work-able households with escrow accounts increased for both groups in the same way. Findings were robust to sensitivity analyses. The share of households with escrow accounts was small: for the

MTW-status group, it remained between roughly 2 and 5 percent, and for the comparison group, it remained between 2 and 7 percent. The share has varied over time, with peaks for both the MTW-status group and the comparison group in 2005 and again in 2016.

Are Existing Work-Able Households in MTW Agencies Moving to Minimal Housing Subsidy and Making Positive Exits From Housing Assistance at Greater Rates Than Households at Traditional Agencies?

- **Outcome measures:** the share of existing work-able households who approached minimal HAP (less than \$50); the share of households who left assisted housing in the year after reaching minimal HAP

Starting with the MTW-status group and its comparison group, we found that the share of existing households at minimal HAP was small, generally remaining below 2 percent before 2010 for both groups. Between 2010 and 2016, the share increased to nearly 7 percent for the MTW-status group and nearly 3 percent for the comparison group, a difference that was not statistically significant. For the MTW activity-specific group, the share of existing households with minimal HAP also remained relatively small during the analysis period, exceeding 6 percent in 2008 and again in 2016. Many MTW agencies and traditional PHAs reported a 1-year spike in 2008, which may reflect a data reporting or quality issue for that year (see Galvez, Gourevitch, and Docter, forthcoming, for a discussion of data challenges). The share of existing households with minimal HAP increased between 2012 and 2013 for the MTW activity-specific group while staying stable for the comparison group; that difference was statistically significant. That result should be treated with caution for several reasons, however, because the difference between groups was quite small, and, for both groups, the total number of households included in this measure tended to be very small.

Our second measure for positive exits was the share of existing work-able households who left assisted housing in the year after reaching minimal HAP. Households in the MTW-status group were more likely to subsequently exit assistance than were similar households in the comparison group—but there was no significant divergence between the MTW group and its comparison group for the share of existing work-able households achieving minimal HAP in the first place. Households in the MTW activity-specific group saw statistically significant increases relative to households in comparison groups for both the share of households reaching minimal HAP and those subsequently exiting housing assistance. For both traditional and MTW agencies, however, households achieving minimal HAP represented a very small portion of their assisted populations (7 percent or less). That means that the measure of those with minimal HAP who left assistance must be interpreted cautiously, as it is based on few households and therefore is sensitive to year-over-year random variation.

Discussion and Conclusions

The root question of this study is, are MTW agencies more effective at increasing housing choice and self-sufficiency than comparable traditional PHAs? Our findings indicate that for some measures (adding new households, increasing earnings, and positive exits from housing assistance), MTW agencies are undertaking activities that are helping them meet those goals.

Interestingly, the results tend to show up for both the MTW status group and the MTW activity-specific group, which indicates that MTW status itself may be a pathway to making progress on statutory objectives. Because this particular study focuses on MTW agencies as a group, it cannot tease out the exact pathways that individual agencies are taking, but it does indicate that future analyses should examine the suite of policies and programs that MTW agencies undertake and how the sum total of MTW activities may be driving outcomes.

Housing Choice

Of the three main housing choice themes we studied—amount of housing, location of housing, and quality of housing—we found the greatest indication of an effect from MTW in the first. Between 2013 and 2016, newly assisted households represented a larger share of assisted households in MTW agencies compared with traditional PHAs. That outcome had the most consistent and substantive effects in our analyses and held for both the MTW-status group and the activity-specific group. Results are also consistent with the descriptive findings by Galvez, Gourevitch, and Docter (forthcoming) that the 39 MTW agencies added more new households to their assisted housing portfolios between 2008 and 2016, whereas the number added by traditional PHAs remained flat (Stacy et al., 2020, have similar findings). Given the increased funding that MTW agencies have received relative to traditional agencies, this is not entirely unexpected; however, it does indicate that at least some additional funding has been used to expand access to new households rather than being fully allocated to programming or other purposes.

We found no evidence that MTW agencies differed from traditional comparison agencies in the share of tenant-based voucher households in low-poverty census tracts. For both the MTW groups and the traditional agency groups, the share of households in low-poverty neighborhoods dropped between 2010 and 2012 before increasing between 2013 and 2016. Given the housing market recovery and economic expansion across the 2010–2016 period, that inflection merits closer attention.

We also found no substantially significant finding in terms of public housing quality as measured by PASS scores: the one statistically significant divergence seems to be more of a lagging trend between the trajectory of the MTW-status group and the comparison group rather than an indicator of an MTW-specific effect. Also, participation in the Rental Assistance Demonstration program during our study time period—which allows housing authorities to convert public housing to project-based vouchers or project-based rental assistance—may have removed the most distressed public housing units from the portfolios of some of the MTW agencies. If so, that could have resulted in an apparent improvement in our PASS score measure for remaining units. Galvez et al. (forthcoming) find that MTW agencies are more likely than comparison PHAs to convert public housing units through RAD. The relationship between RAD conversions and public housing quality merits future research.

Self-Sufficiency

Results for outcome measures related to improving self-sufficiency (income gains over time for assisted households and two measures related to positive exits from assistance) are positive but preliminary, particularly regarding income. Specifically, for the share of households with income

gains over time, the MTW agencies initially lagged behind the traditional PHAs before catching up to the comparison PHAs by the end of 2016. Achieving parity with traditional PHAs may itself be a positive outcome. Updating the current analyses with additional years of HUD administrative data will help determine whether the promising trend has continued, and MTW agencies have begun to outpace the comparison group, whether they have remained in parity or whether they have again fallen behind.

The share of work-able households with escrow accounts increased after 2009 for the comparison group but only after 2012 for the MTW group. That circumstance resulted in a statistically significant divergence during the initial posttreatment period, but since 2012, the trend for both groups has increased at a similar rate. Although that means that the MTW group has not “caught up” to comparison groups, and given the relatively low share of households with escrows (in 2016, the average was 4.8 percent for the MTW group and 6.8 percent for the comparison group), the substantive implication of that finding is limited.

Finally, MTW-assisted households were more likely to exit assistance after obtaining a low level of subsidy—but that finding is weak, and there is no difference between MTW agencies and comparison agencies in the share of households that reach minimal housing subsidy. Given the small numbers of households reaching minimal HAP and subsequently exiting housing assistance, those outcome measures must be treated cautiously, as they can be sensitive to small changes. Additional tracking over a longer time period can help clarify whether positive trends have continued. In-depth analyses of the individual agencies included in our MTW activity-specific sample would also be useful to assess what might be happening on the ground.

Implications for Research

This study is the most exhaustive effort to date to examine the effects of MTW across agencies on housing choice and self-sufficiency outcomes. A challenge of this work was that assessing aggregate effects can be at odds with the inherent diversity of MTW agencies, activities, and local contexts. We adjusted for the complexity of the MTW program by selecting outcome measures that seem relevant to a wide range of MTW agencies and selecting two types of treatment groups of agencies—one group of agencies that received MTW designation at roughly the same time and another group of agencies engaged in specific activities relevant to our outcomes of interest. That approach provides several implications for future research examining the effects of MTW.

First, we found both commonalities and differences between the two MTW agency grouping approaches. Both approaches may be useful in different contexts, and some measures are more appropriate for status versus activity-specific treatment group approaches. For example, measures of Family Self-Sufficiency program participation or public housing quality improvements may benefit from activity-specific analyses because they require MTW agencies to be engaged in narrowly focused efforts or programs. Other outcome measures, such as positive exits from assisted housing or income gains over time, may be more appropriate for a status group approach because they speak to common MTW agency objectives and changes that may be triggered through a variety of MTW agency efforts. Future research using the status group approach could incorporate the 100 agencies that are expected to be designated through the MTW expansion (although the

funding formula for agencies in that expansion group is not yet known and must be incorporated into any review and analysis of their activities).

Second, this work provides a useful starting point for additional research examining the findings documented in this report. That research could include qualitative work examining what MTW agencies consider to be the most relevant flexibilities, policy reforms, or initiatives for meeting their statutory objectives. This descriptive work can help identify practices that may be useful to test rigorously at other PHAs and lay the foundation for more rigorous, targeted MTW agency-level or grouped impact analyses. Likewise, additional quantitative analysis of the measures found to have promising results can help shed light on whether the positive trends have continued since 2016 (the last year of data to which we had access for this study). Similarly, our assessment of MTW agency activities provides a starting point for more comprehensive agency-level analyses. Our grouped analysis approach could not be as closely tailored to the diversity of MTW agency contexts as an agency-by-agency analysis. A rigorous assessment of outcomes for the individual agencies in our activity-specific samples would require an indepth accounting of local agency contexts, goals, and programs—both to measure outcomes precisely and to select appropriate traditional comparison PHAs.

Third, this study and others clearly show that MTW agencies are undertaking many varied and experimental activities, using a range of approaches and in diverse local contexts. Considerable work has been done through the MTW retrospective evaluation and other research to emphasize the breadth of activities, partnerships, and goals in which the MTW agencies are engaged. Even when care is taken to adjust for the diversity of agencies and approaches, however, an aggregate approach sheds little light on which innovative practices might be taken to scale. Additional rigorous research is needed on individual MTW agency initiatives to tease out promising activities or uses of MTW flexibilities that hold the most promise to help achieve the housing choice or self-sufficiency goals of the MTW program. Examples of such research include the study of the Santa Clara Housing Authority conducted through the retrospective MTW evaluation (Castells, 2020); the study of work requirements at the Charlotte Housing Authority by Webb, Frescoln, and Rohe (2015); and the randomized control trial study currently in progress at the neighborhood mobility program in Seattle and King County, Washington.²¹ Other future work should highlight promising Moving to Work agency practices through mixed-methods research, case studies of individual agency efforts, or analyses of common approaches.

Finally, improved data and reporting requirements and the use of randomized control trials will greatly improve knowledge about new agencies included in the MTW expansion. Similar rigor should be applied to current MTW agencies.

Conclusion

This study found some signs that MTW positively affects some housing choice and self-sufficiency related outcomes and discovered no evidence of negative effects on any of our outcomes of interest. Specifically, both the MTW-status group and the MTW activity-specific group increased the share

²¹ For information on the Creating Moves to Opportunity program and research, see: <http://creatingmoves.org/research/>.

of new households served relative to the traditional PHA comparison groups. That finding may be driven at least in part by the additional funding MTW agencies have received compared with traditional agencies, but it may also relate to the use of MTW flexibilities for cost-savings efforts. We also found some evidence indicating modest positive effects from MTW on the share of MTW-assisted households with income gains after entry into assisted housing, the share of workable households reaching minimal housing assistance payments (HAP), and the share of those households who subsequently leave assistance. We found no evidence, however, of differences between MTW and traditional PHAs for tenant-based voucher (TBV) neighborhood locations, public housing quality, or use of Family Self-Sufficiency program escrow accounts.

This study did not examine the specific MTW activities that may be driving those outcomes or the specific MTW flexibilities that may allow agencies to pursue successful initiatives. Future research should focus on identifying the MTW flexibilities that are the most useful for pursuing initiatives that positively affect choice and self-sufficiency outcomes, including the ways in which agencies use any additional federal funding they receive from HUD. A more robust understanding of the MTW flexibilities with the most effect would shed light on how best to apply MTW practices to traditional PHAs.

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Fund More, Serve More, Save More: Moving to Work and Cost-Effectiveness

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Abstract

Moving to Work (MTW) is a U.S. Department of Housing and Urban Development (HUD) demonstration that gives selected public housing agencies (PHAs) greater flexibility with their spending and the ability to provide innovative housing assistance to low-income households. This article examines the impact of MTW on cost-effectiveness, measured as the total funding PHAs receive from HUD for public housing and housing choice vouchers divided by the number of households assisted by these programs. We use 15 years of historical data, from 2003 through 2017, to measure pre- and post-MTW trends for PHAs that joined or left MTW during the period. We also compare trends for MTW PHAs to traditional PHAs of comparable size during the same period. We find that MTW status has no significant impact on cost per assisted household. Although MTW status is associated with an increase in HUD funding, the agencies use this funding to assist more households, resulting in no significant change in cost-effectiveness. We find no evidence that MTW agencies maintain their cost-effectiveness by shifting their program mix, reducing housing quality or affordability, or serving different households. We also find that MTW agencies experienced a large increase in dollars per household held in reserves while serving roughly the same number of assisted households per dollar of HUD funding as before joining the demonstration. Our analysis does not explore the mechanisms by which this increase occurred, although it can be inferred that MTW agencies were able to realize some cost efficiencies in areas other than household assistance.

Introduction

More than 3 million households receive housing assistance through HUD's public housing and Housing Choice Voucher (HCV) programs.¹ Current funding, however, is sufficient to serve only one in five eligible households (Sally et al., 2018). The Moving to Work (MTW) demonstration aims to make these programs more cost-effective by easing regulations, encouraging innovation, and providing greater flexibility to the local agencies that administer them.

Cost-effectiveness is not the only goal of MTW, however, and there is a risk that the greater flexibility MTW provides reduces efficiency by allowing public housing agencies (PHAs) to use HUD funds for purposes other than rental assistance and capital improvements. In fact, most empirical studies of the demonstration show that MTW agencies spend more per assisted household than traditional PHAs and use a lower proportion of their annual budgets on direct housing assistance (Buron et al., 2017; Fischer, 2011; GAO, 2018). These studies, however, do not account for spending levels before agencies joined the MTW demonstration, and thus do not establish whether this difference is caused by the MTW demonstration.

This article provides an analysis of the impact of MTW on cost-effectiveness. We measure cost-effectiveness within a PHA as the cost, in dollars received from HUD, per assisted household. Our analysis overcomes the challenges of earlier studies by examining changes in cost-effectiveness within PHAs that joined or left the MTW demonstration. To this end, we use a fixed-effects model that estimates the effect of MTW on cost per assisted household relative to their expected trajectory if they had not joined the demonstration. PHA fixed effects account for differences between MTW and traditional PHAs in size, location, and other factors not associated with the MTW demonstration that predate our analysis. We also control for changes in local rental costs and public-sector wages in the PHAs' service area that are known to affect the costs of housing assistance. The analysis relies on HUD administrative data from 2003 to 2017. To better understand how, if at all, MTW status affects cost-effectiveness, we create separate estimates of the effect of MTW status on PHAs' annual funding from HUD and on the number of households that PHAs assist with that funding. These estimates seek to isolate the impact of MTW status on funding and households served from other factors that may influence these outcomes.

We find that MTW status has no significant impact on cost per assisted household when compared with traditional PHAs of similar size.² PHAs do receive significantly more funding after joining the demonstration (an estimated 11-percent increase in annual HUD funding), but they use this money to serve significantly more households (an estimated 10-percent increase in assisted households). We also find that MTW status is associated with statistically significant increases in the amount of funding PHAs hold in operating reserves of approximately \$840 per assisted household. This finding suggests that MTW agencies are able to serve the same number of households per dollar

¹ Data accessed through HUD's Picture of Subsidized Households, <https://www.huduser.gov/portal/datasets/assths.html>

² Excluding small PHAs provides a more accurate comparison because there are many traditional PHAs that serve significantly fewer households than the smallest MTW PHA, and these small PHAs have different trends for HUD funding and assisted households during the analysis period compared with MTW PHAs and larger traditional PHAs.

of HUD funding while also saving money in reserves for future developments and other uses.³ We find no evidence that MTW agencies maintain their cost-effectiveness by shifting their program mix, reducing housing quality or affordability, or serving different households.

This article summarizes a longer report, *The Impact of the Moving to Work Demonstration on the Per Household Costs of Federal Housing Assistance* (Stacy et al., 2020), published earlier this year, that includes a more comprehensive discussion of the methodology, comparison group selection, and additional sensitivity analyses.

Background

Enacted by Congress in 1996, the Moving to Work (MTW) demonstration allowed designated public housing agencies (PHAs) greater regulatory and funding flexibility to test innovations in housing assistance. MTW agencies can apply for waivers from program regulations to test innovations that meet one or more of the demonstration's three statutory objectives: reducing costs and increasing cost-effectiveness, promoting employment and economic self-sufficiency, and increasing housing choices for low-income families. MTW agencies are also given greater flexibility in their use of funds from the two largest housing assistance programs: public housing and housing choice vouchers (HCVs).

Traditional PHAs are funded for discrete activities through a set of clearly defined formulas, with strict specifications about how they can use their funding. Each year, they receive separate funding allocations from HUD for HCV Housing Assistance Payments (HAP) and administrative fees, public housing operations, and public housing capital improvements. With some exceptions, funds cannot be used for anything other than the designated purposes, and programs must be administered according to federal guidelines.

In contrast, each MTW agency is provided with fund flexibility and has its own funding agreement with HUD that provides a base funding for public housing and HCVs each year, with an inflation adjustment. As long as agencies remain compliant with the requirement to serve “substantially the same” number of households as they assisted before joining MTW, their funding does not go up if they serve more households or go down if they serve fewer households. HUD funding for programs other than public housing and HCVs are not funded in this way and are not eligible for fund flexibility.

Fund flexibility allows MTW agencies to apply fungibility to the HCV program, public housing operations, and public housing capital funding streams. This feature allows MTW agencies to, for example, use HCV program funds to build or preserve affordable housing or use their public housing and voucher funds to leverage other funding sources for housing development or preservation (Levy, Edmonds, and Long, this volume). MTW agencies report their spending on public housing, HCVs, and local, non-traditional (LNT—described later) assistance collectively as MTW program spending, and the fungible funding used for these activities is often referred to as the MTW fund. It is important to note, however, that not every MTW agency administers public housing.

³ There appears to be no impact of MTW on spending on administrative costs per household and tenant services per household, but there is too much variation within and between PHAs to measure these impacts with precision.

The other mechanism not available to traditional PHAs is waiver authority. Waiver authority means that MTW agencies may be allowed by HUD to waive parts of the U.S. Housing Act of 1937 (as amended) to implement innovations intended to achieve one of the three statutory objectives. Through waiver authority, MTW agencies can also offer LNT assistance. LNT programs may provide a rental subsidy through a third-party, homeownership subsidies, affordable housing development, or service provision. MTW agencies still must abide by statutory requirements and regulatory requirements for which they do not have a waiver.

Findings from Prior Research

Previous studies have found that MTW agencies spend more per assisted household than traditional PHAs, but these studies do not account for other factors that may drive spending differences. The most rigorous prior studies have compared MTW agencies' and traditional PHAs' per household spending on specific aspects of providing housing assistance. These comparisons included program administration, housing assistance payments, public housing operations, and operating reserves, rather than looking at either total PHA expenditures or total HUD spending per assisted household (Buron et al., 2017; GAO, 2018). These studies show that MTW agencies spend more per assisted household on specific activities than traditional PHAs, but that these differences diminish after accounting for differing housing and labor costs in the markets where MTW agencies and traditional PHAs operate. This finding suggests that observable differences in spending may be caused by differences between MTW and traditional PHAs that are unrelated to the MTW demonstration itself. For example, MTW agencies tend to be larger than traditional PHAs and are more likely to be in areas with high housing and labor costs (Galvez, Gourevitch, and Docter, forthcoming). Tighter housing markets and higher local wages have been shown to increase the costs per household in the HCV program (Finkel and Buron, 2001; Turnham et al., 2015). Additionally, many MTW agencies, such as the Housing Authority of the City of Pittsburgh and the Chicago Housing Authority, entered the demonstration with a large stock of aging public housing developments, which studies have shown are more expensive to maintain or repair (Stockard et al., 2003).

Administrative Costs and Reserves

The MTW demonstration was expected to create efficiencies in program administration costs because MTW agencies have fewer administrative requirements. Recent studies by Abt Associates and the U.S. Government Accountability Office (GAO), however, have shown that MTW agencies spend more per household on administrative costs than similar traditional PHAs. Abt Associates compared per-household costs between MTW and traditional PHAs by matching each MTW PHA to three to five traditional PHAs that were most similar based on the number of HCV and public housing units, fair market rents, poverty rates, area income, and unemployment. The results of the comparison showed that, in 2014, the average MTW agency spent \$163 more per assisted household on administrative costs in the HCV program than the average comparable traditional PHA (Buron et al., 2017). The report notes, however, that the difference in costs was driven primarily by a few MTW agencies that used their funding flexibility to spend administrative funds on resident services. Nearly one-half (15 of 35) of MTW agencies had lower administrative costs per assisted household than their comparison traditional PHAs (Buron et al., 2017).

The GAO (2018) constructed a comparison group of traditional PHAs that were as similar as possible to MTW agencies based on several household, financial, and geographic characteristics.⁴ Rather than looking at a single year, the GAO report compared median costs per household between MTW agencies and the matched comparison group between 2009 and 2015.⁵ GAO estimated that the median per household administrative expenditure was \$922 for MTW agencies and \$642 for traditional PHAs. GAO's estimate of administrative costs includes median spending of \$37 per HCV household on resident services for MTW agencies, compared with a median of \$0 for traditional PHAs (GAO, 2018).

There is evidence, however, of MTW agencies using their flexibility to increase cost-effectiveness in some areas and improve processes or services in others. An analysis of MTW agencies' annual administrative plans found that most agencies use their flexibility to scale back the frequency of annual housing quality inspections or income recertifications (Galvez, Simington, and Treskon, 2017).⁶ Likewise, although implementing policy changes does incur short-term costs such as those associated with updating forms and software, training staff, and educating residents, it may result in long-term efficiencies (Khadduri et al., 2014). Moreover, MTW PHAs may use savings generated from reduced regulations to shift how administrative staff spend their time rather than reduce overall staffing. Officials from several MTW agencies reported that staff were still spending as much time with residents as before their agency joined the demonstration, but the relationship had shifted from one of "auditor or investigator to one of mentor or advocate" (Abravanel et al., 2004).

MTW agencies can also use their flexibility to place more money into reserves, which they can use to invest in affordable housing development or preservation, or as a "rainy-day fund" in case of future funding shortfalls. The GAO's 2018 report estimated that, as of June 2017, the 39 MTW agencies had a total of \$808 million in HCV reserves—more than all the 2,116 traditional PHAs that administer the HCV program combined (\$737 million) (GAO, 2018). This finding may indicate MTW agencies are not using as much of their annual funding for direct housing assistance, but it can give them advantages over traditional PHAs in completing deals to build or preserve affordable housing (Abravanel et al., 2004; Levy, Edmonds, and Long, this volume). Abt Associates conducted a survey of PHAs as part of its MTW evaluation and found that MTW agencies preserved significantly more affordable housing units than traditional PHAs (Burton et al., 2017).

HAP and Public Housing Operations

The largest budget item for most agencies is HAP—the money paid from the PHA to the landlords. For traditional PHAs, this funding must be used to provide rental subsidies to landlords in the HCV program. MTW agencies have the flexibility to shift HAP funds into the public housing operating or capital funds programs, build up reserves, or develop new types of assistance. They

⁴ GAO used a sophisticated statistical method called genetic matching to identify one traditional PHA most similar to each MTW agency on 12 variables, including 4 household characteristics, 4 financial characteristics, and 4 location measures (GAO, 2018).

⁵ Although GAO used multiple years of data, they pooled the years together and did not undertake an analysis of changes pre- and post-entry into the MTW demonstration.

⁶ Income recertification is the process through which a PHA determines a family's income for purposes of setting the total tenant payment toward rent. Housing quality inspections are required to ensure that tenant- and project-based housing vouchers are used to house families in units that meet HUD housing quality standards.

can also adjust the amount of subsidy that households in the HCV program receive or provide financial incentives to landlords to participate in the program. The Center on Budget Policies and Priorities (CBPP) estimated that, in 2010, MTW agencies left 16 percent of their HAP funds unused compared with 4 percent for traditional PHAs (Fischer, 2015). This analysis was unable to account for HCV funds used to assist households in local, non-traditional (LNT) or public housing programs, however, nor did it control for other differences that could have contributed to lower usage rates at MTW agencies. The GAO report found that the median rental payment subsidy was about 25 percent higher at MTW agencies than for comparable agencies—\$8,295 per household for MTW agencies and \$6,629 per household for the comparison group (GAO, 2018). The 2017 Abt Associates report, however, found no statistically significant differences in HAP costs between MTW and traditional PHAs after adjusting for the fair market rent in the service area of each PHA (Burton et al., 2017).

Program administration and the provision of public housing are funded and frequently examined collectively as public housing operations. Capital improvements are funded separately, however, and have received less research attention. In part because of differences in funding formulas, CBPP estimated that, in 2010, MTW agencies received almost \$3,000 more per unit for public housing operations than traditional agencies (Fischer, 2015). This estimate, however, did not account for variations between PHAs in local housing or labor markets. The GAO report, which did attempt to control for some of these differences, found that MTW agencies spent about \$1,600 more per unit per year on public housing operations than traditional agencies (GAO, 2018). The Abt Associates report found no statistically significant differences in per unit public housing operations costs between MTW and traditional PHAs after accounting for differences in local wages (Burton et al., 2017).

Some research suggests that MTW agencies' funding for public housing tends to be more predictable, and potentially more generous, than it is for traditional PHAs. For example, CBPP found that the funding formula for public housing operating costs used for 11 MTW agencies accounts for \$260 million in additional funding compared with the formula used to fund traditional PHAs (Fischer, 2015). In years of reduced appropriations, funding for traditional PHAs were reduced, but MTW agencies were still funded based on their MTW funding agreement for both their HCV and public housing programs.⁷ By contrast, traditional PHAs are funded according to a formula that accounts for local housing costs, past usage of HUD funds, and current obligations. HUD then prorates each traditional PHA's funding levels to adjust for changes in total funding levels from Congress.

Limitations of Prior Research

Prior studies that examined the relationship between MTW status and cost-effectiveness show that MTW agencies spend more per household than traditional PHAs. This study accepts these findings and poses the question: Is participation in the MTW demonstration the cause of these higher costs?

⁷ For more information, see Title 24—Housing and Urban Development (2017) §982.503, Payment Standard Amount and Schedule, PIH Notice 2008-15(HA) "Implementation of the Federal Fiscal Year 2008 Funding Provisions for the Housing Choice HCV Program," Notice PIH 2009-13(HA) "Implementation of the Federal Fiscal Year 2009 Funding Provisions for the Housing Choice HCV Program," and PIH Notice 2012-9 "Implementation of the Federal Fiscal Year 2012 Funding Provisions for the Housing Choice HCV Program."

Earlier studies could not answer this question because they could not effectively identify the effect of MTW on agencies. The studies conducted by Abt Associates (Burton et al., 2017) and the GAO (2018) did not control for unobserved differences that existed before MTW agencies joined the demonstration. They also did not examine how cost-effectiveness or spending at agencies changed after they joined the demonstration. Additionally, these studies were unable to account for shifts in spending between public housing and HCVs or to LNT housing programs. Our research overcomes these limitations.

Research Approach

This analysis uses 15 years of administrative data to estimate the impact of the MTW demonstration on cost-effectiveness at PHAs. We measure cost-effectiveness within a PHA as the cost, in dollars received from HUD, per assisted household. This measure is defined to cover all households assisted with MTW funds, including through local, non-traditional (LNT) programs. It is therefore not affected if an MTW agency shifts funds from one program to another. The analysis uses many more years of data than previous studies, tracking changes in MTW agencies and traditional PHAs from 2003 to 2017. With this additional data, the analysis is also able to examine costs per household at MTW agencies both before and after joining MTW. The analysis compares changes in costs that occur when agencies join MTW with changes at traditional PHAs over the same years. It separately examines trends in funding and in the number of assisted households at PHAs before and after they join MTW. The study also investigates whether changes in the mix of program types, housing quality, or affordability explain changes in the average cost per assisted household.

Research Questions

What is the effect of MTW status on HUD cost per assisted household?

The first research question asks what effect participating in the MTW demonstration has on the per household cost of housing assistance. The answer quantifies the impact of MTW status on the number of dollars spent by HUD per household assisted by a PHA. We then separately determine the impact of MTW status on HUD funding levels, and the number of assisted households PHAs serve, to understand why MTW status is having its observed effect on the cost per assisted household.

Do changes in program mix, housing quality and affordability, or the characteristics of assisted households explain the effect of MTW status on HUD costs per assisted household?

Our second research question tests whether the estimated impact of MTW status on HUD funding, households served, and cost per household changes after controlling for differences between MTW and traditional PHAs in three areas: the mix of public housing, tenant-based, and project-based vouchers in their portfolio; housing affordability and quality; and targeting of assistance to households that may be costlier to serve. Each of these factors is accounted for in a separate model. Each model tests a different mechanism through which cost per household could change.

Does MTW status affect agencies' total per-household operating and housing assistance spending or per-household spending on program administration, tenant services, or operating reserves?

Our third research question examines how MTW status affects spending by PHAs. We examine both total per-household spending and spending on specific components of housing assistance. This contrasts with the first two research questions, which focus on HUD funding per assisted household. Differences in expenditure levels between MTW and traditional PHAs have been well documented. Because this is the first study to examine how cost-effectiveness changes when an agency joins the MTW demonstration, this research question offers the opportunity to provide context to the spending differences described in prior research.

Sample

Ideally, we would examine the full history of the MTW demonstration, but data limitations precluded this possibility. After extensive research and collaboration with HUD, we set 2003 as the initial year for analyzing administrative data. This was the first full calendar year for which HUD could provide voucher management data. This voucher data was needed to differentiate between HCV households and households assisted by special purpose vouchers.

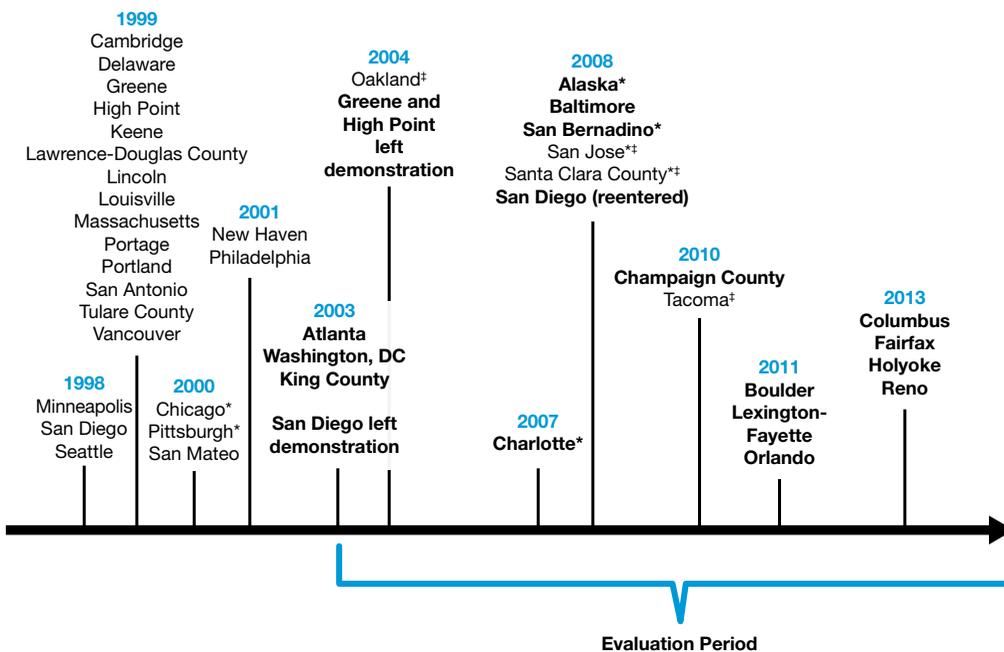
Our statistical models, therefore, include the 15-year period from 2003 through 2017, during which 17 new PHAs entered the demonstration, two PHAs left, and one agency (San Diego Housing Commission) exited and re-entered (exhibit 1).⁸ Each agency's date of entry into MTW is defined as the date that their first MTW agreement was executed.⁹ Exits are defined based on the date on which the MTW agreement was terminated. The analysis period includes both the increased investments from the 2009 stimulus package and the deep cuts created by sequestration. Because our analysis begins with 2003, we do not estimate how MTW status affects the cost per household for PHAs that joined prior to 2003. This analysis excludes some of the largest MTW agencies such as the Chicago Housing Authority, the Cambridge Housing Authority, Home Forward (Portland, OR), the Housing Authority of the City of Pittsburgh, the Minneapolis Public Housing Authority, and the Seattle Housing Authority.

⁸ Descriptive statistics for these PHAs appear in appendix exhibit C of Stacy et al. (2020). The Housing Authority of the County of Santa Clara manages all housing programs for the Housing Authority of the City of San Jose, therefore, we treat them as a single agency in our analysis.

⁹ In the case of the San Diego Housing Commission's reentry into MTW, we use the date that their 2008 MTW agreement was executed for reentry.

Exhibit 1

Timeline of Moving to Work Agreements And Evaluation Period (Evaluation Sample In Bold)



* PHAs selected by Congress, not through a competitive process

† Impact analyses do not include Oakland Housing Authority, Tacoma Housing Authority, Housing Authority of the County of Santa Clara, or Housing Authority of the City of San Jose because of incomplete data on households in public housing. The 18 public housing agencies included in the impact analyses are Alaska, Atlanta, Baltimore City, Boulder, Champaign, Charlotte, District of Columbia, Columbus (GA), Fairfax County, Greene, High Point (NC), Holyoke, King County, Lexington-Fayette Urban County, Orlando, Reno, San Bernardino, and San Diego. The event study regression includes only 12 public housing agencies due to data limitations (see Exhibit B5 in Stacy et al., 2020).

Notes: The graphic shows the evaluation period and the year that agencies signed their MTW agreement. Agencies included in our analysis are in bold.

Source: Documents retrieved from HUD's Moving to Work (MTW) portal (<https://www.hud.gov/mtw>)

The comparison group is comprised of large traditional PHAs—those with more than 750 assisted households. Our analysis assumes that MTW agencies were similar to the comparison PHAs, or at least followed similar trends, prior to joining the demonstration. Even before joining, however, future MTW agencies tended to be larger and have higher costs per household than other traditional PHAs. The smallest agency that joined MTW during the study period (after 2003) assisted an average of 938 households in 2003. The average cost per household among these pre-MTW agencies was \$8,500 in 2003. Although the average cost per household among agencies that did not join MTW was \$5,925, the average cost per household within the comparison group of large agencies was \$7,148. Additional analysis in Stacy et al. (2020) also shows that cost per assisted household fell among traditional PHAs between 2003 and 2017, with larger declines among PHAs with 750 or fewer assisted households.

Data Collection and Assembly

This study relies on three HUD administrative datasets: (1) the Financial Data Schedule (FDS) to track HUD funding and public housing agency (PHA) costs, (2) the Office of Public and Indian Housing (PIH) Information Center (PIC) to track the number of households in public housing and the characteristics of households in public housing and the voucher program, and (3) the Voucher Management System (VMS) data to track the number of households with vouchers. Data from the Decennial Census (Census), American Community Surveys (ACS), and the Bureau of Labor Statistics (BLS) provide information such as local wages and housing and utility costs. The Public Housing Assessment System (PHAS) provides data on public housing quality. We also include HUD data on the number of households assisted by MTW agencies through LNT programs that are not captured in PIC data. Additional information on the data used in this study can be found in Stacy et al. (2020).

We merged data from PIC, VMS, LNT, and FDS with regional wage data from BLS and regional demographic data from the census and ACS to construct a balanced panel dataset—a dataset with every PHA in every year—of 3,726 PHAs and 55,890 observations. PHAs that do not appear at least once in PIC and at least once in FDS are excluded, as are PHAs for which either county wage or local rent data were unavailable.¹⁰

After constructing this initial dataset, we made several adjustments to account for missing or incomplete data. These processes are described in detail in the “sample construction” section of Stacy et al. (2020). Data issues were present in both MTW and traditional PHAs, particularly in the early years of our analysis, and may represent early challenges PHAs faced in reporting to HUD. We filled in for missing, zero, and “bad” data points from PIC, VMS, and FDS using nearest-neighbor interpolation and extrapolation.¹¹

After adjusting for missing and incomplete data, we constructed measures of the number of assisted households, total HUD funding, and cost per assisted household. For consistency, we converted the FDS data from fiscal to calendar year by using a weighted average of the two fiscal years that overlap each calendar year. Because data from the 2018 fiscal year were not available for all agencies, we used 2017 fiscal year data for calendar year 2017.

Finally, we excluded the 19 PHAs that entered the MTW demonstration before 2003 and remained in the program through the observation period. For all our analyses, we compare MTW agencies only with traditional PHAs that had at least 750 assisted households in 2003. Excluding smaller agencies, and those with only 1 year of reliable public housing, voucher, or financial data, reduces the sample to 727 PHAs—18 MTW agencies and 709 traditional PHAs—and 10,905 observations.

¹⁰ PHAs only appear in PIC or VMS when public housing or HCV households are reported. PHAs may appear in FDS to report funding streams other than those for public housing operations, public housing capital improvements, and HCVs.

¹¹ Linear interpolation produced less plausible values, including some negative values in the earlier part of the sample period.

Defining Outcome Measures and Controls

This study defines cost-effectiveness as “cost per household,” or the total funding PHAs receive from HUD each year for public housing and HCV programs divided by the number of households assisted by these programs. This measure was selected as the most comprehensive measure of cost per household because it includes all funding sources that are eligible for MTW fund flexibility, and all households assisted through this funding, including households assisted through local, non-traditional MTW programs. It also allows for a more direct comparison of cost-effectiveness between MTW and traditional agencies than looking at expenditures because MTW agencies report expenditures differently than traditional PHAs.

Our measure of HUD funding includes HUD PHA operating grants and capital grants for public capital funds, HUD PHA operating grants for public housing operating funds, and HUD PHA operating grants for the Housing Choice Voucher (HCV) program (exhibit 2). All funding data is collected from the FDS, adjusted from fiscal year to calendar year, and converted from nominal dollars to 2015 dollars using the Consumer Price Index for all Urban Consumers (CPI-U). (See exhibit C2 in Stacy et al., 2020, for details on calculations using FDS data.)

Exhibit 2

Variables For Analysis And Data Sources (1 of 2)

Variable Description	Data Source	Definition / Notes
Outcome Measures		
HUD Funding	FDS	HUD PHA operating grants and capital grants for public capital funds, plus HUD PHA operating grants for public housing operating funds, plus HUD PHA operating grants for the HCV fund
Assisted Households	PIC, VMS, LNT data	Total households assisted through public housing, the HCV program (excluding special purpose vouchers), and LNT programs
Cost per Assisted Household	FDS, PIC, VMS, LNT data	HUD funding/Assisted households
Treatment Variable		
MTW Status	Annual Reports, MTW agreements	The treatment variable is equal to one for agencies for years in which they are a part of the MTW demonstration and zero for years in which they are not. If an agency has MTW status for part of a year, the value is a fraction based on the number of months remaining in the calendar year when the agency’s MTW agreement is executed. For example, if an agency signs the MTW agreement in September, then MTW status = .25 in the year the agreement was signed because three months, or .25 of a year, remain in the calendar year.

Exhibit 2

Variables For Analysis And Data Sources (2 of 2)

Variable Description	Data Source	Definition / Notes
Internal (Endogenous) Cost Drivers		
Percent of Households Using Tenant-Based Vouchers (TBVs)	VMS	Number of assisted households with TBVs/total assisted households
Percent of Households Using Project-Based Vouchers (PBV)	VMS, PIC	Number of assisted households with PBVs/total assisted households
Percent of Households in Public Housing (PH)	VMS, PIC	Number of assisted households in PH/total assisted households
Quality of Public Housing	PHAS	Physical Assessment Subsystem (PASS) score
Affordability (Median Rent Burden)	PIC	Median of (total family contribution ^b x 12 / total annual income) for new households
Household Size	PIC	Average number of individuals in new households
Median Income	PIC	Median annual total income of new households
High Need Households	PIC	Percent of new, assisted households in which the household head is 62 or older, the household head is disabled, or any other member of the household is disabled.
Cost Components		
Administrative Costs	FDS	Total operating administrative expenses
Tenant Services Spending	FDS	Total tenant services expenses
Operating Reserves	FDS	Following the formula ^a outlined in PIH notice 2011-055
Total Operating and Housing Assistance Spending	FDS	Total operating expenditures from the public housing, HCV, or the MTW funds plus total housing assistance payments from the HCV and MTW funds.
External Cost Drivers		
Average Wage of Local Government Employees	BLS	Average wage of local government employees in the county with the most households assisted by a given MTW agency or traditional PHA reported in PIC in 2003.
Median Rent in Service Area	ACS	Population weighted median rent in each year based on the census tracts of residents reported in PIC

^a The sum of FDS line items 111 Cash Unrestricted, 114 Cash Tenant Security Deposits, 120 Total Receivables, 131 Investments Unrestricted, 142 Prepaid Expenses and Other Assets, 144 Inter-program – due from, and 145 Assets Held for Sale, minus the difference between line 310 Total Current Liabilities and line 343 Current Portion of Long-term Debt-capital Projects.

^b For MTW agencies, the family contribution toward rent variable is constructed by HUD and includes the family's contribution toward utilities when applicable. This variable is not included in the standard PIC data and was provided by HUD for the purposes of this study. To calculate the annual family contribution toward rent for non-MTW agencies, we multiply the monthly contribution toward rent as reported in PIC by 12 and divide this by the total household adjusted income in PIC.

Sources: Administrative data from the U.S. Department of Housing and Urban Development (HUD) include the Financial Data Schedule (FDS), the Office of Public and Indian Housing Information Center (PIC), the Voucher Management System (VMS), and the Public Housing Assessment System (PHAS); Public use data include the Decennial Census (Census), American Community Surveys (ACS), and the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages; Local, non-traditional (LNT) data was provided by the HUD Moving to Work (MTW) office and calculated based on data reported by agencies on form 50900; New households are identified using action code flags in PIC.

We count the number of assisted households as the sum of those served through public housing, HCVs, and, for MTW agencies, through LNT programs. To do so, we combine public housing data from PIC, voucher data from VMS, and LNT data calculated by HUD from agency reporting. This calculation includes households assisted through LNT programs that are funded using MTW fund flexibility; it excludes households assisted through HUD special purpose voucher programs (such as the Family Unification Program or HUD-VASH) that are not covered by MTW agreements and not funded through public housing operating, public housing capital, or the traditional HCV funding streams.

To answer the second research question, we use data from PIC, VMS, and PHAS to examine internal cost drivers (exhibit 2). Type of housing assistance is measured by calculating the percent of assisted households in (1) public housing, (2) tenant-based vouchers, and (3) project-based vouchers. Housing quality is measured by the most recent physical assessment subsystem (PASS) score from PHAS.¹² Housing affordability is measured as the percent of household income that the median assisted household spends on housing. To assess whether MTW agencies are assisting households that are costlier to serve, we use three metrics: (1) the median income, as a percent of the area median income (AMI), of newly admitted households, (2) the percent of newly admitted households with an elderly head of household, disabled head of household, or disabled family member, and (3) average household size. We calculate these variables directly from PIC data.

To estimate the effect of MTW on spending, we examine total expenditure per household and three additional cost components (exhibit 2). Total per household operating and housing assistance spending is calculated by adding total operating expenditures associated with public housing, the HCV program, or the MTW fund to total housing assistance payments associated with the HCV program or the MTW fund, then dividing by the number of assisted households. It includes all reported public housing operations, maintenance and administration spending, and all reported spending on the administration of HCVs and LNT vouchers and units. It does not include capital expenditures, transfers, depreciation, or accounting costs such as bad debts. We calculate administrative costs and tenant services by totaling these spending categories from the funds associated with HCV and public housing operations for traditional agencies, and for MTW agencies with the MTW funds. Additionally, we calculate operating reserves based upon the guidance provided in PIH notice 2011-055. The specific FDS line items we use appear in Stacy et al. (2020; appendix C, exhibit C2).

Our estimation methods account for pre-existing differences between agencies, but we include two cost drivers that change over time: median rent and local public sector wages. Prior research has shown that local housing costs and wages impact per household costs of providing housing assistance (Finkel and Buron, 2001; Turnham et al., 2015). We measure housing costs with median rent, as reported in the Census/ACS. We measure wages using the Bureau of Labor Statistics (BLS)-reported, county-level annual average pay in local government (all industries). Counties are mapped to PHAs based on household-level county variables in the PIC. Each county in the United States is assigned to the PHA that serves the most households in the area. State-level data are used where county-level data are incomplete or missing. The service area of each PHA is defined here

¹² This score measures the housing quality of all the public housing units that the PHA manages. We do not have a comparable measure of housing quality in the HCV program.

based on where residents live, as reported in PIC. We retrieved local rental costs at the tract level from the National Historical Geographic Information System (NHGIS) (Manson et al., 2018); for each PHA, we take a weighted average based on the number of assisted households in each tract in 2003. We retrieved local wages by county; we assign each PHA the wage rate corresponding to the county in which it assisted the most households in 2003.

Estimation Methods

We use fixed-effects models to estimate the impact of participating in the MTW demonstration on cost per household and other outcomes. Fixed effects for each PHA control for urbanity, rurality, and other time-invariant characteristics, including factors that may make a PHA more or less likely to join the MTW demonstration. These fixed effects also control for the average mix of tenant-based vouchers, project-based vouchers, and public housing administered by the PHA. The models also include two control variables to capture factors that change over time that may affect the costs of providing housing assistance: (1) median rent, and (2) the local public sector wages in the service area of each PHA.

Estimation Method for Research Question 1: What is the effect of MTW status on cost per assisted household?

To determine the impact of the MTW demonstration on cost per household, we estimate the following fixed effects panel regression model:

$$Outcome_{it} = \beta * MTW_{it} + \gamma * ExternalCostDrivers_{it} + \lambda_t + \alpha_i + \epsilon_{it} \quad (1)$$

That is, each of our outcome variables for PHA i in year t (the natural log of HUD funding, the natural log of assisted households, the natural log of cost per assisted household) is a function of MTW status, external drivers of cost—median rent and local public sector wages ($ExternalCostDrivers_{it}$), year fixed effects (λ_t), PHA fixed effects (α_i), and an idiosyncratic residual (ϵ_{it}), clustered at the PHA level and robust to arbitrary forms of misspecification. MTW_{it} equals 1 for PHA i in year t if the agency is an MTW agency in that year as defined by having a signed agreement; in the year that the agreement is signed, we set MTW_{it} equal to the fraction of the year remaining at the date of the second (HUD or PHA) signature. Variables measured in dollars and households are log-transformed before they enter the equation; this step accounts for the skewness of their distributions and produces estimates of the MTW effect in percentage terms. The measure of cost per household is also log-transformed before entering the equation.

The coefficient β approximates the percentage change in average cost per household associated with entering the MTW demonstration (a coefficient of 0.1 indicates a 10-percent change). A positive and significant estimated value for β implies a higher cost per household. We also use equation 1 to estimate the impact of MTW status on the amount of funding a PHA gets from HUD and on the number of assisted households it serves.

Understanding the Timing of Changes in Cost per Household

To better understand the timing of MTW's impact on cost per assisted household, we use an event-study regression to isolate the impact of the MTW demonstration in the year in which the MTW agreement was executed, 1 year after joining the demonstration, 2 years after, and then all other years after joining the demonstration. In this model, we also estimate whether the trends at MTW agencies were diverging from trends in traditional PHAs in the years before they signed the MTW agreement. The event study model takes the following form:

$$Outcome_{it} = \delta_1 D_{i(t+2)} + \delta_2 D_{i(t+1)} + \delta_3 D_{it} + \delta_4 D_{i(t-1)} + \delta_5 D_{i(t-2)} + \delta_6 MTW_{i(t+3)} + \gamma * Controls_{it} + \lambda_t + \alpha_i + \epsilon_{it} \quad (2)$$

Here, we replace the indicator for MTW status with a series of dummy variables $D_{i(t+2)}$ to $D_{i(t-2)}$ indicating 2 years before, 1 year before, the year of, the year after, and 2 years or more after a PHA's first MTW agreement is executed. The variable $MTW_{i(t+3)}$ is equal to 1 for MTW agencies beginning in the third year after entry into the demonstration. That is, it estimates long term effects. Again, the model includes external drivers of cost ($Controls_{it}$), year fixed effects (λ_t), PHA fixed effects (α_i), and an idiosyncratic residual (ϵ_{it}) clustered at the PHA level and robust to arbitrary forms of misspecification.

Estimation Method for Research Question 2: Do changes in program mix, housing quality and affordability, or the characteristics of assisted households explain the effect of MTW status on HUD costs per assisted household?

To explore whether internal cost drivers, including program mix, housing quality and affordability, and the characteristics of assisted households, explain the relationship between MTW status and per household cost, we separately add each set of internal cost drivers to the main model shown previously:

$$Outcome_{it} = \beta^* * MTW_{it} + \delta_1 * InternalCostDrivers_{it} + \gamma * ExternalCostDrivers_{it} + \lambda_t + \alpha_i + \epsilon_{it} \quad (3)$$

where the outcome measure is the natural log of cost per assisted household. Here, the primary outcome measure is a function of a set of PHA factors, external cost drivers, year fixed effects (λ_t), PHA fixed effects (α_i), and an idiosyncratic residual (ϵ_{it}) clustered at the PHA level and robust to arbitrary forms of misspecification. Of interest here is whether and how the coefficient on MTW status changes once these endogenous characteristics are included. If the effect disappears, this finding suggests that changes in cost per household related to MTW status may be due to changes in program mix, housing quality and affordability, and household characteristics, rather than simply due to serving fewer or more of the same households at the same quality level.

To determine how changes within the PHA affect costs, we include three sets of internal cost drivers. The first set of cost drivers—the percent of total households funded with tenant-based vouchers and the percent of total households funded with project-based vouchers (omitting the percent of households in public housing as the reference group)—explores program mix. The second set—median rent burden and public housing physical inspection scores—explore affordability and quality. The third set of cost drivers—household income, household size, and

the share of households with an elderly household head or disabled household head or family member—relate to the ability of PHAs to reach households that may require more resources to serve. To explore each mechanism separately, we isolate each set of cost drivers in a distinct model.

The MTW effect (β') estimated in this way can be interpreted as the change in cost per household *beyond, or that is not driven by, changes in the internal cost drivers included in the regression*. We then test whether the estimated impact of MTW has changed when these factors are added to the model (whether $\beta' = \beta$). If the value of coefficient β is not the same with the internal cost drivers added to the model, we can conclude that changes in program mix explain at least some of the differences, or the lack of a difference, between MTW agencies and traditional PHAs, in cost per household.

Estimation Method for Research Question 3: Does MTW status affect agencies' total per household operating and housing assistance spending, or per household spending on program administration, tenant services, or operating reserves?

To investigate how MTW status affects per household spending on specific spending categories, we estimate equation 1 with four left-hand-side measures: (1) total expenditures per assisted household, (2) administrative costs per assisted household, (3) spending on tenant services per assisted household, and (4) changes in operating reserves per assisted household. We take the natural log of total per household operating and housing assistance and per household spending on program administration before they enter the model. Because tenant services are frequently zero, and reserve balances can be negative, we do not take the natural log of these measures; instead, we estimate a linear relationship on dollars per household.

Here, the estimated coefficients represent (1) the approximate percentage change in total per household spending, (2) the approximate percentage change in per household administrative costs, (3) the dollar value of increased (or decreased) per household spending on tenant services, and (4) the dollar value of increased (or decreased) reserve balances per assisted household.

Findings

Estimates of the effect of MTW on cost per household, HUD funding, and the number of assisted households appear in exhibit 3. These estimates approximate the percentage change attributable to MTW.¹³ We find no statistically significant relationship between MTW status and cost per assisted household. More specifically, controlling for baseline characteristics, national trends, and exogenous cost drivers, our statistical analysis shows that MTW status is associated only with a small and statistically insignificant increase in cost per assisted household of 1.3 percent (exhibit 3).

This lack of impact on cost per household results from increases in both the level of HUD funding and the number of assisted households for agencies after they join MTW. PHAs receive, on average, 11 percent more funding from HUD after joining the MTW demonstration and assist 10 percent more households (exhibit 3). Because these effects are of a similar size, they have offsetting impacts on our primary outcome variable of cost per assisted household.

¹³ Because outcome measures entered the regression in log form, percentage change is calculated by exponentiating the coefficient and subtracting 1. For example, the coefficient for HUD funding is 0.106, and the estimated percentage change is $(e^{0.106}) - 1 = 0.112$ or 11 percent.

Exhibit 3

The Effect of Moving to Work on HUD Cost per Assisted Household, HUD Funding, and Number of Assisted Households

	HUD Cost per Assisted Household	HUD Funding	Assisted Households
Impact of MTW	0.013 (0.030)	0.106*** (0.024)	0.092*** (0.028)
Control Variables			
Area Median Rent	0.298*** (0.071)	0.144** (0.060)	-0.154*** (0.047)
Government Wage	0.048* (0.026)	0.023 (0.026)	-0.025 (0.020)
Number of PHAs	727	727	727
Adjusted Within R-Squared	0.096	0.083	0.039
Observations	10,905	10,905	10,905

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

MTW = Moving to Work. PHA = public housing agencies.

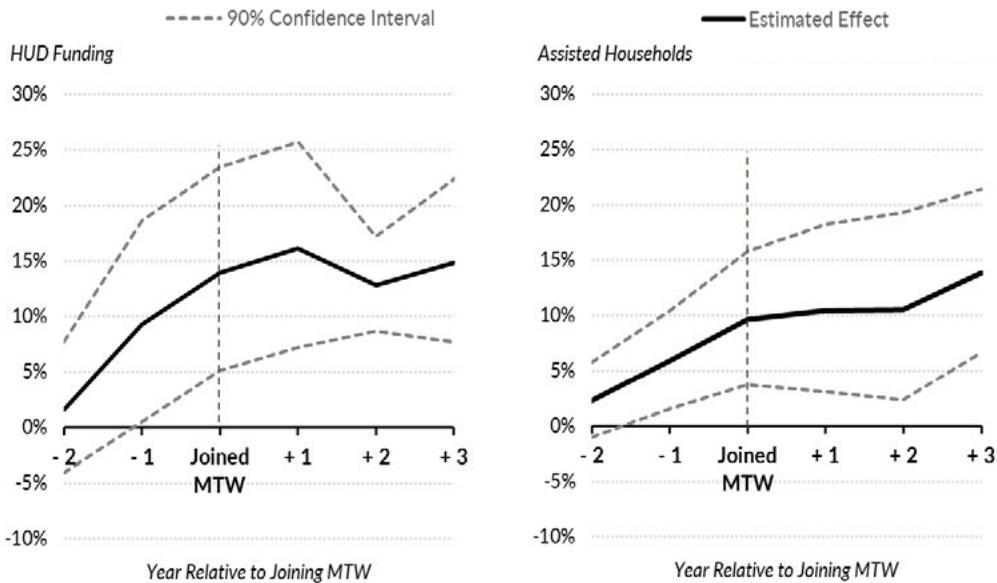
Notes: Standard errors (listed in parentheses) are heteroskedastic robust and clustered at the PHA level. Data cover 2003-2017. Regressions include only agencies with at least 750 households and exclude agencies that joined MTW before 2003. Impact analyses do not include Oakland Housing Authority, Tacoma Housing Authority, Housing Authority of the County of Santa Clara, and Housing Authority of the City of San Jose because of incomplete data on households in public housing. Regression includes year and PHA fixed effects. Cost per assisted household, HUD funding, assisted households, area median rent, and government wages enter the regression in logged form.

Sources: Urban Institute Analysis of HUD Office of Public and Indian Housing Information Center (PIC), Financial Data Schedule (FDS), and Voucher Management System (VMS) data

To better understand the timing of MTW's impact on cost per assisted household, we used an event-study regression to estimate the impact of the MTW demonstration by year. Using this framework, we find no significant differences in cost-effectiveness in any year before or after joining the MTW demonstration. We also estimated the effect of MTW by year for HUD funding and households assisted (exhibit 4). HUD funding begins to rise the year before PHAs officially enter the MTW demonstration (although this effect is not statistically significant at $\alpha=0.1$), and it continues to rise after the agency joins MTW, with the largest increase 1 year after joining. The number of assisted households served by the PHA also increases 1 year before joining the demonstration (statistically significant at $\alpha=0.1$) and continues to rise after joining but more smoothly than funding, which peaks the year after joining. Full results from the event-study models appear in Stacy et al. (2020).

Exhibit 4

The Effect of the Moving to Work Demonstration on HUD Funding and Number of Assisted Households (Percent Change)



MTW = Moving to Work.

Notes: Vertical dotted line and “Year joined MTW” represent the year in which PHAs execute their first MTW contract. The solid line represents the point estimate, and the dashed lines on either side of this estimate represent the 90-percent confidence interval. Estimates are converted from log form to percent change. Regressions include only agencies with at least 750 households and exclude agencies that joined MTW before 2005 or after 2015, because they need to have 2 years of data prior to joining MTW and 3 years of data after joining enter this equation. Impact analyses do not include Oakland Housing Authority, Tacoma Housing Authority, Housing Authority of the County of Santa Clara, and Housing Authority of the City of San Jose because of incomplete data on households in public housing. All regressions include year and PHA fixed effects. Median rent and government wages are included as control variables. HUD cost per household, area median rent, and government wages enter the regression in logged form.

Sources: Urban Institute Analysis of HUD Office of Public and Indian Housing Information Center (PIC), Financial Data Schedule (FDS), and Voucher Management System (VMS) data

The increase in the number of assisted households the year before PHAs sign their MTW agreement is both a surprising empirical fact and a potential cause of bias to our main regression model.

One way to address this bias is to estimate agency-specific long-term trends within the regression model. As shown in Stacy et al. (2020), estimates using this type of model find no relationship between MTW status and cost per assisted household. These models also confirm the findings from the event-study regression and imply that increases in HUD funding and the number of assisted households are part of longer-term trends that predate entry into the MTW demonstration.

Effect of the MTW Demonstration Controlling for Program Mix, Housing Quality and Affordability, and Household Characteristics

Accounting for changes in (1) program mix, (2) housing quality and affordability, and (3) household characteristics does not alter our primary finding of no significant relationship between MTW status and cost per assisted household (exhibit 5). We reach this conclusion by comparing the numbers in the top row (Impact of MTW) in columns 2, 3, and 4 of exhibit 5 with the number in column 1.

Estimates in columns 2, 3, and 4 show the change in cost per household *that is not driven by changes in the internal cost drivers included in the regression*. Looking at the result in column 2 (program mix), we see that after controlling for changes in program mix, joining the MTW demonstration is associated with a statistically insignificant 0.8-percent increase in costs per assisted household. The difference between this estimate and the estimated effect in the original model (column 1) can be interpreted as the impact of MTW on cost-effectiveness through the mechanism of changes in program mix. The difference here, 0.5 percent, is small and not statistically significant. The estimated impact of MTW on cost-effectiveness changes only 0.2 percent after accounting for housing affordability and quality (column 3) and only 0.1 percent after accounting for the characteristics of assisted households (column 4). Again, these differences are small and not statistically significant. In other words, MTW agencies are not maintaining their cost-effectiveness by shifting their portfolio to lower-cost assistance programs, offering lower quality or less affordable housing assistance, or providing assistance to households with fewer needs.

Exhibit 5

The Effect of Moving to Work on HUD Cost per Assisted Household Controlling for Program Mix, Quality and Affordability, and Household Demographics

	Main Regression	Controlling for:		
		Program Mix	Housing Quality and Affordability	Household Characteristics
Impact of MTW	0.013 (0.030)	0.008 (0.025)	0.015 (0.031)	0.014 (0.029)
Percent tenant-based HCV holder	-	0.613*** (0.075)	-	-
Percent project-based HCV holder	-	0.643*** (0.107)	-	-
Quality of public housing	-	-	-0.001 (0.001)	-
Affordability (median rent burden)	-	-	-0.007** (0.003)	-
Median income (new residents)	-	-	-	-0.040*** (0.011)
High need households (new residents)	-	-	-	0.000 (0.000)
Household size (new residents)	-	-	-	0.018** (0.008)
Control Variables	YES	YES	YES	YES
Observations	10,905	10,905	8,775	10,905

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

HCV = Housing Choice Voucher. MTW = Moving to Work.

Notes: There is no statistically significant difference between the four coefficients for the impact of MTW status on cost per household. Standard errors (listed in parentheses) are heteroskedastic robust and clustered at the PHA level. Regressions include only agencies with at least 750 households and exclude agencies that joined MTW before 2003. Impact analyses do not include Oakland Housing Authority, Tacoma Housing Authority, Housing Authority of the County of Santa Clara, and Housing Authority of the City of San Jose because of incomplete data on households in public housing. Regression includes year and PHA fixed effects. Median rent and government wages are included as control variables. Cost per assisted household, HUD funding, assisted households, area median rent, and government wages enter the regression in logged form. Regression (3) only includes PHAs with public housing units.

Sources: Urban Institute Analysis of HUD Office of Public and Indian Housing Information Center (PIC), Financial Data Schedule (FDS), and Voucher Management System (VMS) data

Effect of the MTW Demonstration on per Household Spending by PHAs

Finding no impact of MTW status on our preferred measure of cost-effectiveness, we turn to focus on spending categories highlighted in prior research. We find that MTW status is not associated with an increase in PHAs’ total operating and housing assistance spending per assisted household. Our model estimates a change in total spending of only 0.3 percent (exhibit 6, column 1). Variation in spending on administrative costs and tenant services, both between agencies and within agencies over time, limit the precision of the model and prevent us from drawing strong conclusions. The standard error for the model of administrative costs (exhibit 6, column 2) implies a 90-percent confidence margin of error of roughly 17 percent. With an estimated effect of 0.137, or about 15 percent, we cannot rule out the possibility that MTW has no effect on administrative costs. Similarly, a 90-percent confidence margin of error for the tenant services model (exhibit 6, column 3) prevents us from drawing conclusions. It implies that MTW may lead spending on tenant services to fall by 20 percent or increase by more than two-thirds.

In contrast, we find a statistically significant impact of MTW status on operating reserves. We estimate that MTW increases the funds that agencies hold in operating reserves by about \$840 per assisted household (exhibit 6, column 4). In the first year of our study period, 2003, the average future-MTW agency held \$473 in operating reserves per household. Taken together, the estimated increase in reserves combined with no estimated impact on cost per household (exhibit 3) implies that MTW agencies are able to find some efficiencies that allow them to build up their operating reserves while serving roughly the same number of assisted households per dollar of HUD funding as they did before joining MTW.

Exhibit 6

The Effect of Moving to Work on per Household Total Spending, Administrative Costs, Tenant Services Spending, and Operating Reserves

	Total Spending (Operating and Housing Assistance) per Assisted Household	Administrative Costs per Assisted Household	Tenant Services Spending per Assisted Household	Operating Reserves per Assisted Household
Impact of MTW	0.003 (0.048)	0.137 (0.098)	22.4 (25.0)	839*** (197)
Median Rent	0.061 (0.146)	0.073 (0.091)	17.3 (24.7)	96.9 (170)
Government Wage	0.111 (0.080)	0.060 (0.048)	-21.5 (18.8)	114 (119)
Observations	10,905	10,905	10,905	10,905

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

MTW = Moving to Work.

Notes: Standard errors are heteroskedastic robust and clustered at the public housing agency (PHA) level and listed in parentheses. Regressions exclude agencies that joined MTW before 2003 and agencies that had fewer than 750 assisted households in 2003. Impact analyses do not include Oakland Housing Authority, Tacoma Housing Authority, Housing Authority of the County of Santa Clara, or Housing Authority of the City of San Jose because of incomplete data on households in public housing. All regressions include year and PHA fixed effects. Total expenditures per assisted household, administrative costs per assisted household, median rent, and government wage enter our regression equation in natural log form, tenant services spending per assisted households and operating reserves enter our regression equation non-transformed. We turn all zero values to 0.0001 before taking the natural log. The natural logs of median rent and government wages are included as control variables.

Sources: Urban Institute Analysis of HUD Office of Public and Indian Housing Information Center (PIC), Financial Data Schedule (FDS), and Voucher Management System (VMS) data

Robustness Checks

We use a series of alternative models and samples to examine the strength of our results. To better understand how the population of traditional PHAs in our sample impacts our estimates, we performed a sensitivity analysis using alternative thresholds for the minimum number of assisted households for PHAs in our comparison group. As soon as the smallest agencies—those with 150 or fewer assisted households—were removed from the sample, the relationship between MTW status and cost per household became statistically insignificant at the $\alpha=0.1$ level (Stacy et al., 2020, Exhibits B1 and B2). We also constructed two comparison groups using propensity scores. Estimating equation 1 using these two alternative comparison groups reaffirms the main results (Stacy et al., 2020, Exhibit B4). Next, to confirm that our treatment of the underlying data did not impact our results, we examined an alternative method for addressing missing data (multiple imputations). Because LNT assistance may be less expensive, we explored weighting schemes for families served through LNT assistance. These analyses also show that MTW has no impact on cost per household but is associated with a greater number of households served and greater levels of funding received (Stacy et al., 2020, Exhibit B4). Finally, we examined an alternative model in which we relaxed the assumption of parallel trends for MTW and traditional PHAs and allowed each PHA its own specific, long-term, linear time trend (Stacy et al., 2020, Appendix B). Estimates from the model with PHA-specific time trends reaffirm that MTW-status is not associated with change in cost per assisted household. The inclusion of PHA-specific time trends, however, reduces the estimated relationships between MTW status and both funding and the number of assisted households to near zero (Stacy et al., 2020, Exhibit B4).

Discussion

This study provides new insights into the relationship between MTW status and cost-effectiveness and opens doors for other avenues of research. First, it shows that MTW agencies had higher costs, as measured by HUD funding per assisted household, than traditional PHAs before they joined the demonstration. Thus, the higher costs observed at MTW agencies in prior studies are probably driven by differences in the costs unaffected by MTW status, such as labor and housing costs, and not because of the regulatory or financial flexibility offered by the demonstration.

Second, although MTW status is not associated with a change in the per household costs of rental assistance, it is associated with both an increase in HUD funding and an increase in assisted households. Surprisingly, agencies began assisting more households the year before they joined the demonstration. This finding may be part of a longer-term trend at agencies that would go on to join the MTW demonstration. Alternatively, agencies may have changed their behavior in anticipation of MTW status. MTW agencies are funded based on the number of households they were assisting when they joined the demonstration. Thus, agencies could increase the base funding in their MTW contracts by increasing the number of assisted households they served in the year before they joined MTW. Additional qualitative data collection with MTW agency staff would be useful to determine if they were intentionally serving more households in anticipation of their MTW contracts. In addition, we find evidence of an adjustment period where cost per assisted household increases slightly 1 year after PHAs join the demonstration, although the trend is not statistically significant.

Third, although MTW status did not affect the overall costs to HUD of providing rental assistance, it did allow agencies to significantly increase the amount of money held in reserves. Interviews with a sample of MTW agencies suggest that reserves can be useful in financing the construction or preservation of affordable housing, re-affirming prior research (Levy, Edmonds, and Long, this volume). Furthermore, holding additional reserves may allow MTW agencies greater access to financing or lower interest rates when they seek to acquire or develop additional housing units. The increase in reserves could be a sign that MTW agencies are reducing their capital outlays in the short term and building reserves to fund larger capital projects in later years. Supporters of MTW may cite this as evidence that MTW improves the financial position of agencies, thereby helping them to preserve or increase the stock of affordable housing in the community while maintaining the same level of cost per household. Detractors may argue that the money MTW agencies hold in reserves would be better spent assisting more households through rental subsidies.

Given that agencies increased their reserves while serving roughly the same number of households per dollar, we should infer that they found some cost efficiencies. MTW agencies, however, did not shift their portfolio to lower-cost assistance programs, offer lower quality or less affordable housing assistance, or provide assistance to households with fewer needs as a result of joining the demonstration. Further exploration is warranted to determine where these efficiencies arise.

It is important to note that we only examine MTW-eligible funding and therefore do not assess whether MTW status affects how much funding PHAs receive from other programs. For example, MTW status might help PHAs receive more funding because they can use their flexibility to hire grant writers or because they can leverage funding to receive additional loans or grants from public or private funders. This factor may be what enables them to build their operating reserves without reducing their cost-effectiveness. Conversely, traditional PHAs may be able to use other funding opportunities to pay for the enhanced services or development activities that MTW agencies pay for with their funding flexibility.

Finally, our findings may inform thinking about how to strike the right balance between federal regulation and local control. The finding that MTW status does not significantly impact cost-effectiveness could be taken as evidence that strict regulation of PHAs is not necessary to manage costs, at least among high-performing agencies. Conversely, our finding of no impact of MTW may reflect a lack of contrast in the regulatory environment between MTW and traditional PHAs. During our analysis period, 2003 to 2017, HUD was establishing more uniform standards and monitoring for MTW agencies while also relaxing certain regulatory requirements for traditional PHAs.

Limitations

Lack of random assignment to MTW status limits our ability to estimate the causal impact of the demonstration. PHAs were chosen for MTW through selection processes that shifted from year-to-year before becoming more standardized in the later years of the demonstration. In some years, PHAs self-selected into the demonstration by applying to join. PHAs that applied for the MTW demonstration may be systematically different in unobservable and unaccounted-for ways from agencies that did not try to join the demonstration. For instance, they may have leadership with high levels of motivation to improve their agencies.

Data availability constrains the analysis in three important ways. First, the analysis only includes agencies that joined or exited the MTW demonstration since 2003, and for whom there are enough years of accurate data. It therefore excludes the first agencies to join MTW, some of which have been singled out by critics of the demonstration for not using enough of their budget on housing assistance (Fischer, 2015). It also excludes some of the largest MTW agencies and agencies with the most ambitious MTW activities, such as the Chicago Housing Authority, Home Forward (Portland, OR), and the Cambridge Housing Authority. We do not know how including these agencies would affect our results. Second, inconsistent data reduces the accuracy and precision of our estimates. Reliance on imputing missing and incomplete data adds uncertainty to our estimates. Third, FDS data do not fully differentiate between spending on public housing, vouchers, or LNT assistance at MTW agencies and do not allow us to track the flow of funds across accounts.

Conclusion

The MTW agencies we studied received higher levels of HUD funding after joining the demonstration and increased the total number of assisted households served, resulting in no significant change in overall cost per household. These agencies also experienced a large increase in dollars per household held in reserves, suggesting that they were able to increase their savings while still serving roughly the same number of assisted households per dollar of HUD funding as before joining the demonstration. We did not find any evidence that this increase in efficiency was caused by agencies shifting their portfolios to lower-cost assistance programs, offering lower quality or less affordable housing assistance, or providing assistance to households with fewer needs.

Future studies should examine cost-effectiveness in tandem with self-sufficiency or housing choice to determine the overall effect of the MTW demonstration on its three statutory objectives. Future studies should also estimate the relationship between MTW status and the number of affordable units within the service area of each PHA to determine whether MTW agencies use their reserves to build more affordable housing than other similar agencies.

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A German Perspective on Objectives of the Moving to Work Demonstration, Housing Provision, and Targeting

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Objectives of the Moving to Work Demonstration and its Assessment

The Moving to Work (MTW) program aims to create greater flexibility for participating public housing agencies (PHAs) in the management of their tasks, in particular, by relaxing budgetary and instrumental requirements for the use of housing choice vouchers. The following objectives are set by law for the agencies participating in MTW:

1. Reduce cost and achieve greater cost effectiveness in Federal expenditures;
2. Give incentives to families with children where the head of household is working, seeking work, or is preparing for work by participating in job training, educational programs, or programs that assist people to obtain employment and become economically self-sufficient; and
3. Increase housing choices for low-income families.¹

These three objectives are not defined by the financing agency, the U.S. Department of Housing and Urban Development (HUD), so it seems rewarding to examine the objectives and their implementation and discuss them from a German perspective. The cost dimension of MTW activities is examined in the contribution by Stacy et al. (this volume); it is primarily measured by the average amount of subsidy funds per household. The authors conclude that MTW agencies can provide the same level of services to the households supported and, at the same time, increase their reserves for housing development and maintenance. According to the authors, no evidence of negative effects on housing quality exists. This finding may indicate an increase in the cost-effectiveness of the MTW agencies. As Stacy et al. (this volume) point out, however, further research is needed to better understand the causalities of the underlying efficiency gains. The

¹ Omnibus Consolidated Rescissions and Appropriations Act of 1996 (note: 42 USC 1437f).

question arises as to whether the average amount of subsidy funds per household is a suitable indicator of cost-effectiveness, as this indicator tends to measure the intensity of subsidies. To take sufficient account of the effectiveness of MTW activities, it would be helpful to assess whether the MTW objectives are achieved to the same extent with less funding: Is the same level of housing cost relief achieved? Do MTW agencies serve the same types of households with similar supply problems? Is funding provided in comparable housing market segments or locations? It makes a difference whether the average subsidy or the achieved reduction in housing cost is measured. Further, the average subsidy per household served does not reflect the extent of variation between households in the level of benefits—do the households differ greatly in benefits received, or are the benefits similar for all recipient households?

One reason for improved cost-effectiveness could be the increased use of project-based vouchers (PBVs) as opposed to tenant-based vouchers (TBVs), as noted in the contributions of Galvez et al. (this volume) and Galvez, Gourevitch, and Docter (this volume). They conclude that MTW agencies use their resources on PBVs to a greater extent, although typically not even close to the extent allowed. As Galvez et al. (this volume) show, this shift in favor of PBVs also varies within the group of MTW agencies, with a larger share of PBVs being found in particular in contexts of higher rent levels; the importance of local contexts of action and housing market conditions becomes obvious here. It is possible that PBVs linked to specific projects or specific buildings not only imply a more predictable cost development but also enable more efficient administration (compare to the qualitative surveys of Galvez et al. [this volume]). Similarly, a less favorable sociospatial location of housing provision by PBVs could also lead to supposedly better cost-effectiveness. Galvez et al. (this volume) conclude that the housing conditions of PBV households, in terms of renting dwellings in lower-poverty, higher-quality neighborhoods, are worse than those of TBV households, both for the MTW agencies and for the comparison agencies. According to this, PBVs tend to be located in less favorable areas, which may also affect the individual labor market and educational opportunities of the households concerned. This finding would therefore be critical, not only for housing choices but also in terms of self-sufficiency.

In contrast to this, the analysis by Treskon, Gerken, and Galvez (this volume) concludes that the MTW program has a positive impact on housing choices. They examine three dimensions: the amount of housing, the location of housing, and the quality of housing, and they observe an effect with regard to the first dimension. The fundamental question, however, is whether the expansion of subsidized housing—or more precisely of supported households—through more vouchers assigned by the agency, can actually be seen as an increase in housing choice.

The stronger establishment of PBVs could be linked to the perspective that project-based management could be used to achieve a more favorable sociospatial distribution of subsidized housing and thereby increase housing choice. Ultimately, however, it should be noted that PBVs seem to contribute more to the stabilization of sociospatial segregation patterns. In contrast, TBVs seem to enable a higher degree of housing choice by enabling renting housing in a greater number of affordable areas. Nevertheless, the particular financial difficulties in developing or securing affordable housing, especially in tight markets, must be acknowledged; this factor reveals the conflict between cost-effectiveness—in a narrowly defined understanding—and housing

choice. An expansion of housing choices, which opens up housing contexts with more favorable conditions (and thus generally higher price levels), inevitably leads to an increase in expenditure if the level of benefits continues to be linked to a housing cost burden ratio.

On the one hand, the link to the housing cost burden is appropriate to the problem of affordability. In contrast to flat-rate housing allowances, benefits are granted according to individual conditions so that the actual need for support can be met. On the other hand, it can amplify existing inequality. For example, the types of households more likely to be able to lease up in a low-poverty neighborhood with good schools end up getting larger subsidies (assuming that rents are higher in lower-poverty neighborhoods). The trade-off between cost-efficiency and housing choice becomes even starker in the case of MTW agencies because, according to the analyses by Galvez, Gourevitch, and Docter and Stacy et al. in this symposium, these agencies are more often characterized by higher rent levels. The expansion of supported households in the MTW agencies, as noted by Treskon, Gerken, and Galvez (this volume), also points to the greater need for support in these agencies' jurisdictions.

The target dimensions of cost-efficiency, self-sufficiency, and housing choice are in part explicitly and implicitly present in the German housing policy debate, but they are less associated with local administrative flexibility and more strongly linked to the use of basic types of instruments. Thus, different strengths or supply potentials are generally assigned to the so-called subject-oriented and object-oriented (project-based) funding approaches, also described as demand-side and supply-side instruments.² Subject-oriented services have been of greater importance in Germany, especially since the early 2000s. In Europe, too, they are used as housing allowances, housing benefits, and other similar designations, with very different instrumental arrangements (OECD, 2019).³

Subject-oriented instruments are generally considered to be highly cost-efficient because support services are allocated to the relevant households in a more targeted and needs-based manner (see Gibb and Whitehead, 2007; Griggs and Kemp, 2012; Kemp, 2007; Lux, Sunega, and Boelhower, 2009; Turner and Elsinga, 2005). Despite the fact that this instrument is well-established in policy and well-funded, the need for a more comprehensive social housing sector is acknowledged in Germany and many European countries. This demand is attributed to a lack of affordable housing in central areas, which, with rising rent levels, would mean a financial overload of subject-oriented funding approaches. Moreover, despite the use of subject-oriented instruments, a displacement of low-income households is assumed, which would have to be countered by the expansion of subsidized housing with fixed rents. It should be noted that the term "social housing" is used inconsistently and subsumes a wide variety of phenomena (Hansson and Lundgren, 2018; Whitehead and Scanlon, 2007).

² "Subject-oriented" housing policies for low-income households include tenant-based rental assistance, but also housing assistance for homeowners. Besides such subsidies to steadily reduce housing costs of households (housing allowances), further instruments for homeowners and homebuyers can be relevant; these are subject-oriented subsidies such as credits, grants, guarantees, or taxation to make property possible or financially secure private homes.

³ A European Union (EU)-wide survey of housing policy instruments is currently being conducted within the framework of the project "Housing Policies in the EU," carried out by the Institute for Housing and Environment and the Technical University of Darmstadt, financed by the German Federal Ministry of the Interior, Building, and Community. The results are expected to be published at the end of 2020.

The PBVs, which are more important for MTW agencies than for comparable agencies, are hybrid in nature. These vouchers reduce the housing costs of households, according to the circumstances of the individual situation, and thus have a clear subject-oriented character. At the same time, this instrument is indirectly used to finance specific properties that are the subject of a contractual agreement between agency and owner. Sometimes the agency is the owner, which could be linked to other funding elements relevant to the estimation of cost-effectiveness. Based on case studies, Galvez et al. (this volume) identify two motives of MTW agencies for using PBVs that are particularly relevant from a supply theory perspective. First, the interviewed MTW agency staff believes that PBVs make it possible to provide housing in market situations where TBVs are less effective due to lower acceptance by landlords. Accordingly, the basic supply for households in need is, from that point of view, only ensured on a project basis. Second, the projects are not limited to the formal-legal provision of housing for a regulated period of time, but contribute to the establishment and strengthening of partnerships. These partnerships, for example, contribute to the provision of particularly urgent care (especially for housing homeless people) and can thus provide an essential added value for the housing supply. In this respect, the benefits of PBVs may turn out to be greater, from a qualitatively detailed perspective, than the defined target triad of cost-efficiency, self-sufficiency, and housing choice suggests. Against this background, the instrumental orientation of housing policy in Germany will be examined later in this report, taking into account the triad of objectives.

Instruments of German Housing Policy—Cost-Effectiveness, Self-Sufficiency, and Housing Choices?

In German housing policy, a distinction is made between tenancy law and the economic forms of object promotion (project-based or supply-side) and subject promotion (demand-side). The social object promotion (*soziale Wohnraumförderung*) refers to the financial promotion of the construction or conversion of housing (“brick-and-mortar-subsidies”). In practice, housing promotion, in contrast to subject promotion, focuses less on broader target groups with financial difficulties and more on persons or households with access difficulties to the housing market (for example, households with a migrant background or many children; ex-prisoners; persons with mental health problems) or housing needs that are not adequately provided by the housing market (for example, age-appropriate and handicapped-accessible housing). Nonetheless, political discussions at the regional level—which is responsible for social housing promotion—often reveal efforts to expand the target group by extending income limits, so that ultimately more and more eligible persons tend to encounter a tendentially decreasing number of social housing units. The instrumental logic of social housing promotion is based on the agreement that, in return for financial loans and grants, the benefiting investor enters into occupancy and rent price commitments. In addition to restricting the rent level of the subsidized housing, it thereby also serves to determine the prioritization of supported households according to urgency by the municipalities (occupancy rights). From the tenant’s point of view, only one limited choice remains. Households that are registered as housing seekers at local authorities can only indicate preferences for the district in which they would like to live. Due to the long waiting list, a housing offer can only be accepted or rejected (which may mean that no social housing dwelling can be rented at all). Furthermore, when

households are allocated social housing units, they are each allocated a standard amount of floor space. Social housing units are all very similar to each other. A central problem of social housing promotion in Germany is the small number of dwellings to be allocated. This circumstance is due in particular to the current large number of expiring agreements. In addition, turnover in the social housing stock is extremely low because the relatively few (compared with the number of eligible) tenants rarely move out. People are not required to move out if their incomes rise to exceed the income limits for the subsidy. To reclaim the subsidy that such households receive, a special levy on over-income households is imposed in some of the *Länder*.⁴ This levy does not immediately cancel out the subsidy advantage when the income limits are exceeded, however, and it affects only a part of the subsidy advantage. It can therefore be assumed that this special levy will only marginally compensate for the subsidy expenditure. Against this background, the cost-effectiveness of social housing is often criticized. In this context, the dimension of self-sufficiency in the sense of independence from transfer payments indirectly becomes the subject of the housing policy discussion in Germany. For example, a lack of affordable housing is problematized in economically prosperous regions where the labor market is generally more favorable. In this respect, the expansion of a subsidized stock is increasingly understood as a measure to enable affordable housing for low- and middle-income groups in these market contexts. At the same time, however, it has to be stated that the completion of (subsidized) buildings is too low to make this goal of providing housing for broader target groups realistic. With regard to housing choices, the decisive factor in Germany is that new subsidy contracts are concluded mainly for new buildings in newly developed districts of a city. Expiring subsidy agreements can sometimes be extended, but there is no extensive purchase of occupancy rights in the existing stock. The anchoring of obligatory social housing quotas in planning law for larger new housing developments has led to a spatial expansion of the subsidized stock, although this is still at a relatively low level due to the small number of new buildings.

Subject-based instruments are understood as financial support for households that are unable to obtain sufficient supply on the housing market. Since the early 2000s, Germans have shifted toward this bundle of instruments. The housing allowance (*Wohngeld*), which subsidizes part of the housing costs, is intended to reduce the housing cost burden on low-income households. The housing allowance is a priority social benefit that precedes the basic security scheme.⁵ Eligibility and the amount of the benefit depend on the size of the household, the household income, and the eligible rent or housing cost burden in the case of owner-occupied housing. The increase in housing benefit payments in line with the level of rent is intended to induce housing consumption based on demand and to prevent it from being minimized in favor of other goods. The funds are thus indirectly linked to their purpose of improving housing provision. At the same time, the eligible rent is capped by a maximum amount table, so that inappropriate housing consumption is equally

⁴ *Länder* are the regional units in Germany responsible for social housing promotion. They correspond to the states in the United States or to the provinces in Canada.

⁵ The social protection system in Germany consists of the basic security scheme and priority benefit systems (in particular, housing allowance). The two systems differ in terms of the scope of the benefit objectives, benefit administration, benefit assessment, and rights and duties of individual households. Households are obliged to prevent their need for basic security benefits by claiming priority benefits such as the housing allowance (compare to Cischinsky and Krapp, 2020).

ineligible.⁶ Consequently, the design of this financial incentive system—the decisive factor is the dependence on the level of rent—has a paternalistic tendency to prescribe appropriate housing consumption. Nevertheless, it is a very market-oriented instrument which, by increasing the housing budget, strengthens the demand possibilities and thus theoretically increases housing choice. To take into account the regional differences in rent levels, the housing allowance ceilings are differentiated according to seven defined rent levels, into which individual municipalities are grouped.

The second form of subject-oriented funding is the assumption of costs of accommodation (*Kosten der Unterkunft, KdU*) within the scope of the basic security scheme according to the Social Security Code. With the reorganization of the social benefit systems in 2005, these costs were transferred to the municipal level, although the federal government participates in the financing. Although the housing allowance is designed merely as a subsidy to housing costs and is a social benefit that precedes the basic security scheme, the KdU is intended to ensure that all needs are met to secure the minimum subsistence level. Due to this demanding supply target, which is constitutionally guaranteed as an individual right of entitlement, and the simultaneous heterogeneity of the local housing markets (with different supply and demand structures and different price levels and dynamics), municipalities are in charge of setting the limits of accommodation adequacy. These limits in the form of local cost restrictions are calculated differently in terms of their amount, depending on the size of the household and the different costs of locations (infrastructural-connected locations within individual administrative districts) (compare to Malottki et al., 2017).

Both subject-oriented instruments are attributed a higher cost-efficiency compared with object-oriented funding because a more targeted and needs-based allocation of funding is assumed. At the same time, it must be noted that the levels of support must be constantly adjusted to the development of rents, and that expenditure on subject-oriented services has risen sharply in recent years.⁷ Because the subject-oriented instruments increase the ability of households to pay for housing, it is sometimes argued that they contribute to rent increases, but no reliable studies on this exist. The strengthening of self-sufficiency, in the sense of work incentives to avoid benefit payments, is seen as a positive characteristic of housing benefit in particular. In principle, the economic and political discussion assumes that negative work incentives exist when higher incomes lead to lower benefits or a loss of benefits (but compare to Castells [this volume] for the absent impact of increasing the tenant contribution rate). To mitigate this negative incentive, the housing allowance entails low transfer withdrawal rates. If households are able to improve their income situation, the housing benefit is only reduced partially. In the context of KdU, which is more important given the number of benefit recipients, such an incentive to work does not exist. Only a small amount of additional income will not be considered in determining the benefit amount. This circumstance is due to the existence-securing character of this service, which aims to

⁶ The federal government defines the level of services nationwide, whereas the benefits for individual households are administered at the local level. In the past, benefits were only adjusted at irregular intervals (2009, 2016, and 2020) to take account of price increases. This circumstance led to sharp fluctuations in the number of recipients and to the undesirable switching of households between the housing allowance system and the basic security scheme (compare to Cischinsky and Krapp [2020]). From 2022, the housing benefit will be updated automatically (so-called dynamization), on the basis of official price indices of housing costs and general consumer prices.

⁷ Expenditure on KdU under the Social Security Code and on housing benefit amounted to a total of approximately €15 billion in 2008. In 2017, despite a tendency toward a decreasing number of supported households, accommodation costs of approximately €18 billion were recognized (compare to German Federal Government, 2019).

meet demand as precisely as possible. This limitation of the benefit is often also understood as an argument for cost-effectiveness.

With regard to housing choice, the subject-oriented benefits are, similar to the TBVs, characterized in principle by openness, which, in the sense of housing choice, allows the rental of different types and different places of accommodation. In view of the capped benefit level, however, renting housing in better locations is difficult even with these instruments.

Conclusions

In summary, it can be said that the MTW agencies may well provide poorer sociospatial services to households supported by the project by using more PBVs than similar agencies, which are typically located in less favorable districts. The MTW agencies, however, tend to be situated in tighter housing market contexts, so that the challenges of housing provision are greater. Securing housing via PBVs—or via social housing, as the German housing promotion scheme aims to do—is essential here to open up real integration opportunities, especially for cases with access difficulties to the housing market. If the use of PBVs leads to the provision of housing for such serious emergencies, and even combines this with further supporting measures, the less favorable locations would certainly be tolerable. The importance of residential locations should, of course, not be disputed. Ultimately, it will depend on local housing allocation practice, and the quality of locally developed partnerships, where and which target group-specific support services are developed. The MTW approach aims to give local agencies greater flexibility in this respect. In the future, however, the question of the sociospatial location of housing provision should be given more attention, and the framework conditions and barriers for the location of PBVs should be investigated. It may be possible that U.S. planning law enables a stronger interlocking of land use zoning on the one hand and social housing provision on the other, as is becoming increasingly important in German municipalities. In Germany, planning law is used in the form of urban development contracts to require a considerable proportion of the planned housing for social housing provision. In some municipalities, this requirement even results in a quota of up to 40 percent of the developed dwellings in larger construction areas, which need a subsidy agreement with corresponding rent and occupancy commitments.

Furthermore, against the background of the special project character of the PBVs, further research is needed on the supported households and their specific supply problems in given market situations. Galvez, Gourevitch, and Docter (this volume) already analyze an extensive catalog of household structure characteristics, including household composition, income, and rent burden. Further information, for example, on the initial housing conditions of the supported households would be useful to better reflect the structure of local supply problems and the quality of support provided by local agencies. Ultimately, this could also enable a more indepth assessment of the work of MTW agencies.

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Improving Access to Housing Amid Exclusionary Housing Markets: A Latin American Viewpoint of the Moving to Work Demonstration

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Undertaking a retrospective look at the Moving to Work (MTW) demonstration—a diverse and ambitious policy demonstration, applied by different agencies and in diverse sociospatial and socioeconomic contexts—is a valuable effort for the analysis and improvement of public policies. In this sense, the articles in this symposium are immensely informative. Although the initiatives included in MTW are complex, and sometimes difficult to understand from an international perspective, the articles of this collection help not only to understand the U.S. initiative, but also to open an opportunity for knowledge transfer. Within the symposium, the essay on the Rent Reform Demonstration (Riccio, this volume) is especially enlightening because decisionmaking processes in public policy are crucial for understanding and replicating interventions, and this information is seldom published. Getting to know the discarded alternatives, and the reasons for doing so, opens an opportunity to analyze policy decisions based on the particular contexts and conditions for implementations, instead of what is more common: to state “best practices” or recipes for success that end up being replicated in disparate contexts (Angotti and Irazábal, 2017).

How can the United States’ experience work with housing policy in other regions such as Latin America? At first sight, the realities are so different that trying to make connections would be a fruitless venture. Taking into account the broader context of global transformations of housing markets and policies, however, one could identify common challenges and analyze how different policy approaches have met, or not met, the ultimate goal: to guarantee the right to housing for all. This commentary is an attempt to assess the MTW demonstration from a Latin American perspective. First, I will mention some aspects of the broad context of housing policy in Latin America, and then I will comment on what the articles of the symposium state about two of the three main objectives of MTW, contrasting them with some experiences from Latin America and Colombia.

Housing policy in the United States mirrors global transformations that started during the last decades of the 20th century, which allows us to identify common elements with other regions of the world. The reforms of the Clinton Administration that led to MTW followed the logic of

transitioning toward deregulation and contraction of the welfare states, which generated housing policies geared toward the private sector. In Latin America, this result was achieved— multilateral banks played a prominent role in policy dissemination— through housing policies that replaced public housing construction with partial subsidies for households to buy in the private market, in combination with mortgage credits. This model dramatically reduced the supply of public housing and left social rental housing programs to a marginal role. It also excluded the lowest income households and those who could not demonstrate stable income due to being in precarious jobs, and who, despite qualifying for a subsidy, did not qualify for mortgage credit. Additionally, this market-oriented housing policy resulted in the construction of massive social housing projects in peripheral locations. Building in these peripheral locations created serious problems of accessibility to urban goods and services because they lacked infrastructure. This situation deepened the processes of sociospatial segregation and exclusion (Hurtado-Tarazona, Álvarez-Rivadulla, and Fleischer, 2020).

The social rental programs that currently exist in the region are mainly rental subsidies for young households (Chile and Argentina)—conceived as a first step to buying a home—and forms of leasing or leases with an option to purchase (Brazil and Colombia) (Blanco, Fretes Cibilis, and Muñoz, 2014). In most countries in the region, these are incipient efforts or programs that receive very few resources compared with programs that promote the construction of new housing. Also, with exceptions such as a social rental program in São Paulo, Brazil, in which the units are publicly owned and rent is set at between 10 and 15 percent of household income, the majority operate in the private housing market and are subject to rental price increases in central areas.

Unlike the Latin American case, however, this symposium demonstrates the continuity of a rental policy amid the neoliberalization and financialization of housing. These conditions are especially relevant today; predatory rental markets are being documented throughout the world and show that, increasingly, more households are being excluded from the possibility of accessing quality and well-located housing. In the context of the COVID-19 pandemic, it has become clear that access to adequate housing is crucial for sustaining social life and that continuing to develop fair rental housing policies should be a priority for governments and housing authorities.

In the next paragraphs, I would like to comment on two of the MTW objectives that resonate with some initiatives in Latin America and Colombia: to promote the self-sufficiency of assisted households and to increase housing choice for low-income families.

Assisting Households while Promoting Self-Sufficiency

One of the main concerns of several of the articles in this symposium is to promote self-sufficient households: to avoid the circumstance that obtaining a subsidy may discourage a household from searching for a job to maintain or increase household income for fear of losing benefits. The article by Nina Castells (this volume) tests this assumption, reviewing a case in which the rent burden was increased from 30 to 35 percent of household income. Castells evaluated employment and income conditions of these households after 4 years. The study found that households absorbed this rent increase without increasing their income or improving their employment conditions, giving priority to rent payment over other expenses. This situation has some similarities with that of

low- and middle-income households in Colombia. The households in Colombia received a subsidy to become homeowners and ended up absorbing the additional costs of moving to peripheral, inaccessible housing, without experiencing an increase of their incomes (Hurtado-Tarazona, 2019).

To promote self-sufficiency without putting a strain on households' economic situations, and to make it possible for them to truly capitalize on any improvement in their income and working conditions, the Rent Reform Demonstration (Riccio, this volume) tested a policy that incentivizes income growth by maintaining rent rates for 3 years without adjustment. This policy gives households a margin for increasing their income without paying more rent. The policy challenge here is to incentivize households to depend less on subsidies while protecting those households that may need more help at any moment for a loss of income.

To promote household self-sufficiency, other alternatives exist beyond calculating rent rates according to income. Some Latin American countries have implemented time limits for subsidies. In Chile, the rental subsidy is given to households for 8 years, during which time they must save a minimum monthly amount to acquire their own home. In Colombia, a new rental program grants a monthly rent subsidy of around \$150 (USD) for 24 months, during which time households must save for the downpayment of a *Vivienda de Interés Social* (privately developed social housing, which has a price cap to maintain affordability). Although this type of program may promote self-sufficiency due to the obligation to demonstrate monthly savings, not enough evidence demonstrates the efficiency of these programs. Additionally, they disregard rental housing as a long-term housing option because they are conceived as a step to homeownership, and this may not meet the needs or aspirations of some households.

An additional aspect to take into account regarding household self-sufficiency is the ability of these programs to react to crises or situations, such as the current health and economic emergency related to the COVID-19 pandemic. Households benefiting from this type of program, many of which are subject to precariousness and job instability, are especially vulnerable to economic crises. Thus, the need for policy interventions to adapt for households with diverse needs and situations leads us to the next MTW objective regarding housing choice.

Increasing Housing Choice and Reducing Sociospatial Segregation

Housing location is an attribute of adequate housing that is related both to accessibility criteria (transport and proximity to urban facilities, goods, and services) and to issues of social integration (to avoid exclusion and segregation). The question of whether to tie rental vouchers to specific projects and locations is a relevant question, not only for the implementation of specific housing programs but also for broader discussions on the right to the city (Lefebvre, 1996), or granting equitable access to urban infrastructure, services, and amenities. The implementation of Project-Based Vouchers (PBVs)—as documented by Galvez et al. (this volume), specifically in their research question 4—shows that tying rent vouchers to specific projects (although it may seem contradictory to the objective of increasing housing choice) could be a way to overcome the barriers of housing markets that are socially and spatially exclusive. To do so, however, the

housing policy would have to meet additional requirements, not all of which lead to cost-effective interventions, as I will show.

In several Latin American countries, including Colombia, the rate of the rental subsidy is calculated based on the housing unit price—not on household income. This calculation means that subsidized households can only access homes in a certain price range, which generally turns out to be peripheral homes in large-scale housing projects. For both purchase and rental subsidies, the label “social housing,” which in principle means only a price cap, as I mentioned previously, translates into spatial limits in cities, especially in those with higher land prices. This situation seems to be similar to that of some applications of the PBV, according to the studies included in the article; those studies indicate that some PBVs tend to be concentrated in higher poverty neighborhoods compared with the average incomes of their counties and even in some comparisons with the tenant-based voucher (TBV) program. The evidence collected shows that this intervention has failed to reverse processes of territorial stigmatization and sociospatial segregation. They also found, however, that “PBV households at MTW agencies live in neighborhoods with higher educational attainment and lower transportation costs in comparison to both TBV and public housing households” (Oneto et al., 2020). This points to some opportunities for improvement. If the selection of projects to implement PBV is defined with additional criteria in terms of location, accessibility, and quality of the environment (for example, access to schools, social infrastructure, public spaces, and parks), such an approach could mitigate segregation, stigmatization, and housing discrimination. Of course, this would be a more costly alternative, especially in areas with expensive housing markets. This leads me to a final remark regarding the cost-effectiveness of policy interventions.

Conclusion

Policy interventions need to be assessed not only internally, regarding their objectives, interventions, and resources, but also regarding the general context of the housing market in which they operate. In the context of housing financialization (Rolnik, 2013), part of the cost-effectiveness goal of interventions would be to avoid an excessive increase in rent. In various regions of the world, these excessive increases are produced by “predatory” agents like corporate landlords, private equity funds, and real estate investment funds (Aalbers, Rolnik, and Krijnen, 2020), which, in some areas, capture much of the rental housing stock and make them unaffordable. In countries like Colombia, the role of the state in housing financialization makes any subsidy-based policy intervention more expensive, which ends up transferring public funds to private agents. A rental housing program for low-income households could encourage self-sufficiency, increase housing choice, and even be more cost-effective if it is implemented alongside broader measures (like rent regulations) to overcome some of the barriers of the housing market in general.

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Disparities and Similarities in U.S. and U.K. Rent Subsidy Programs: A British Perspective on the Moving to Work Demonstration

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This collection is a valuable contribution to the evidence base on Moving to Work (MTW), demonstrating high methodological standards, including randomization, quasi-experimental methods, use of controls, and addressing several key policy issues raised by the program. The details on MTW activities will be valuable to public housing agencies (PHAs), whatever their current status, as well as to policymakers, residents' groups, and advocates.

The collection builds on earlier research on MTW, going back to the mid-2000s. One of the papers refers to at least seven studies of MTW and housing choice and five studies on MTW and self-sufficiency in the past 7 years.¹ Accessible evidence of this standard creates housing policy soft power. Research articles on the HOPE VI and Moving to Opportunity (MTO) programs of the 1990s were so extensively published in international journals and searchable open-access pieces that they also became well known to (if not always fully understood by) European academics and policymakers. This evidence inspired 12 “mixed communities initiative demonstration projects” in the United Kingdom (U.K.), which started in 2005 (and which I was involved in evaluating), and more comprehensive programs in the Netherlands and France.

The robust quantitative evidence puts this group of reports into the international evidence gold standard. The handful of interviews on PHA strategy in the use of project-based vouchers (PBVs) are illuminating, however, and more qualitative elements could have added to understanding.² Was the flexibility of MTW agencies used as envisaged by policymakers? Are there downsides to flexibility? Do non-MTW PHAs find the lack of flexibility a problem, or, as the report on the topic suggests, was flexibility mainly a tactical approach to funding cuts? Resident voices and, indeed,

¹ Treskon, Mark, Matthew Gerken, and Martha M. Galvez. 2020. “Can Diverse Activities Have a Combined Impact? Examining the Effects of the Moving to Work Demonstration on Housing Choice and Self-Sufficiency Outcomes,” *Cityscape* 22 (3): 163

² Galvez, Martha M., Ruth Gourevitch, and Benny Docter. 2020. “A Picture of Moving to Work Agencies’ Housing Assistance,” *Cityscape* 22 (3): 9

resident interests are missing from these papers. Do residents prefer public housing, PBVs, or housing choice vouchers (HCVs)—if they have a choice? How did residents react to the prospect—or actuality—of losing \$1,350 or more a year through increased contributions as required in Santa Clara, California?³

The U.S. and U.K. public housing and rent subsidy programs are very different from one another. From a U.K. point of view, the lack of flexibility for PHAs without MTW is notable. Despite 40 years of the Right to Buy policy—a U.K. policy that gives secure tenants of councils and some housing associations the legal right to buy the council house in which they live at a large discount, and has cut the housing stock in half—the United Kingdom still has considerably more public housing than the United States. About 5 million “social rent” (council and housing association) homes are available in the United Kingdom, at about 50 percent of the market-rent level, providing for 17 percent of all U.K. households. Two-thirds of U.K. social renters receive “housing benefit” to help to pay their already-low rent, as do a minority of private tenants, totaling about one-tenth of all U.K. households. Nonetheless, MTW’s statutory aims and many of the initiatives that agencies have taken since the program started in 1998 are mirrored by similar reforms (or attempts at reform) in the United Kingdom over the same period. U.K. governments of various colors have tired of the cost of housing subsidy or its failure to tackle all social ills. A long-term shift has been occurring in the United Kingdom from subsidizing homes to subsidizing people to pay their rent via housing benefit, which mirrors the growth of HCVs. Private rental housing has been used increasingly to provide temporary accommodation for people eligible for but waiting for social housing, and 6-month-long private rented tenancies are now a legal alternative to more secure social housing. Ironically, that has resulted in increasing total housing benefit costs, prompting further efforts at reform and savings elsewhere, and today one-third of people in poverty (with incomes below 60 percent of the national median) are in private renting, the same proportion as in social renting. MTW seems to have avoided those problems by making efficiencies and by requiring tenants to do so.⁴ Also mirroring MTW, the United Kingdom has made attempts to remove what are believed to be perverse incentives to tenants and to link housing support to employment and training.

The different sizes and mix of the population mix in U.K. social housing residents have created somewhat different politics. For example, just as some MTW agencies increase households’ rent contributions if they are deemed to have too large a home, the U.K.’s 2010–2015 coalition of Conservatives and Liberal Democrats decided to pay housing benefit only for the “right” number of rooms for each household, which affected 10 percent of all social renters. This policy was quickly nicknamed the “bedroom tax” by campaigners and mainstream media and became the best-known and most-campaigned-against welfare reform of the 2010s. Castells says only that households “absorbed their increasing housing costs.” In England, there is evidence of considerable distress from this and other housing benefit reforms. Some people could move home, a smaller number could increase their earned income, but the largest group cut back on essentials, borrowed from

³ Castells, Nina, 2020. “The Effects of Increasing the Tenant Rent Contribution in the Housing Choice Voucher Program,” *Cityscape* 22 (3): 85

⁴ Stacy, Christina, Josh Leopold, Daniel Teles, Alyse D. Oneto, Yipeng Su, Matthew Gerken, and Ruth Gourevitch. 2020. Fund More, Serve More, Save More: Moving to Work and Cost Effectiveness. *Cityscape* 22 (3): 193.

family or friends, or got into other debt—some developed anxiety and depression. Several cases of suicide are under investigation. Although benefit policy is determined at the U.K. level, the governments of Scotland and Northern Ireland chose to use their own funding to mitigate the impact of the “tax” for their residents. As another example, whereas some MTWs increase tenant rent contributions in response to budget cuts, the U.K.’s coalition government gave social landlords the power to charge market rents to tenants with incomes over \$80,000, a policy nicknamed “pay to stay.” When those landlords showed little interest in that practice, the government tried to make the policy compulsory, also lowering the threshold to \$41,000 per year, which would have affected about one-tenth of all tenants. The policy was dropped after widespread protest and evidence that implementation would be difficult (because agencies do not know tenant incomes) and might add to work disincentives and poverty.

I know all too well that evaluators have to stick to the brief, and that doing neutral research in an active policy area can be tricky. In the United Kingdom in the 2000s, my colleagues and I struggled to convey to policymakers our unexciting, evidence-based assessment that the U.K. social housing population was already fairly “mixed” and that the benefits of an additional mix (of housing tenure and income) could not justify the financial and nonfinancial costs of creating this mix through demolition, new build, and displacement (as inspired by HOPE VI). Nonetheless, these MTW papers probably could have done more to point out the local, national, and temporal contexts of their data gathering.

Inevitably, these papers cannot describe the wider policy context into which their carefully assembled evidence will be thrust. The collection only touches on current steps to increase the number of MTW agencies and does not say where the evidence supports widely held beliefs about MTW—or does not support them. For example, it is worth saying bluntly that these papers suggest that “Moving to Work” is a misnomer, as its homes and households are no more likely to be in lower poverty (and presumably higher work opportunity) areas than those in comparable traditional PHAs. Housing policy—public housing policy, in particular—can be eager to please and to appear significant, but it should not try to do everything. How much time and money should housing providers spend trying to get people childcare, education, or jobs? The economy, economic policy, and housing markets must take some responsibility too. For example, no voucher regime can provide choice if landlords commonly refuse to rent to tenant-based voucher holders, as Galvez, Gourevitch, and Docter state.⁵ Discrimination has to be challenged directly. The paper by Castells on the effects of increasing the tenant rent contribution in the HCV program is fascinating and expert; however, the difference-in-difference method irons out variations in labor markets.⁶ For me, the most interesting result was the dramatic increase in housing choice voucher resident incomes in MTWs and nearby control PHAs alike, which far outweighed the differences between them. It also limits the potential to generalize results in times and places with worse job opportunities—like most places now.

⁵ Galvez, Martha M., Ruth Gourevitch, and Benny Docter. 2020. “A Picture of Moving to Work Agencies’ Housing Assistance,” *Cityscape* 22 (3): 9

⁶ Castells, Nina, 2020. “The Effects of Increasing the Tenant Rent Contribution in the Housing Choice Voucher Program,” *Cityscape* 22 (3): 85

Based on this excellent research, another urgent task awaits: to translate the results into a wise policy for an expanded MTW scheme.

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Documenting Racially Restrictive Covenants in 20th Century Philadelphia

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The views expressed here are solely those of the author and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System. Nothing in the text should be construed as an endorsement of any organization or its products or services. No statements here should be treated as legal advice.

Abstract

One of the tools used by early 20th century developers, builders, and White homeowners to prevent African-Americans from accessing parts of the residential real estate market was the racially restrictive covenant. In this article, I present a newly constructed spatial dataset of properties in the city of Philadelphia with deeds that contained a racially restrictive covenant at any time from 1920 to 1932. To date, I have reviewed hundreds of thousands of property deeds and identified nearly 4,000 instances in which a racial covenant had been included in the deed. The covenanted properties formed an invisible barrier to less densely populated areas sought after by White residents and around predominantly White neighborhoods throughout the city. I present the data in a series of geospatial maps and discuss plans for future enhancements to the dataset.

Introduction

One of the tools used by early 20th century developers, builders, and White homeowners to prevent African-Americans from accessing parts of the residential real estate market was the racially restrictive covenant (hereafter, racial covenant). Racial covenants were obligations inserted into property deeds that typically forbade the premises from being occupied or owned by persons not of Caucasian descent.¹ Covenants were most often written into a deed by a private developer but

¹ Although the terms have been used interchangeably for many years, *White* and *Caucasian* share no etymological resemblance; *White* refers to skin tone, while *Caucasian* describes a taxon of people indigenous to Europe, Asia, and certain parts of Africa.

enforced through the state courts. Evidence of racial covenants in property deeds is present in cities throughout the country, including Baltimore, MD; Boston, MA; Charlotte, NC; Hartford, CT; Kansas City, MO; Los Angeles, CA; St. Louis, MO; and Sacramento, CA.² In cities such as Chicago, IL; Minneapolis, MN; Portland, OR; Richmond, VA; Seattle, WA; and Washington, DC, researchers have compiled databases and built interactive maps of racially covenanted properties.³ There is some evidence that property developers in Philadelphia, PA, also used racial covenants to prevent African-Americans and other minority ethnic groups from owning, renting, or residing in homes constructed in certain parts of the city (Gottlieb, 2015). References to “restricted sections” of the city in real estate advertisements from as early as 1911 demonstrate that builders were not only imposing restrictions on new homes, but the restrictions were a primary selling point (exhibit 1). Also, careful searches through handwritten deeds of the time reveal the presence of covenants, stating that land shall not be occupied by persons “other than those of the Caucasian Race” (exhibit 2).

Exhibit 1

Advertisement for New Homes (1911)

60th STREET

BELOW CATHARINE ST.
In the New Restricted Section.

2-STORY 10 ROOM
PORT DEPOSIT GRANITE
STONE FRONT HOMES

Some have breakfast rooms and some have pantries. All have hot water heat, combination coal and gas ranges, hardwood, tiled bath rooms, wide porches and terraces, basement laundries, with electric equipment and roof ventilators.

THE STREET IS 80 FEET WIDE.

\$4400 HONEST VALUE

SAMPLE HOUSE, 708 S. 60TH ST.
Elevated Railway to 60th st., with free transfers.

JOHN L. FRY, BUILDER ON PREMISES

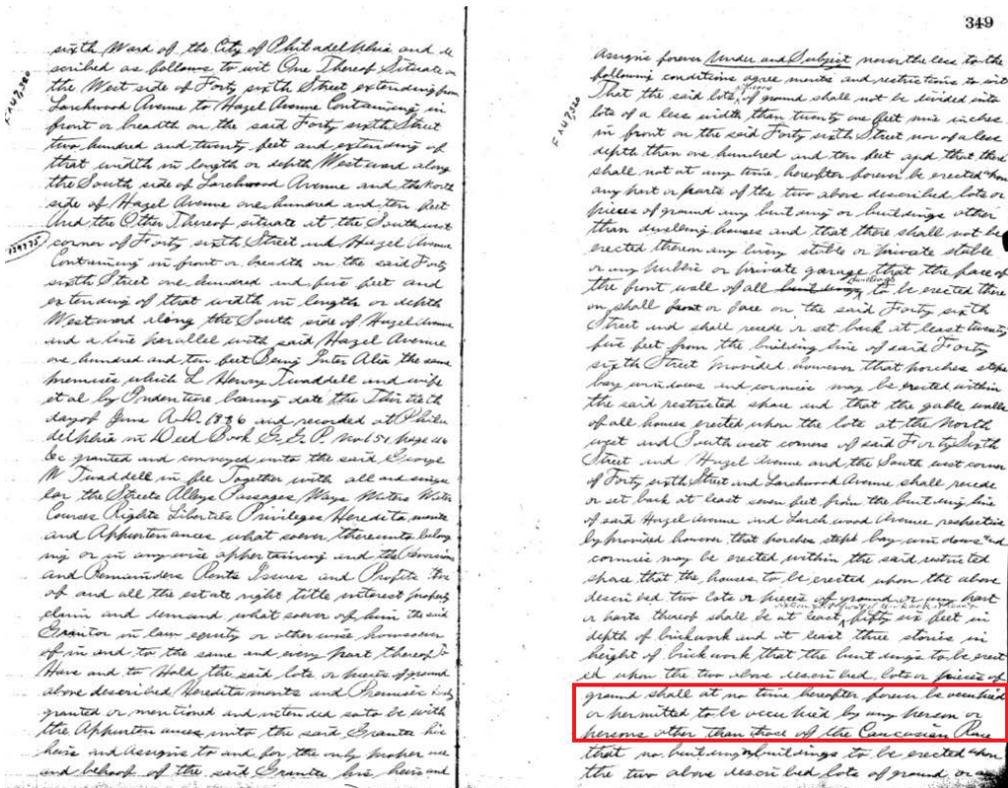
Source: The Philadelphia Inquirer, Sunday, March 5, 1911; courtesy of J.M. Duffin, University of Pennsylvania

² See <https://dcicblog.umd.edu/redliningbaltimore/>, <http://www.bostonfairhousing.org/>, <http://northcarolinahistory.org/encyclopedia/restrictive-covenants/>, <https://ontheonline.trincoll.edu/book/chapter/restricting-with-property-covenants/>, <http://www.kansascity.com/news/local/article92156112.html>, <https://www.kcet.org/shows/city-rising/how-prop-14-shaped-californias-racial-covenants>, <http://mappingdecline.lib.uiowa.edu/documents/>, and https://www.researchgate.net/publication/46541492_Redlining_Revisited_Mortgage_Lending_Patterns_in_Sacramento_1930-2004.

³ See http://digitalchicagohistory.org/exhibits/show/restricted-chicago/restrictive_covenants, <https://www.mappingprejudice.org/>, <https://www.google.com/maps/d/viewer?mid=1Tz4qsE1Pm-usvnLNQNnWirj41vt3lcwf&ll=45.44267388516265%2C-122.62427014343308&sz=14>, <http://www.virginiamemory.com/online-exhibitions/exhibits/show/mapping-inequality>, <https://depts.washington.edu/civilt/covenants.htm>, and <http://www.mappingsegregationdc.org/>.

Exhibit 2

Excerpt from Deed of Sale from James H. Watson to George W. Twaddell (April 10, 1912)



Source: City of Philadelphia Department of Records; courtesy of J.M. Duffin, University of Pennsylvania.

While much work has been done to document the existence of racial covenants, less is known about their effects. This is beginning to change. Recent work by Sood, Speagle, and Ehrman-Solberg (2019) presents evidence that racial covenants placed on properties during the 1940s had significant and persistent effects on home prices (measured as of 2018) and African-American spatial concentrations and homeownership rates in the Minneapolis area (measured as of 2010). Their results add to a growing body of economic research that includes Aaronson, Hartley, and Mazumder (2017), who find long-lasting effects of redlining during the 1930s, and Aliprantis, Carroll, and Young (2018), who find that, conditional on income and wealth, household racial composition predicts large differences in neighborhood racial composition. Their result is consistent with the hypothesis that a legacy of racial segregation created persistent differences in neighborhood or mental outcomes.

As the research demonstrates, racial covenants and other tools of residential segregation are not just part of a long-forgotten history; their effects are observed in today's metropolitan residential patterns and in the vast and persistent wealth gap between African-Americans and Whites (Cho, 2018). Thus, the study of racial covenants and the generations of residents affected by them has

important implications for current housing policy and policies seeking to address wealth inequality, if only as a means of attaching names and neighborhoods to an otherwise intangible injustice of the past. As noted by Sood, Speagle, and Ehrman-Solberg (2019), however, further research is required to provide policy proposals to mitigate any persistent effects of racial covenants.

Against this backdrop, I began to examine the extent to which racial covenants had been used to restrict homeownership in Philadelphia, a city that continues to be one of the nation's most residentially segregated cities.⁴ With the help of the City of Philadelphia Department of Records (DOR), I began creating a spatial database of racial covenants written into Philadelphia property deeds, starting in 1920. To date, I have reviewed deeds written from 1920 to 1932 and identified nearly 4,000 instances in which a deed contained a racial covenant.

The spatial database allows me to make a number of interesting observations. First, visual pattern analysis suggests that properties with racial covenants were not randomly distributed throughout the city. Instead, the dispersion pattern suggests the covenants were put in place to restrict the movement of African-Americans into new developments and predominantly White neighborhoods.⁵

Second, analyzing the location of covenanted properties in relation to smaller geographical units sheds more light on the patterns of neighborhood segregation and racial covenants than does analysis at higher levels of aggregation. Although this may seem intuitive, researchers have only recently been able to examine residential segregation prior to 1950 at civil divisions smaller than the city ward. Studies conducted at the enumeration district (ED) level, as noted in Logan et al. (2015), have generated results that cast doubt on longstanding beliefs about the patterns and timing of residential segregation.⁶ For reasons I discuss in section 3, I initially report the locations of covenanted properties at the ward level and conduct a ward-level analysis with census data from 1920. With some additional work, however, I was able to identify approximate latitude and longitude coordinates for many of the covenanted properties and map them against demographic data at the ED level.⁷ Analysis at the ED level paints a much richer picture of the dynamics at play between property developers and owners, as well as the perceived threat posed by neighboring African-American communities.

Third, there is evidence of a relationship between the location of covenanted properties and the neighborhood grades subsequently assessed by the federal government's Home Owners' Loan Corporation (HOLC) in 1937. Racial covenants can be found in areas of every grade, from A to D, with more than 80 percent located in midgrade areas (see exhibit 4). This finding is consistent with the work of Hillier (2005), Crossney and Bartelt (2005), and Greer (2013), who find that the racial

⁴ Massey and Denton (1988) define residential segregation as "the degree to which two or more groups live separately from one another, in different parts of the urban environment." In 2000, the Philadelphia metropolitan area ranked 18th out of 318 in terms of African-American/White segregation, ahead of cities such as Kansas City (37), Pittsburgh (38), Baltimore (44), and Atlanta (67). Source: http://www.censuscope.org/us/rank_dissimilarity_white_black.html.

⁵ The spatial pattern of racial covenants may also reflect the preferences of particular developers and the properties they chose to purchase and develop during that period.

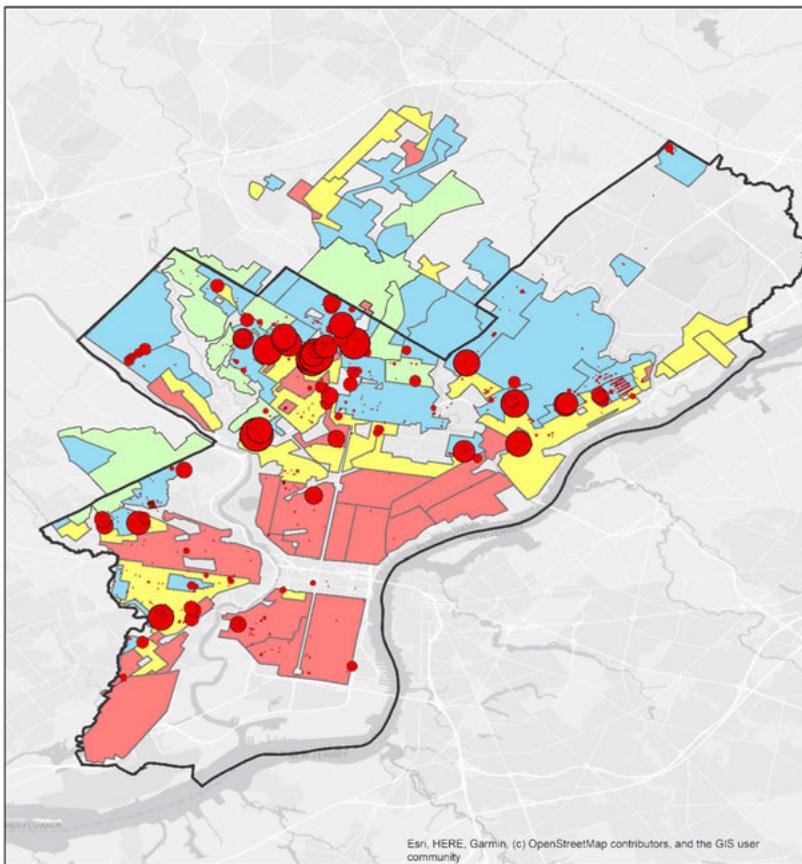
⁶ The 1950 Decennial Census was the first to capture information at the tract level. Logan et al. (2015), revisiting work by Cutler, Glaeser, and Vigdor (1999), show that segregation was much higher in the early 20th century than previously reported, when measured at the enumeration district level. Massey and Denton (1993) also underestimate the extent of residential segregation by race.

⁷ Enumeration districts are smaller than census tracts and typically contain fewer than 2,000 residents.

composition of an area was an important factor in determining its grade and suggests that race may have played an outsized role in the decision to assign a grade of B or C to an area. Racial covenants were probably not needed to discourage most African-Americans from relocating into grade A areas; the barrier of home prices was sufficient (Kaul, 2019). Thus, only 4 percent of covenants were found in grade A areas. In addition, the presence of covenants in the lowest graded areas could have resulted from developers including boilerplate racial covenants in all of their property deeds.

Exhibit 4

Location of Racial Covenants on HOLC Residential Security Map (1937)



Coordinate Markings

● Covenanted Location Number of racial covenants associated with a set of coordinates.

HOLC Grade

- A
- B
- C
- D

HOLC = Home Owners' Loan Corporation.

Note: Geographic boundaries are enumeration districts.

Sources: Author's calculations and Robert K. Nelson, LaDale Winling, Richard Marciano, Nathan Connolly, et al., "Mapping Inequality," *American Panorama*, ed.

Racial Zoning and Racial Covenants

In the early 20th century, a confluence of factors instigated a large and extended migration of African-Americans from southern states to northern cities, a movement commonly referred to as “the first Great Migration.” From 1915 until 1940, hundreds of thousands of poor, rural African-Americans left the southeastern United States for the northern cities of Baltimore, Chicago, Detroit, New York City, and others. Where the 1910 Census indicated that 90 percent of African-Americans resided in the South, the rate had fallen by 13 percentage points by 1940 (Gibson and Jung, 2002).

The influx of African-Americans into northern cities had the effect of magnifying existing racial disparities and residential segregation patterns. Logan et al. (2015) find evidence of residential segregation in northern cities as early as 1880, a time when few African-Americans lived in the northern states.⁸ Those who resided in the north tended to work as servants and housekeepers for wealthy White families and often resided near their place of employment. Although White families lived along main streets, African American residences were often clustered along side streets and back alleys, however.

During the early 20th century, African-American neighborhoods grew larger and more homogeneous. The question of how these early segregation patterns evolved is a topic of debate among researchers. It was certainly the result of both sorting (residents choosing to collocate in neighborhoods predominantly populated by people of similar race or ethnicity) and steering (individuals of a certain race or ethnicity made to reside in less-desirable areas than they would have otherwise chosen). African-American migrants, having ventured northward at the urging of northern friends and family members, were likely to live in or near existing African-American communities.⁹ Sorting and steering, however, were not the only means by which Whites sought to influence African-Americans’ choice of residence. Often, the housing stock available to African-Americans was in parts of the city that were no longer desirable to Whites due to proximity to industry or physically deteriorating housing stock.

Urban Whites used a variety of tactics to prevent African-American migrants from settling in predominantly White neighborhoods. Early methods of deterrence were both physical and economic. Violence against African-Americans was common in low-income neighborhoods, whereas home prices and the imposition of various fees and dues created an economic barrier in upper-income neighborhoods. In many ways, steering practices became institutionalized. For example, for more than 30 years, real estate brokers followed a code that urged them to maintain neighborhood racial composition. Until 1956, the National Association of Real Estate Boards’ code of ethics instructed member agents to never be instrumental in introducing into a neighborhood “members of any race or nationality, or any individuals whose presence will clearly be detrimental to property values in that neighborhood” (National Association of Real Estate Boards, 1928).

Over time, the tactics of residential discrimination also relied more heavily on local government and law enforcement (Rose, 2013). In an early use of the legal system to exclude African-Americans

⁸ Their study includes data for 10 cities: Boston, Brooklyn (a separate city in 1880), Cincinnati, Chicago, Cleveland, Detroit, New York, Philadelphia, Pittsburgh, and St. Louis.

⁹ This process is often referred to as chain migration; see Boustan (2017).

from White neighborhoods, White plaintiffs argued that the mere presence of African-Americans in a neighborhood constituted a nuisance because it could reduce the value of their homes (Rose, 2013). More often, plaintiffs bundled a racially motivated case with complaints of noise or congestion. In the end, the courts tended to side with the opinion that a person's race—"a natural condition not in any way traceable to human activity"—could not constitute a nuisance (Freund, 1904).

Although the tactic of using a nuisance law to execute residential segregation was mostly unsuccessful, the concept of using the legal system as a means of restricting the free movement of African-Americans took hold. The next facet of governance to be appropriated in the pushback against integration was the zoning ordinance.

Zoning Ordinances

In the first half of the 20th century, zoning became an increasingly common means of regulating land use. Brought to the United States from Germany in the 1890s, zoning ordinances dictated what activities property owners could engage in, what structures they could erect, and where on the property the structures could be erected (Hirt, 2014). Ironically, the use of zoning became more pervasive after a realty company that owned land in the village of Euclid, OH, sued the village to obtain relief from its zoning ordinance. The company's 68 acres of land stretched across multiple areas, each with its own use and building restrictions, creating significant impediments to development and thereby, the company alleged, damaging its value. The case, *Euclid v. Ambler*, went before the Supreme Court in 1926. The Court upheld the constitutionality of the village's zoning ordinances, paving the way for the growth of zoning as a means of regulating land use throughout the country.¹⁰

Zoning ordinances were also used to exclude African-Americans from purchasing homes in majority White neighborhoods. In response to middle-class African-American families moving out of crowded, predominantly same-race neighborhoods into more affluent, less-crowded White neighborhoods, the city of Baltimore passed the nation's first racial zoning ordinance in 1910 (Brooks and Rose, 2013). The ordinance prohibited African-Americans from buying homes on majority White blocks and vice versa (*New York Times*, 1910). The use of zoning ordinance to segregate neighborhoods garnered widespread use in the early 20th century, with southern cities including Atlanta, GA; Birmingham, AL; Miami, FL; Charleston, SC; Dallas, TX; Louisville, KY; New Orleans, LA; Richmond, VA; and St. Louis, MO, following Baltimore's lead.

In the 1917 case of *Buchanan v. Warley*, the Supreme Court ruled that municipally mandated racial zoning was unconstitutional. The court opinion notes that the 14th Amendment prevents state interference with property rights, except by due process of law, and that the amendment protects all U.S. citizens, regardless of color or race.¹¹ Despite the ruling, cities including Atlanta, GA; Austin, TX; Birmingham, Richmond, and West Palm Beach, FL continued to adopt and enforce racial zoning ordinances. Such ordinances were again held unconstitutional in 1927;¹² yet, the ordinances were enforced in some cities well into the 1980s.

¹⁰ See *Euclid v. Ambler*, 272 U.S. 365 (1926).

¹¹ See *Buchanan v. Warley*, 245 U.S. 60 (1917).

¹² See *Harmon v. Tyler*, 273 U.S. 668 (1927).

With racial zoning prohibited, property developers turned to restrictive covenants in property deeds (see exhibit 5) as the primary means of establishing residential segregation.

Exhibit 5

Definition of Property Deed

A **property deed** is a legal document whose purpose is to record a transfer of ownership from a grantor, or owner, to a grantee, or purchaser. Deeds typically include a description of the property and its boundaries, an indication of the type of conveyance embodied, and the names and signatures of the grantor and grantee. They may also include clauses or covenants restricting the use and ownership of the property.

To see how restrictive covenants might be used, consider a real estate developer who is planning a new residential subdivision. The developer might prohibit nonresidential uses such as business, manufacturing, hospitals, or prisons as well as so-called nuisance activities such as keeping chickens or locating fuel tanks above ground (Monchow, 1928). In this way, the appeal and value of residential property could be preserved from the potential harm of industries known for emitting noxious fumes and waste (McGruder, 2015).

Racially Restrictive Covenants

Deed restrictions were originally used as a means of regulating land use. Restrictions covered such things as building materials, setbacks, easements, and the minimum cost of any home built on the property. In the same way, deed restrictions were used to insulate new residential subdivisions from the potential harm of industrial use. By the mid-1920s, it became popular to use restrictions to insulate predominantly White subdivisions from African-American buyers. Clauses typically put into deeds by land developers, racial covenants restricted the sale of new properties to Whites only and prevented future generations of homeowners from selling or renting the property to African-Americans.

The first restrictive covenant to restrict the sale of a property on the basis of race or ethnicity appeared in Brookline, MA, in 1843, where deeds from the Linden Place subdivision included a clause stating that the residences could not be sold to “any Negro or native of Ireland” (McGruder, 2015). The pace of deed restrictions accelerated rapidly through the 1910s and 1920s. A 1926 Supreme Court decision may have accelerated the spread of racial covenants throughout the country. In the matter of *Corrigan v. Buckley*, the Supreme Court declined to hear the case, allowing an earlier ruling against the defendant, Irene Corrigan, to stand. Corrigan had sought to sell her covenanted property to an African-American woman. The Court argued that, while states could not engage in racial zoning, nothing prohibited private individuals from agreeing not to sell their homes to people of designated races, ethnicities, or nationalities (Brooks and Rose, 2013).

One study found that, from 1910 to 1920, the number of properties with racial covenants in Minneapolis, MN, increased by almost 500 percent, from 1,436 in 1910 to 8,534 in 1920.¹³ By 1950, there were approximately 17,500 racial covenants on Minneapolis properties. Racially restrictive covenants remained enforceable in state courts until 1948, when the U.S. Supreme Court ruled that, while not illegal in and of themselves, racial covenants could not be enforced through the state court system.¹⁴

¹³ See <https://www.mappingprejudice.org/index.html>.

¹⁴ See *Shelley v. Kraemer*, 334 U.S. 1 (1948).

Racial covenants (and the less familiar but closely related racially restrictive condition) tended to fall into one of three categories (Monchow, 1928; and Scanlan, 1949).¹⁵ The first category includes covenants that restricted ownership, more specifically the sale, lease, conveyance to, or ownership by any member of a certain racial or ethnic group. The second category includes covenants that prohibited use or occupancy by any member of such a group, and the third prohibited both ownership and occupancy. Once a deed restriction was in place, it might remain with the property for decades. This feat was often achieved by way of one or more workarounds to the rule against perpetuities (RAP), a common-law doctrine that was intended to prohibit property restrictions from remaining in place for more than one generation (about 21 years; Brooks and Rose, 2013). Thus, many deed restrictions were written with an explicit duration of 20 or 21 years, particularly around the turn of the 20th century.¹⁶ Real estate developers could also circumvent the RAP doctrine by structuring their purchase agreements to retain a reversionary interest in the property. A reversionary interest could be established by stating that, if one of the covenants is violated, the property would revert back to the developer. Thus, maintaining a residual ownership interest in the property was another way to circumvent the RAP doctrine and extend deed restrictions for many decades (Brooks and Rose, 2013).

A 1928 survey of 84 deeds found that deed restrictions typically contained a stated duration and a set of conditions under which the restrictions could be extended (Monchow, 1928). Some restrictions were designated to renew automatically at the frequency of the original term unless certain conditions were met. For example, some deeds specified that either a majority or supermajority (for example, two-thirds) of owners in the development had to agree in writing to terminate the automatic extension. Automatic renewals and high thresholds for termination may help to explain why racial covenants remain on deeds throughout the country, having followed properties through many generations of ownership (WOSU Public Media, 2017).

The use of racial covenants was promoted by the National Association of Real Estate Boards (NAREB), then a nascent trade group established for White brokers.¹⁷ In 1924, NAREB adopted an amendment to its member code of ethics that required brokers to practice racial steering or risk expulsion. A model real estate licensing act, adopted by 32 states, authorized state real estate commissions to revoke licenses of agents who violated the NAREB code of ethics (Plotkin, 2001). Then, in 1927, in conjunction with the U.S. Department of Commerce, NAREB drafted a model racial covenant (see exhibit 6).¹⁸ Restrictions based on the NAREB model were inserted into deeds across the country. NAREB also encouraged local real estate boards to partner with homeowner associations to spread the model covenant (Roithmayr, 2014).

¹⁵ The term *condition* may have been used more generally. In real estate, a covenant is a type of condition that is tied to the ownership or use of a piece of land.

¹⁶ In our data, covenants with an explicit (and finite) duration tended to be for 10, 25, and 30 years. More often, the covenant was said to extend “hereafter forever.”

¹⁷ The influence of NAREB and its affiliates on residential segregation patterns is, in part, a result of their quest for recognition as a profession, which became necessary as the housing market expanded, bringing with it unscrupulous brokers and agents (Fox Gotham, 2014). In the 1930s, a NAREB affiliate called the American Institute of Real Estate Appraisers began to formalize appraisal techniques that, in part, rested upon the belief that property value was linked to neighborhood racial composition.

¹⁸ See <http://wbhsi.net/~wendyplotkin/DeedsWeb/philpott.html> for additional information.

Exhibit 6

Model Racial Covenant Text

Model Racial Covenant

1. No part of said premises shall in any manner be used or occupied directly or indirectly by any negro or negroes, provided that this restriction shall not prevent the occupation, during the period of their employment, of janitors' or chauffeurs' quarters in the basement or in a barn or garage in the rear, or of servants' quarters by negro janitors, chauffeurs or house servants, respectively, actually employed as such for service in and about the premises by the rightful owner or occupant of said premises.
 2. No part of said premises shall be sold, given, conveyed or leased to any negro or negroes, and no permission or license to use or occupy any part thereof shall be given to any negro except house servants or janitors or chauffeurs employed thereon as aforesaid.
-

Source: *National Association of Real Estate Boards, 1928*

At their core, racial covenants served the purpose of maintaining separate residential areas for persons of different racial and ethnic groups.¹⁹ In suburban areas where residential real estate development was just beginning, and in urban areas where aging housing stocks were being replaced with new homes and subdivisions, racial covenants were a means of introducing social norms into places where none existed previously, or of codifying social norms already in place. Because they were embedded in deeds, racial covenants were contractual, and because they were entered into by private businesses and citizens, they were not explicitly actions of the state and thus not public policy. The responsibility for enforcing racial covenants ultimately fell, however, on the judicial system, a public institution. It was on this basis that, in 1948, racial covenants were challenged in court and deemed unenforceable. In *Shelley v. Kraemer*, the U.S. Supreme Court ruled that any court that enforced a racial covenant violated the equal protection clause of the 14th Amendment, which prohibits states from denying a person within its jurisdiction the equal protection of the law.²⁰ The court's decision meant that enforcing a racial covenant through the court system was akin to the state taking action against citizens, violating their 14th Amendment rights (Brooks and Rose, 2013). Still, the court ruling did not prevent racial covenants from being written into deeds. It was not until 1968, when Title VIII of the Civil Rights Act made racial covenants illegal.²¹

Despite the demise of the racial covenant more than 50 years ago, research suggests that African-Americans continue to face challenges in securing favorable residential opportunities. A feature of modern residential discrimination is that it tends to occur via the home-buying process. A recent paper by Christensen and Timmons (2018) found strong evidence that real estate agents continue to steer similarly situated minority households toward worse neighborhoods than their White counterparts. Controlling for income and locational preferences, discriminatory steering explains a significant fraction of the disproportionate share of minority households in impoverished

¹⁹ Throughout this paper, I maintain the existing convention of describing covenants against certain racial and ethnic groups as racially restrictive covenants or racial covenants, although race and ethnicity are two distinct concepts, and race is commonly understood to be a social category, not a biological or ethnic classification.

²⁰ See <https://constitutioncenter.org/interactive-constitution/amendments/amendment-xiv/the-equal-protection-clause/20> for more information.

²¹ See Pub L. No. 90-284, 82 Stat. 73 (1968). Title VIII of the Civil Rights Act is known as the Fair Housing Act.

neighborhoods and neighborhoods near contaminated land designated as Superfund sites by the U.S. Environmental Protection Agency.²²

Creating the Spatial Database

Beginning in 2018, I launched an initiative to discover the extent to which racial covenants had been used to restrict homeownership in Philadelphia. My goal was to create a spatial database of racial covenants in Philadelphia property deeds. The database would enable researchers to map the location of properties that were once restricted by race and to analyze the effect of the covenants on residential patterns and the disparities in economic outcomes between White and non-White Philadelphians. The historical deed books are a matter of public record and are accessible through the DOR's historical land and vital records website.²³ Although pages of the deed books have been copied to microfilm and converted to electronic image files, the site was designed to facilitate the retrieval of individual deed records. To create a spatial database, I would need to search millions of deeds spanning a period of 20 or more years. The DOR provided electronic records for the period 1920–1938. This window was selected because it coincided with the period during which racial covenants were being written into deeds and because most Philadelphia deed records prior to 1917 were handwritten, making the task of optical character recognition (OCR) significantly more challenging. I received more than 1.2 million files (146GB), each file containing a scanned copy of two pages from the deed book.

To convert the images to searchable PDF files, I read small batches of image files (300–400) into OCR software. The software was configured to automatically correct various aspects of the image prior to executing the character recognition process. Because the image files varied widely in fidelity, some text was well reproduced from the images, while images that were blurred, too dark, or too light tended to generate long strings of nonsense characters.

Once a batch of deeds had been converted from images to searchable text, I began the process of identifying deeds containing racial covenants. To do so, I searched for keywords such as: *Caucasian*, *Negro*, *white*, *black*, *descent*, and *occupied*. One way I attempted to overcome the image fidelity and clarity challenges was to search for keyword fragments. For example, I searched for the word *Caucasian* as well as *cau*, *cauc*, *asian*, and *ian*. This approach yielded many more hits than searching by keyword alone.

As of the writing of this article, my search has yielded more than 3,800 distinct properties with racial covenants, spanning the period 1920–1932.²⁴ Properties that appeared more than one time in the deeds data set were entered into the spatial database as different records, but only entered into the final tally once. In most instances, this double-counting occurred when a property changed hands. For example, the property at 1031 Flanders Road in the 34th Ward was sold by Edward Hoopes in April 1928, and by Albert Simon in February 1930. In some instances, I observed a property transferring hands twice in one day, as on April 15, 1920, when the property at 3833 Walnut Street was bought and sold both by George E. Outhette and William Alexander Brown.

²² See <https://www.epa.gov/superfund/what-superfund> for more information.

²³ See <http://phila-records.com/historic-records/web/>.

²⁴ I found 15 racial covenants in deeds that were dated 1919.

Because the deed records are not marked with a chronological identification number, I was unable to compute the exact number of deed records searched. I estimate that 600,000 to 1.2 million deed records were searched since most of the 1.2 million image files contained a left- and right-hand page, and a single deed record tended to be between two and four pages in length.

Upon locating a keyword or keyword fragment, I noted the location of the deed in the electronic records and the following information:

- Date of deed
- Race-related search term identified in the text
- First seller listed
- Location of plot(s)
- Ward number

With additional resources, I would have recorded several additional pieces of information for each deed containing a racial covenant, including the exact text of the covenant, the stated covenant duration, and the first listed buyer. This—and other areas for future work—will be discussed in the final section.

Two Caveats

Two caveats bear mention. First, my findings should be interpreted as a lower bound on the true number of racial covenants added to properties from 1920 until 1932. I can say with certainty that there are zero instances in which my algorithm identified a covenant where one did not exist (that is, Type I error). I am less certain, however, that my algorithm found all covenanted properties (that is, Type II error). The second caveat directs attention to the additional work needed to enhance the precision of my coordinate estimates.

A Lower Bound

First, my tally likely underestimates the number of racial covenants present in the data sample. As noted previously, varying image quality affected the OCR software's ability to translate images into words. The typewritten deed records also varied in type spacing and horizontal alignment. Lines of text sometimes drift down the page, and letters of the same word are often not on the same horizontal plane. All these factors created challenges in converting the images to searchable documents. I attempted to mitigate the effects of these and other challenges by searching for word fragments, but it is unlikely my process identified all racial covenants. In addition, deeds are not required to be immediately recorded in the county deed books. Thus, although I reviewed files from the deed books corresponding to the period 1920–1932, my sample contained some deeds written before 1920 and probably excluded some that were not recorded until after 1932. Last, some deed writers might have used uncommon or obscure words to refer to African-Americans or persons of another religion or ethnicity. For example, other analyses of racial covenants have found African-Americans broadly referred to as Ethiopians, a word that was initially on my search list but was dropped for the sake of efficiency when it did not appear to be yielding hits.

Imprecise Coordinate Estimates

Second, I was unable to ascertain the exact location of most properties on the basis of information provided in the deed itself. Plots of land in the city of Philadelphia have historically been identified by a metes-and-bounds description—a surveying methodology that identifies a piece of land by placing it in relation to nearby landmarks—rather than by parcel number or other unique identifier. Philadelphia County was very much under development during the first half of the 20th century; thus, many of the deeds in our sample convey plots of land to developers who would then go on to subdivide the property and build streets and homes. After 1927, I observed more deeds being associated with a particular address (or addresses). Thus, the need to match metes-and-bounds descriptions to addresses may diminish as I progress further into the deeds data.²⁵

When a street address was available, I used a geocoding application programming interface (API) to generate latitude and longitude coordinates. Likewise, for a small number of deeds, I was able to easily determine the street address based on the metes-and-bounds description and could then retrieve its coordinates from the API.

When a street address was unavailable, I approximated the property location to either the nearest street intersection or the intersection that marked the beginning of the metes-and-bounds description. In the first case, I leveraged the order imposed by central Philadelphia's gridiron-style layout; in instances where a north-to-south running numbered street intersected an east-to-west running named street (for example, 18th Street and Walnut Street), the property was assigned the coordinates of the first even-numbered property on the block (for example, 1800 Walnut Street). In the second case, if a metes-and-bounds description began at the corner or intersection of two streets, I approximated the property location with the set of coordinates corresponding to the center of the intersection.

Comparison to Other Data Collection Projects

For many years, little was known about the prevalence of racial covenants and their long-term effects (Fox Gotham, 2014). Fortunately, this has changed in recent years, as teams of researchers have undertaken efforts to identify, document, and map racial covenants in cities throughout the country.

Since 2005, Segregated Seattle, a project run by the Seattle Civil Rights and Labor History Project at the University of Washington (UW), has been working to identify and document racial covenants. Their database is the work of several teams of UW students and appears to be the result of a very labor-intensive process. According to their website, the students have examined about 40 percent of deeds filed between 1923 and 1950, finding more than 500 covenants containing racial restrictions that apply to at least 20,000 properties in King County, WA.²⁶ An online database

²⁵ Today, each property in Philadelphia has a unique, nine-digit parcel number, initially created by the Board of Revision of Taxes. Since 2010, the process has been administered by the Office of Property Assessment; however, current Philadelphia County document recording requirements state that properties must only be identified by the metes-and-bounds description and street address (<https://www.phila.gov/records/DocumentRecording/DocumentRecordingReq.html>).

²⁶ See <http://depts.washington.edu/civilt/covenants.htm>.

contains a list of 416 covenants from deeds filed between 1927 and 1948.²⁷ The database includes fields for neighborhood, plat, and seller names, deed date, the text of the covenant, and a link to a pdf copy of the original deed.

One of the more sophisticated efforts to identify and record racial covenants is Mapping Prejudice, a group that began its work in Hennepin County, MN. The team first used OCR to identify over 30,000 property deeds containing racial language. Once the deeds were compiled, they used a crowdsourcing platform to make the deeds available to volunteers who then examined the text to gather several pieces of information. The information was then transferred to a database to populate an interactive map that also includes a time-lapse heat map.²⁸

In early 2019, Jordy Yager began a project to identify every covenanted property in Charlottesville, VA. Unlike in Philadelphia, the city of Charlottesville had not scanned their historic deed records, so Yager and a group of students at the University of Virginia scanned 33 deed books containing records from 1909 until 1936.²⁹ The scans were converted into PDF format and run through OCR software. As with the Mapping Prejudice project, Yager used a crowdsourcing platform to make the covenanted deeds available to volunteer researchers. He also received a batch of TIF image files with more than 150,000 pages of property deeds from 1888 until 1964, finding racial covenants from as far back as 1897.³⁰

Preliminary Observations

Ward-Level Analysis

As noted in section 3, most deeds from the 1920s referenced properties that did not yet have street addresses. In other cases, an address might not have been provided. Fortunately, each deed included a reference to the ward in which the property was situated.³¹ Thus, my most geographically accurate representation of the new data is at the ward level. Column (b) of exhibit 7 lists the number of covenanted properties found in each of Philadelphia's 48 wards.³² I use data from the 1920 census to calculate the number of covenants per thousand dwellings in column (c).

²⁷ See http://depts.washington.edu/civilt/covenants_database.htm.

²⁸ See <https://www.mappingprejudice.org/>.

²⁹ See <https://mappingville.com/2019/02/07/scanning-scanning-scanning/>.

³⁰ See <https://mappingville.com/2019/01/28/1903-1948-charlottesvilles-first-rationally-restrictive-covenants/>.

³¹ The Census Bureau did not adopt the census tract as an official geographic entity until the 1940 census. See https://www.census.gov/history/www/programs/geography/tracts_and_block_numbering_areas.html.

³² The city had 48 wards from 1914 until 1932. Today it is divided into 66 wards. See <https://www.philadelphiavotes.com/en/resources-a-data/political-maps>.

Exhibit 7

Racial Covenants Identified in Philadelphia Deed Books, 1920–1932 (1 of 2)

(a) Ward	(b) Number of Covenanted Properties	(c) Racial Covenants per Thousand Dwellings	(d) Percent African- American, 1920	(e) Percent African- American, 1930
1	0	0	0.6%	2.4%
2	0	0	5.6%	17.9%
3	0	0	7.9%	21.1%
4	0	0	15.6%	33.0%
5	0	0	6.7%	11.9%
6	0	0	5.1%	19.8%
7	0	0	46.5%	41.5%
8	16	8.6	13.1%	8.5%
9	0	0	12.5%	6.0%
10	0	0	5.5%	8.7%
11	0	0	4.2%	21.3%
12	0	0	4.1%	20.3%
13	0	0	11.1%	26.4%
14	0	0	27.0%	46.0%
15	3	0.4	8.4%	10.7%
16	0	0	1.0%	6.8%
17	0	0	2.0%	3.6%
18	0	0	0.3%	0.1%
19	1	0.1	1.2%	3.0%
20	2	0.2	17.6%	35.9%
21	111	14.8	1.8%	2.6%
22	877	50.5	7.8%	9.1%
23	192	23.7	2.2%	2.9%
24	7	0.6	13.5%	23.7%
25	0	0	0.6%	1.3%
26	0	0	9.1%	8.9%
27	39	11.8	12.1%	13.0%
28	84	7.0	3.4%	12.7%
29	2	0.3	5.3%	21.9%
30	0	0	52.5%	70.3%
31	0	0	0.1%	0.1%
32	3	0.3	8.3%	31.7%
33	61	4.1	0.4%	0.2%
34	593	38.3	4.9%	16.0%
35	228	84.9	1.8%	1.5%
36	74	6.7	24.1%	29.8%

Exhibit 7

Racial Covenants Identified in Philadelphia Deed Books, 1920–1932 (2 of 2)

(a) Ward	(b) Number of Covenanted Properties	(c) Racial Covenants per Thousand Dwellings	(d) Percent African- American, 1920	(e) Percent African- American, 1930
37	1	0.2	4.8%	8.0%
38	336	22.0	2.8%	3.8%
39	25	1.7	1.0%	2.9%
40	283	17.1	5.0%	6.8%
41	318	82.5	5.0%	5.4%
42	434	30.6	1.1%	0.7%
43	36	2.8	1.8%	1.7%
44	14	1.6	7.9%	26.2%
45	11	1.4	0.9%	0.8%
46	62	3.6	1.3%	1.7%
47	2	0.4	27.9%	40.9%
48	11	2.0	0.1%	0.6%
Totals	3,826	10.8	7.4%	11.3%

Notes: Number of racial covenants identified in property deeds found in City of Philadelphia Deed Books from 1920 to 1932. Multiple covenants on a single property are counted once. Totals include the population and dwellings of all 48 wards, including those in which no racial covenants were found. *Sources:* Author's calculations and U.S. Census Bureau

For the period 1920–1932, the largest number of covenants were found in Ward 22, an area of northwest Philadelphia with a population that was 7.8 percent African-American in 1920, just above the overall rate of 7.4 percent. The 877 covenanted properties in Ward 22 account for about 23 percent of the total covenants in the 1920–1932 subsample. The next largest shares of covenanted properties were found in Wards 34 and 42, with 593 and 434 covenants, respectively. Taken together, Wards 22, 34, and 42 contained nearly 50 percent of all covenants in the sample. The remainder of covenanted properties were found in another 20 wards, while no properties with covenants were found in 20 of the 48 wards. The 20 wards in which no covenants were found mostly fall along the Delaware River on the city's eastern shoreline.

At the ward level, there is evidence that racial covenants could have reduced the inflow of African-Americans into particular wards. The percentages of ward residents identified as African-American in 1920 and 1930 are found in columns (d) and (e) of exhibit 7. The correlation between racial covenants per thousand dwellings and the change in the percentage of African-American residents from 1920 to 1930 is -0.258 , suggesting that the relationship is directionally within expectations. In addition, the percentage of African-Americans in wards in which 0 to 10 covenants were located grew by 8.1 percent, compared with 2.3 percent in wards with 10 or more covenants.³³

The 22nd Ward, with 877 covenanted properties, lies in the northwestern part of the city and includes the neighborhoods of Germantown, Mount Airy, and Chestnut Hill. These neighborhoods

³³ Calculations weighted by population totals from the 1920 census.

were initially home to middle class and wealthy Philadelphians seeking to avoid the congestion of Center City. As development expanded outward and more areas became accessible by streetcar, the area became increasingly accessible to working-class citizens traveling along the old 23 streetcar line that ran from Chestnut Hill to South Philadelphia.³⁴ Situated between Chestnut Hill and Germantown, Mount Airy is better known for its intentional efforts to be an integrated community throughout the 1950s and 1960s (Ferman, Singleton, and DeMarco, 1998; and Rolland and DeMaria, 2016).

Similarly, Ward 34 in West Philadelphia, containing 593 covenanted properties, began as a getaway for upper-class Philadelphians. In the second half of the 19th century, its location on the western banks of the Schuylkill River made it attractive to developers who built country homes for middle-class buyers. Shortly after its incorporation in 1902, Philadelphia Rapid Transit began construction of electric streetcar lines to West Philadelphia, earning the area the moniker of streetcar suburb.³⁵ By the 1920s, many of the 19th-century homes were demolished to make way for the construction of large, four- or five-story apartment houses.³⁶

The number of covenanted properties in a ward is, in part, a function of the residential construction occurring there. Thus, I would expect to see fewer covenants in wards that experienced very little construction. As late as 1937, much of the far northeast, from Pennypack Park to Bucks County, still contained vast swaths of farmland.³⁷ Exhibit 8 shows that, on a per-dwelling basis, the areas of the city with the most covenanted properties were in Wards 35 and 41 in the northeast and far northeast (dark red), respectively.³⁸ While sparsely populated in 1920, these two wards had a combined density of 866 persons per square mile, much lower than the overall county density of 14,000. By 1930, the populations of the two wards had grown by 314 percent and 95 percent, respectively. Thus, exhibit 8 suggests that much of the new residential construction that occurred in the greater northeastern part of the city during the 1920s was covered by racial covenants.

³⁴ See http://www.phillytrolley.org/1923map/1923_pt_map_z1.html.

³⁵ In 1998, the West Philadelphia Streetcar Suburb Historic District was placed on the National Register of Historic Places.

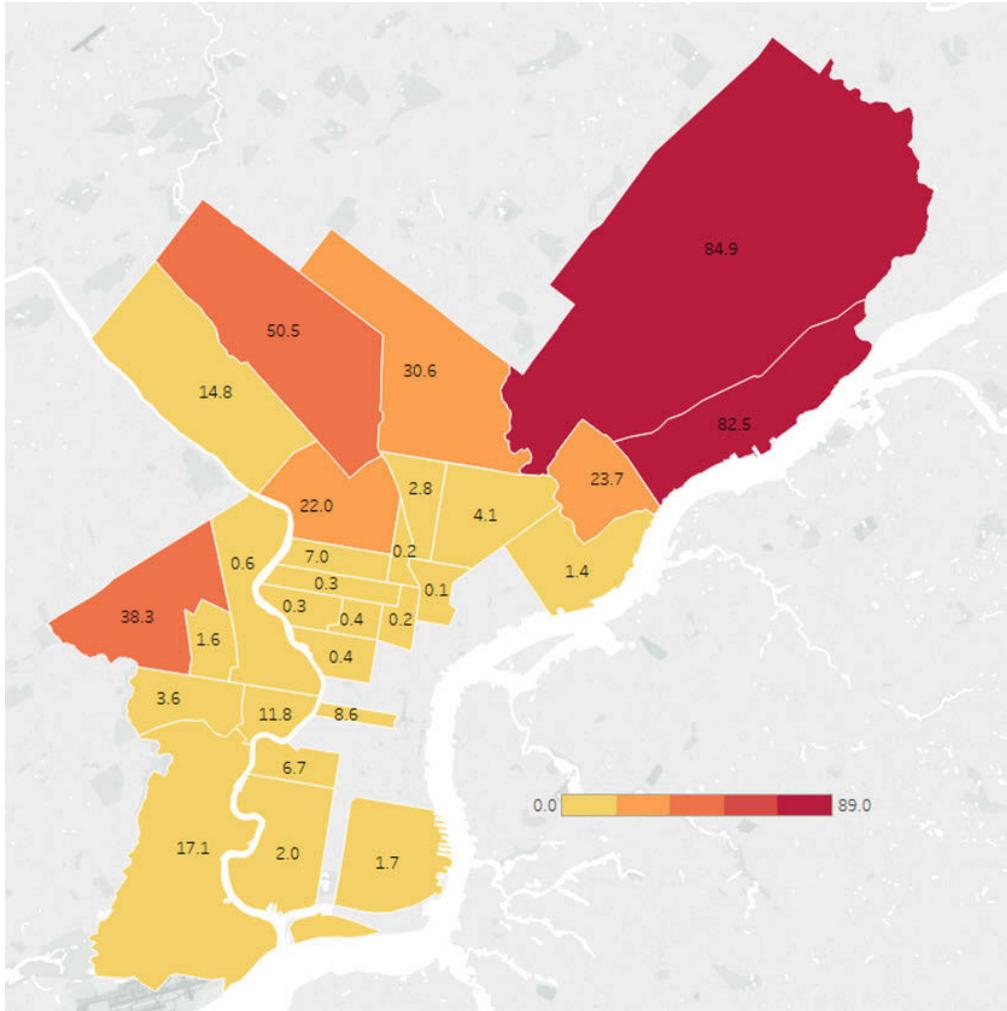
³⁶ See <http://www.uchs.net/HistoricDistricts/wpsshd.html>.

³⁷ Source: HOLC Residential Security Map for Philadelphia, PA, available at <https://dsl.richmond.edu/panorama/redlining/#loc=12/40.038/-75.12&city=philadelphia-pa>.

³⁸ In 1920, the Bureau of Labor Statistics began collecting data on new building permits issued in the country's largest cities. While Philadelphia is included in the dataset, the data are not available at the ward level. In lieu of data on building permits, I computed the number of covenanted properties as a percentage of the number of dwellings listed in the 1920 Census.

Exhibit 8

Number of Covenanted Properties per Thousand Dwellings, by Ward, 1920–1932



Notes: Number of racial covenants identified in deeds books from 1920 until 1932. Dwellings are from 1920 Decennial Census.
Source: Author's calculations

HOLC Map Analysis

Next, I replaced the ward-level map with Home Owners' Loan Corporation's 1937 residential security map of Philadelphia. HOLC was established by Congress in 1933, with a mandate to refinance residential mortgages in default.³⁹ Beginning in 1935, HOLC staff created maps of cities throughout the country as a reference to assist in the collection and disposition of the mortgage debt it had purchased from lenders. Areas marked as grade A were expected to be racially

³⁹ It did so by exchanging government bonds for defaulted mortgages. See Hillier (2002) for additional information.

homogeneous and have space for new construction (Aaronson, Hartley, and Mazumder, 2017). Grade B areas were similar to green but no longer had space for new residential construction, while grade C areas were declining and might be racially or ethnically mixed or have the potential to become mixed. Last, grade D areas were undesirable and often had high concentrations of Jewish or African-American residents.

Exhibit 4 shows where covenanted properties fell on the HOLC map, bearing in mind that the covenants were written several years prior to the HOLC map and were certainly considered by HOLC staff when grading an area. The latitude and longitude coordinates associated with each of the covenanted properties are superimposed. As noted previously, I do not currently have exact coordinates for many of the covenanted properties. For those properties, I chose to append the coordinates of the nearest intersection. Thus, the size of each red dot signifies the number of covenanted properties that have been mapped to that particular location, with larger red dots signifying more properties.

Only about 4 percent of covenants were in green areas, while over 60 percent of the covenants were in blue areas and 23 percent in yellow areas. This suggests the hypothesis that HOLC staff may have viewed the presence of covenants as a second-order factor in highly rated portions of the city but weighed them more heavily when determining whether an area should receive a blue grade or a yellow grade.

A second observation in exhibit 4 that warrants further examination is the location of covenanted properties near the borders of differently colored areas. This phenomenon is particularly visible in northeast Philadelphia, where covenants in the blue area dot the perimeter between it and several yellow areas, and in southwest Philadelphia, where yellow areas border red areas. Covenanted properties along area borders are further evidence that developers and builders used covenants to create buffers between White neighborhoods and nearby African-American neighborhoods. Similar patterns have been found in other cities, including Washington DC, St. Louis, and Chicago.⁴⁰ The case was made explicit in *Grady v. Garland*, in which the DC Appeals Court upheld racial covenants as an effective “barrier against the . . . movement of colored population into the restricted area.”⁴¹

Enumeration District-Level Analysis

In their work on residential segregation, Allison Shertzer, John Logan, and their colleagues have found that the geographic scale in which one examines residential segregation can have significant effects on results. Shertzer, Walsh, and Logan (2016) argue that this issue—known as the Modifiable Areal Unit Problem—has affected the work of previous researchers whose analyses relied on ward-level data. For this reason, they recommend using EDs to examine racial composition prior to the

⁴⁰ See the “Racial Covenants as a Barrier” section of <https://www.arcgis.com/apps/MapJournal/index.html?appid=58c3e00881374a7b8acdade025ade64>, <http://www.encyclopedia.chicagohistory.org/pages/1761.html>, and Long and Johnson (1947).

⁴¹ 89 F.2d 817 (D.C. Cir. 1937)

introduction of census tracts in the 1940s.⁴² Moreover, they have created and made publicly available ED shapefiles for the period 1900–1930 for 10 cities, including Philadelphia.⁴³

In exhibit 9, the city is divided into hundreds of EDs, many of which are no larger than a few city blocks. Allison Shertzer also provided us with demographic data at the ED level, which I use to map the racial composition of each ED. Exhibit 9 places the covenanted properties in relation to the many small African-American neighborhoods that dotted the city in 1920, and, in doing so, significantly refines the narrative. The covenanted properties tend to fall along a large horizontal swath of land just south of the greater Northeast, with concentrations in neighborhoods such as Dearnley Park (Shawmont), East Falls, East Mount Airy, East Germantown, West Oak Lane, Lawndale, Juniata Park, Frankford, Mayfair, and Tacony.⁴⁴ West of the Schuylkill River, the covenants are clustered in the neighborhoods of Overbrook, Carrol Park, Wynnefield, Kingsessing, Southwest Schuylkill, and Clearview. Just east of the river, across from Southwest Schuylkill, covenanted properties were found in Grays Ferry. In the greater Northeast, covenanted properties were found in Fox Chase and in the Somerton Gardens section of Somerton, a small development along the northern edge of the city.

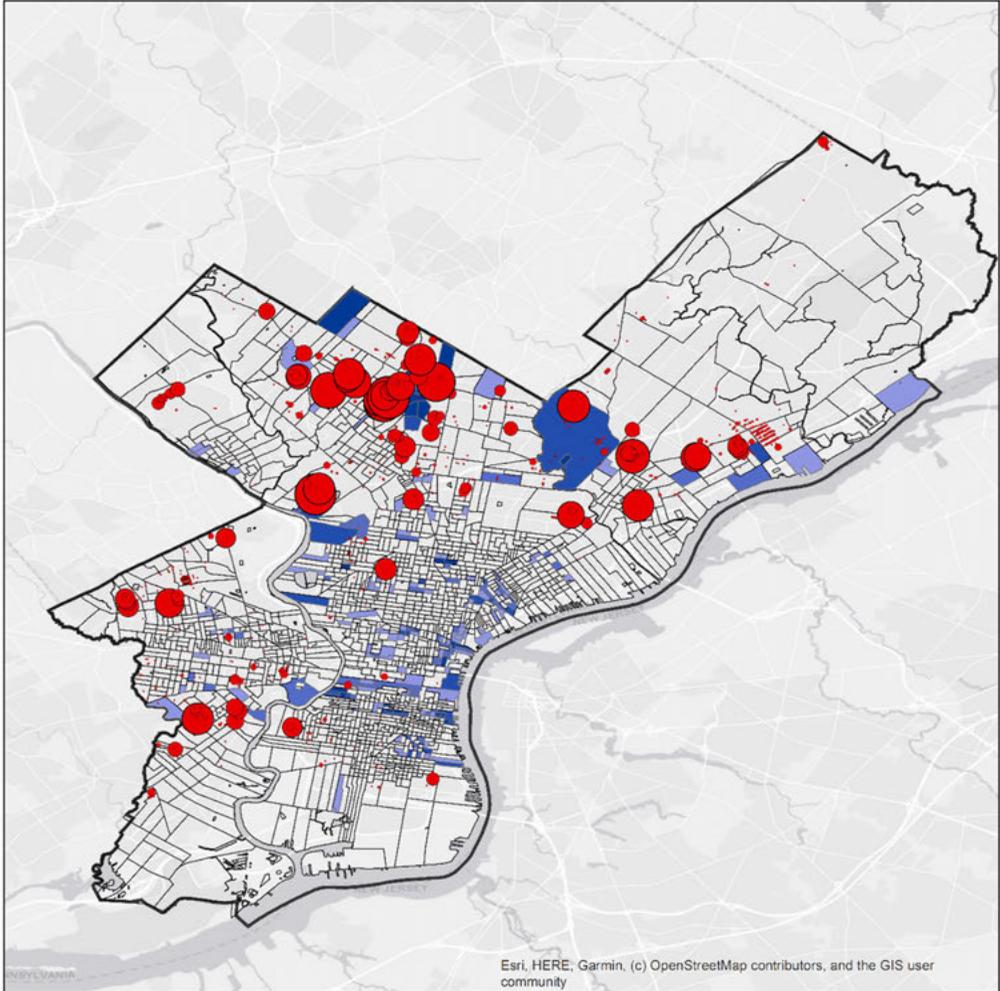
⁴² In addition, Smith (2016) recommends using *intensive* data representations—those that are comparable across areal units of different sizes and characteristics—to conduct areal data analysis. An example would be to use population per square mile in place of population count.

⁴³ The shapefiles are available to download at https://s4.ad.brown.edu/Projects/UTP2/HGISDoc/Final_Version_All_ED_Maps.zip.

⁴⁴ For readers unfamiliar with the neighborhoods of Philadelphia, please refer to Spector (2008).

Exhibit 9

Location of Covenanted Properties Relative to African-American Population



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Coordinate Markings

● Covenanted Location *Number of racial covenants associated with a set of coordinates.*

Percent African American (1920)

- 0-3%
- 3-10%
- 10-25%
- 25-50%
- 50-100%

*Note: Geographic boundaries are enumeration districts.
Sources: Author's calculations and Allison Shertzer*

Many of the covenanted properties are in neighborhoods adjacent to those with high concentrations of African-Americans. For example, in Tacony—a neighborhood on the northeastern waterfront of the city—the ED formed by Princeton Avenue, Gillespie Street, Route 73, and a railway line, was 35 percent African-American (exhibit 10). There, racially covenanted properties dot the bordering streets, presumably to keep African-American residents from advancing into adjacent, mostly White neighborhoods.⁴⁵ Likewise, in exhibit 11, covenanted properties located in the center of East Falls lie just north of two EDs with higher proportions of African-American residents.

Exhibit 10

Tacony Neighborhood, Philadelphia



Notes: Scale 1:10,000. Coordinate markings not adjusted for concentration.
Sources: Author's calculations and Allison Shertzer

⁴⁵ Recall from section 3, A.2 that, when a street address was unavailable, I approximated the property location to either the nearest street intersection or the intersection that marked the beginning of the metes-and-bounds description. Thus, it is likely that a racial covenant located at an intersection is linked to an interior lot. I do not believe this affects the results presented here.

Exhibit 11**East Falls Neighborhood, Philadelphia**

Note: Scale 1:10,000. Coordinate markings not adjusted for concentration.

Sources: Author's calculations and Allison Shertzer

In some instances, the imposition of racial covenants appears to have been driven by an existential—rather than imminent—threat. In the Germantown Westside neighborhood, a group of 44 homeowners living along either side of West Penn Street banded together in 1927 to voluntarily impose a rather strict covenant, whereby violators could be evicted “by force of arms” (exhibit 12). The full text of the covenant is reproduced below:

That at no time hereafter forever shall any of the said properties be owned, occupied, or leased by any persons other than those of the Caucasian race. That at any time hereafter forever if any person or persons of any other race occupy any of the said properties or any portion thereof, it shall be permissible for any owner or occupier of any property hereinbefore mentioned to evict the same by force of arms or by action at law, and any title given by any deed to any person other than that of the Caucasian race shall be null and void.

Such agreements—called petition covenants—were written into county deed books by groups of White neighbors. Compared to deed restrictions, which were typically written at the time a plot of land was transferred to developers, neighbors seeking to enforce a petition covenant were more likely to have success in court. Our search yielded only a handful of petition covenants.

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Applying Performance Management Tools to Understand and Improve Rapid Re-Housing Program Outcomes

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Abstract

This paper examines the potential for improvement in the performance of Rapid Re-Housing programs in terms of moving people experiencing homelessness quickly and effectively into stable housing. These programs have grown rapidly since their introduction in 2009 and have been evaluated extensively. These evaluations have had mixed results but have generally supported the conclusion that this intervention is equally effective and less expensive than transitional housing programs. Although this literature has clarified the overall effectiveness of this intervention, it provides less insight to local policymakers and program managers on whether their programs are performing as well as possible and what could be done to improve housing outcomes. This analysis employs the tools of performance management—including benchmarking, control charts, process mapping, and performance comparisons across time and providers—to analyze data from the Continuum of Care in Sacramento, California. These tools search for performance outliers that cannot be explained by the underlying variation in the data and then seek to identify the root causes of these deviations. The analysis does find that significant performance deficits have arisen over time and between program providers. If managers could reduce just one-half of the identified performance deficits, the system-level rate of moving clients to stable housing would increase by one-third, a much larger improvement than could be achieved by reasonable budgetary increases.

What are the prospects for improving the performance of Rapid Re-Housing (RRH) programs through the application of performance management analytics? To date, researchers have conducted multiple evaluations of the program (Brown et al., 2017; Byrne et al., 2016; Finkel et al., 2016; Gubits et al., 2018; Rodriguez and Eidelman, 2017). These summative evaluations seek to identify the impact of the intervention as it is operating during the assessment stage of the policy cycle. The results of this work have been mixed. The most rigorous analysis did not find statistically significant program effects, although it found that the costs of RRH were less than usual care (Gubits et al., 2018). Several observational studies have found more positive results, but

none have a randomized control group to assess program impacts (Byrne et al., 2016; Finkel et al., 2016; Rodriguez and Eidelman, 2017; Spellman et al., 2014). In sum, the rapid growth of RRH programs has been primarily propelled by the evidence that it is less expensive than shelter care or transitional housing, although the existing evidence has not established it as more effective than other programs.

This article focuses on a related though distinct question: is there room to *improve current outcomes*? These questions are the focus of formative evaluations or performance management processes during the implementation stages of the policy cycle (McDavid, Huse, and Hawthorn, 2018; Scriven, 1991). Specifically, it examines whether there are variations in the outcomes between RRH program providers or over time that indicate the possible presence of performance deficits that, if addressed, could improve system outcomes. This question is important and timely given that the program remains relatively new and has grown dramatically. At the national level, the program model has been in operation only since 2010. Since then, the total number of beds has almost quintupled from 19,842 to 112,961 in 2019, and RRH now constitutes more than 12 percent of the stock of beds devoted to addressing homelessness. The program is delivered in a highly flexible manner wherein most programs apply a progressive engagement model that caters types and amounts of services provided to each client according to their perceived needs (Dunton and Brown, 2019; Shinn and Khadduri, 2020). This level of administrative discretion can promote program efficiency by only providing a minimal amount of support to resolve a client's homelessness, but it also risks producing unmanaged variation that can undermine program effectiveness. Finally, the recent housing market boom has raised questions on whether and how this model can operate effectively in tight housing markets (Batko, Gillespie, and Gold, 2019).

This article examines the prospects for improvement by applying the tools of performance management to RRH data from the Continuum of Care (CoC) in Sacramento, California (Behn, 2014; Cole, 2011; Hatry, 2006). These tools include benchmarking against performance goals, control charts, comparisons across subunits and over time, and process mapping. The goal throughout is to identify anomalies in output and outcome measures that cannot be explained by random variation in the underlying data. When anomalies are identified then the analysis seeks to identify their root causes, thereby highlighting performance issues that require management attention. The analysis identifies significant performance deficits and calculates that addressing the identified problems could increase the number of clients successfully rehoused by RRH programs by 30 to 40 percent.

The article proceeds as follows. The next section describes RRH programs and reviews the existing evaluations of the program. It continues to describe performance management and its application to RRH. The next section describes the data that comes from the Homeless Management Information System (HMIS) in Sacramento, California. The main analytic section begins with a comparison of Sacramento to national performance benchmarks and finds that Sacramento does not meet these benchmarks. The section then continues to diagnose the root causes of the failure to meet these benchmarks. Throughout, the analysis emphasizes the graphical display of data that facilitates communicating results to a wider audience. The conclusion contrasts the results to previous work and provides policy recommendations.

Rapid Re-Housing and Performance Management

RRH is an outgrowth of the housing first movement (Mackie, Johnsen, and Wood, 2017). Traditionally, homeless individuals were moved through a progression of programs, including emergency shelters and transitional housing, in the belief that these programs were necessary before clients could be capable of living independently. Housing First, in contrast, seeks to provide permanent housing as quickly as possible while providing supportive services for substance abuse, employment, and other issues before, during, and after the client is housed.

The RRH approach has been adopted by a range of funders. It was introduced at the national level in 2009 when the American Recovery and Reinvestment Act created the Homelessness Prevention and Re-Housing Program (HPRP). Since then, it has been incorporated into funding by the U.S. Department of Veterans Affairs' (VAs) Supportive Services for Veteran Families program and in the U.S. Department of Housing and Urban Development's (HUD's) CoC and Emergency Solutions grant programs. Further funding has been made available from state programs such as the 2018 Homeless Emergency Aid Program in California.

The specific program requirements vary between programs, but they share a common approach—to place clients into housing as quickly as possible. The program provides short-term rental subsidies for periods ranging between a few months up to 2 years. During enrollment, programs provide a range of social services that helps clients find housing and prepares them to independently maintain housing after program completion. Because RRH seeks to help clients who are capable of living independently, but who do need short-term assistance, it has been targeted to those with a middle range of needs.

The programs are designed to be flexible, incorporating a progressive engagement approach that seeks to provide just enough supports to enable the client to succeed. Consequently, caseworkers maintain discretion concerning the types of social services provided (such as substance abuse treatment, employment services, housing search services) and the amounts of financial support provided (such as relief from debts, security deposits, and the amount and length of housing subsidies).

Evaluations of RRH Programs. A sizable literature has evaluated RRH programs. This work has sought to isolate the effects of RRH programs in comparison to alternative treatments that include usual treatment entailing stays in emergency shelters in combination with other available benefits or enrollment in transitional housing programs or receiving long-term housing subsidies (Brown et al., 2017; Burt et al., 2016; Byrne et al., 2014; Cunningham and Batko, 2018; Finkel et al., 2016; Gubits et al., 2018; Mackie, Johnsen, and Wood, 2017; Rodriguez and Eidelman, 2017; Spellman et al., 2014). The results of this work, however, remain inconclusive. The most rigorous random control trial of the intervention did not find statistically significant program effects compared to usual care in terms of housing status and family welfare (Gubits et al., 2018). The point estimates of the study found that RRH achieved better housing outcomes compared to usual care, but the standard errors were too large to draw strong conclusions. This result is due in part to the fact that the study employed an intent-to-treat design and was affected by a significant crossover between treatment groups. For example, 22 percent of the families assigned to the usual care group accessed

RRH services, and only 58 percent of the RRH group enrolled in the program. These factors combined to decrease the statistical power of the trial (Evans, Philips, and Ruffini, 2019).

In an observational study, Rodriguez and Eidelman (2017) employed propensity score matching to compare RRH clients to those served by shelter or transitional housing programs. They found that RRH was more effective than shelters at preventing returns to homelessness, but that RRH was no more effective than transitional housing. Other descriptive studies have found that the program operated as intended. Enrollees who made use of RRH were housed more rapidly than those who do not, and a high proportion of clients achieved housing independence and remained stably housed after program completion (Cunningham and Batko, 2018). More importantly, this work has found that RRH produces similar outcomes compared to traditional transitional housing programs but at a lower cost (Gubits et al., 2018; Rodriguez and Eidelman, 2017).

Two main caveats attach to this work. First, it examines the early stages of program performance, using data primarily prior to 2014 when the national housing market was still recovering from the Great Recession. Early evidence did find that the program achieved higher levels of success in communities with higher apartment vacancy rates (Spellman et al., 2014). Second, these early programs often screened their clients, focusing on families with children who could meet certain income minimums. Thus, it is less certain whether these results may be attained for broader subpopulations and in high-cost housing markets.

Although these studies were not focused on improving program performance, they did highlight several potential avenues for doing so. Rodriguez and Eidelman (2017) found that there is significant variation between programs in terms of returns to homelessness, suggesting that some programs could be improved. The findings concerning the effects of program characteristics are mixed. Some found that program features did not correlate with outcomes (Finkel et al., 2016), though others found weak evidence that increasing household income did improve success rates (Brown et al., 2017). Overall, these authors conclude that there is a need for additional study that examines the impacts of specific program features.

Performance Management and RRH. In addition to efforts to determine the effectiveness of RRH programs, there have been calls to apply performance management to maintain and improve program performance (Cepiku, 2017; NAEH, 2016; Turner, 2015). Performance management practices come in a variety of modalities, each with its own nomenclature, including PerformanceStat, Compstat, managing for results, lean/six sigma, to name just a few. This management strategy incorporates several key elements (Behn, 2014; Cole, 2011). It identifies a series of performance metrics of an organization's processes, outputs, and outcomes that are tied to the organization's strategic objectives. It analyzes these metrics to highlight anomalies that may be associated with performance deficits or performance exemplars. Then, managers conduct regular meetings to review analyses of the metrics and to develop and followup on strategies to improve the program's effectiveness based on these data.

Performance management complements evaluation studies. Evaluations tend to be conducted at the assessment stage of the program cycle after a program has been in operation sufficiently long to generate its intended effects. Evaluators come from outside of management structures, either in

a specialized research office or outside consultants. These studies emphasize research designs that control for confounding factors that may influence observed program outcomes and, thus, require significant resources and time to complete.

Performance management relies on the evaluation framework to identify metrics that are valid performance indicators, but its objectives and the manner in which it is conducted differ. Performance management is conducted close to program managers and provides ongoing feedback rather than one-time assessments. It focuses less attention on controlling confounding factors and devotes more attention to finding actionable information. Experimentation with management strategies and rapid feedback on results substitute for more rigorous research designs. This learning-by-doing strategy is not immune to inferential errors that more rigorous evaluations seek to filter out, but it does provide opportunities to correct issues with program operations in real-time.

The application of performance management in the public and nonprofit sectors has been widely touted (Behn, 2014; Forsythe, 2001; Osborne and Gaebler, 1992). These advocates argue that greater attention to output and outcome metrics in public sector management keeps public agencies focused on key goals. Furthermore, performance management permits greater managerial discretion to find methods for achieving those goals while maintaining accountability through transparent metrics. There is little doubt that data-driven management has had a profound impact on private sector firms (Womack, Jones, and Roos, 2007).

There have been notable successes with performance management in the public and nonprofit sectors where agencies have improved the quality and availability of services and strengthened management practices (Lee, McGuire, and Kim, 2018; Poister, Pasha, and Edwards, 2013; Walker, Damanpour, and Devece, 2011). CompStat, a performance management system developed for policing in New York City, is credited with helping reduce crime in that city and has been widely replicated (Behn 2014; Bratton and Malinowski, 2008; Smith and Bratton, 2001; Willis, Weisburd, and Mastroski, 2003). HUD developed and operated its own performance management system called HUDStat beginning in 2011, and it employed its continuous review of data to tackle veteran homelessness (HUD PD&R, 2012). Also, Culhane et al. (2008) reported on two local initiatives in Arizona and Columbus, Ohio, that developed metrics and employed them to strive toward system-level performance goals.

Nevertheless, the record of successful application of performance management in the public and nonprofit sectors has been spotty at best (Moynihan, 2008; Radin, 2006). For example, Sanger (2013) examined 190 cities that published performance metrics online and found that only 27 cities (14 percent) applied best practices to their use of metrics. Also, after a change in administrations in Washington, D.C., HUDStat was discontinued in 2016.

A number of factors make it difficult to maintain performance management regimes. Public agencies and nonprofits are typically staffed by line workers who are experts in program administration but lack analytic training to manage and analyze data. They also often lack modern data processing capabilities that restrict the range and quality of metrics that may be brought to bear in managerial decisionmaking. The rise of HMIS systems has improved this situation greatly, though many communities continue to be challenged by low data quality and participation levels

in their HMIS. Finally, budgetary and time constraints often conspire to force managers to focus on short-run fixes rather than long-run program improvements (Behn, 2013).

Despite these constraints, homelessness policy and RRH programs, in particular, constitute a policy area that demonstrates some promise for escaping this web of impediments. The main goals of the program—helping people back into stable housing—receives wide support, allowing for greater emphasis on outcome measures. High-quality data is becoming increasingly available due to the rise of homeless management information systems promoted by HUD. The structure of programs with services provided by multiple agencies provides an excellent basis for performance comparisons. In addition, the flexibility, which is a hallmark of the program, offers extensive potential for experimentation with different packages of services directed at specific subpopulations.

Based on these prospects, the practitioner community has published guides on how to use available data to monitor and approve programs. Canada has published a performance management guide that provides a high-level overview of the analytic approach (Turner, 2015). The National Alliance to End Homeless (NAEH), in coordination with the U.S. Interagency Council on Homelessness (USICH), HUD, and VA, has promulgated benchmarks for three key performance metrics: (1) days homeless prior to attaining housing (average days homeless), (2) percent of clients that exit to permanent housing situations (successful exits), and (3) percent of clients that return to homelessness within a year after a successful exit (returns) (NAEH, 2016). Based on stakeholder consultations, NAEH put forth the following system goals:

1. On average, clients should take 30 days or less to move into permanent placements after program enrollment.
2. Eighty percent of clients should exit to permanent placements.
3. No more than 15 percent of clients who exit to permanent placements should become homeless again within a year.

The report then details program core competencies in the areas of housing identification, rental assistance, and case management that would enable CoCs to achieve these performance benchmarks.

Building on these benchmarks, HUD has recently introduced a strategy and analysis toolkit called Stella that presents CoC data in a manner that permits analysis of these metrics. The dashboards are based on longitudinal system analysis data that each CoC will upload each year. It provides overviews on the three NAEH performance metrics and allows users to analyze performance by client subgroups and by pathways, combinations of programs employed by clients. In particular, the system points out specific pathways and user groups that are impacting performance to point managers to important problems. A second analytic toolkit that is intended to facilitate resource planning is in development.

The analysis in this paper seeks to facilitate the diffusion of performance management by homeless policymakers and administrators by demonstrating the analytic strategies that can be applied to highlight performance issues and illustrating the scope of the performance improvement that can be achieved by acting on these insights.

Data

The data for this study comprises a comprehensive, de-identified dataset from the Sacramento CoC HMIS provided to the researcher by Sacramento County. All the metrics employed in the analysis are taken directly from HMIS or are calculations using HMIS data fields.¹ The analysis focuses on 4,839 program enrollments between 2015 and 2018. Pre-2015 RRH enrollments are excluded due to concerns with data quality, although these earlier data are used to record clients' previous experience in emergency shelter and street outreach programs. The data runs through May 2019 for the purposes of tracking returns to homelessness. Thus, only clients who exit an RRH program into stable housing prior to May 2018 are included in the calculations for returns to homelessness within 1 year. Within these enrollments, 516 households enrolled in the RRH program more than once during these 4 years, leaving the number of distinct households at 4,268.

The demographic characteristics of the heads of households served by Sacramento RRH programs are shown in exhibit 1. This group is similar to the populations analyzed by previous work on RRH based on HMIS data from Indianapolis, Indiana, and the state of Georgia (Brown et al., 2017; Rodriguez and Eidelman, 2017). The average age and the percent of male clients fall between the percentage from the other two studies. In terms of race and ethnicity, the proportion of White clients is similar, although the proportion of African-Americans is lower while the proportion of Latinos is higher in Sacramento, reflecting the different ethnic composition of California. Compared with the Georgia sample, the proportion of households who enroll in Sacramento RRH with no income (9.8 percent versus 21.7 percent) and who have children (57.5 percent versus 65.4 percent) are comparable.

There are relevant differences in the Sacramento population. The percent of enrollees with disabilities is much higher in Sacramento, 47.0 percent compared to 15.1 percent in Georgia and 24.2 percent in the Indianapolis study, although it is uncertain whether these differences are due to data entry practices or real differences in population characteristics. Sacramento clients are less likely to have had previous emergency shelter stay, 14.6 percent compared to 23.5 percent in Georgia. One striking difference between these Sacramento data and the data from Indianapolis and Georgia is that Sacramento's rental market is significantly tighter, during the study period. From 2017 to the present, Sacramento rents based on the Zillow Rent Index have increased over 40 percent, the third-highest rate of increase among the 50 largest metropolitan areas.

¹ There are instances in which calculations yielded anomalous results, most likely due to data entry errors. For example, the days spent homeless prior to housing sometimes yielded negative results, probably due to a coding error for the date client moved into housing. Similarly, observations for some program enrollments lacked a housing move-in date, but the client then exited to permanent housing after a year or more in the program. These records are probably due to missing move-in dates. In both of these cases, the variables were coded as missing.

Exhibit 1

Demographic Characteristics of Head of Household

Demographic Variables	Sacramento (n=4268)	Georgia State (n=379)	Indianapolis (n=203)
Age	40.3	37.1	45.1
Male (%)	41.0	25.9	62.6
White (%)	29.8	23.5	28.0
African-American (%)	48.6	73.1	67.9
Latino (%)	13.8	3.4	n/a
No Cash Income Source at Enrollment (%)	9.8	21.7	n/a
Total Household Income	1,067.9	n/a	578.1
Households with Children (%)	57.5	65.4	n/a
Veteran (%)	29.9	4.8	15.8
Disabled (%)	47.0	15.1	24.2
Previous Shelter Stay (%)	14.6	23.5	n/a

N/A = data not available.

Analysis

The performance management paradigm broadly seeks to identify anomalies in program performance that cannot be explained by the natural variation in metrics. It then focuses on the negative anomalies to find problems that may need to be addressed and on the positive anomalies that may provide clues on how to improve performance. This search for anomalies can take on many forms and search down many paths, but the performance management paradigm offers a rich tool kit of methods, borrowing extensively from descriptive, exploratory, and inferential statistics, for presenting and analyzing data. Once anomalies are identified, managers are then guided to investigate likely reasons for the anomalies through root cause analysis and other analytic heuristics and to develop and test improvement strategies based on the root causes of identified issues (Cole, 2011).

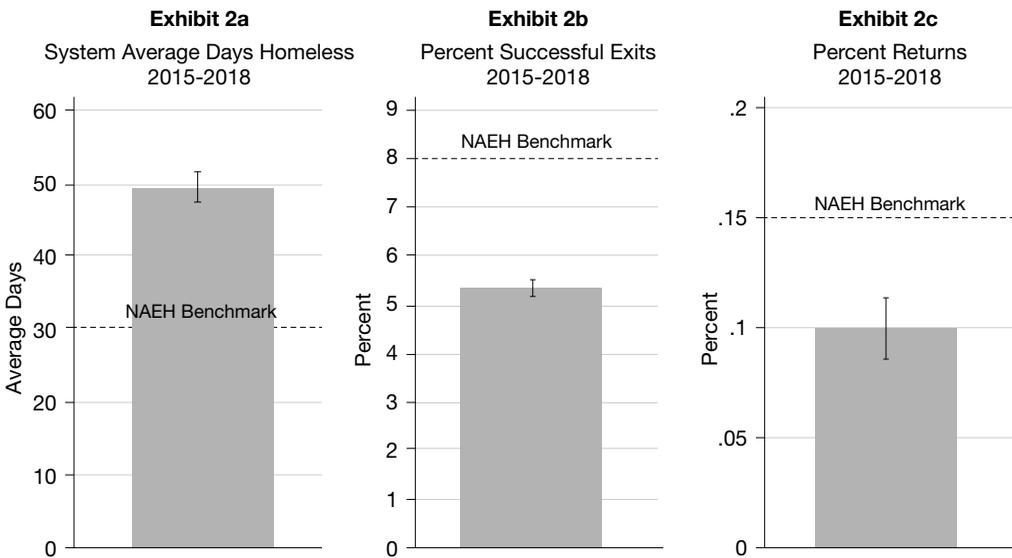
This article focuses on a subset of performance management's analytic tool kit that is most commonly employed. It begins with benchmarking, the comparison of performance metrics with standards that have either been established externally or internally through strategic planning. It then turns to the use of control charts, a common technique that examines performance variations over time to assess whether a process is controlled, in a statistical sense, or not. It then continues the search for anomalies by expanding these comparisons across time and between subunits (for example, program providers), two of the most common comparisons employed in performance management (Behn, 2014). Then the analysis introduces process mapping, which tracks the steps through which clients proceed when enrolled in an RRH program. Once these steps are identified, metrics to evaluate the performance of each step are identified to analyze the entire program process. Based on these performance analyses, estimates of potential performance improvement are developed based on the reasonable corrections that can be made to program performance.

The analysis begins with benchmarking Sacramento’s performance with the standards set forth by NAEH. These comparisons are based on all program enrollments that began on or after January 1, 2015, and ended before May 30, 2018. Later exits are excluded to ensure that all records have a full year’s worth of data to track returns to homelessness. The results are presented in exhibit 2.

The dashed lines in each graph represent the NAEH benchmark targets, and the whiskers on the top of each bar represent the 95 percent confidence interval for the sample mean or proportion. Sacramento only meets one of these three benchmarks, “returns to homelessness.” The average time to housing of almost 50 days is nearly 66 percent longer than the 30-day benchmark, and the percent of clients that exit to permanent housing placements is less than 55 percent, far below the 80 percent benchmark. The percentage of returns to homelessness, on the other hand, is below the benchmark of 15 percent.

Exhibits 2a–c

Comparisons to National Alliance to End Homelessness Benchmarks



NAEH = National Alliance to End Homelessness.

These results are cause for concern. Although most clients who exit into permanent placements appear to remain stably housed, Sacramento’s system takes a longer than expected time to find permanent housing for RRH clients, and fewer than expected clients are stably housed when they exit the program.

The insights that are drawn from these benchmark comparisons, nevertheless, are limited. As NAEH recognizes, their benchmarks may not be appropriate for all communities. In their review of early results from RRH programs, Shinn and Khadduri (2020) found that many programs did meet these benchmarks or came close. Nevertheless, Sacramento’s performance may be the result

of particular regional or historical characteristics that hamper the effectiveness of RRH, rather than issues with the system itself. Thus, further investigation of the root causes of these performance deficits is warranted to test the degree to which these deficits can be connected to the operations of Sacramento RRH programs and, if that is the case, to identify areas in which improvement strategies should be targeted.

Control Charts. The next step is to examine the control charts for these three key performance metrics. These charts graph metrics over time and compare them to upper and lower control bounds that are based on the natural variation of outcomes. There are many versions of control charts, but here, we employ basic ones that set the upper and lower control bounds at three standard deviations above and below the mean. The goal of these charts is to provide a clear, visual evaluation of whether a process is under control or whether there are outcomes that are so far outside of the norm (for example, more than three standard deviations from the mean) that they require immediate attention.

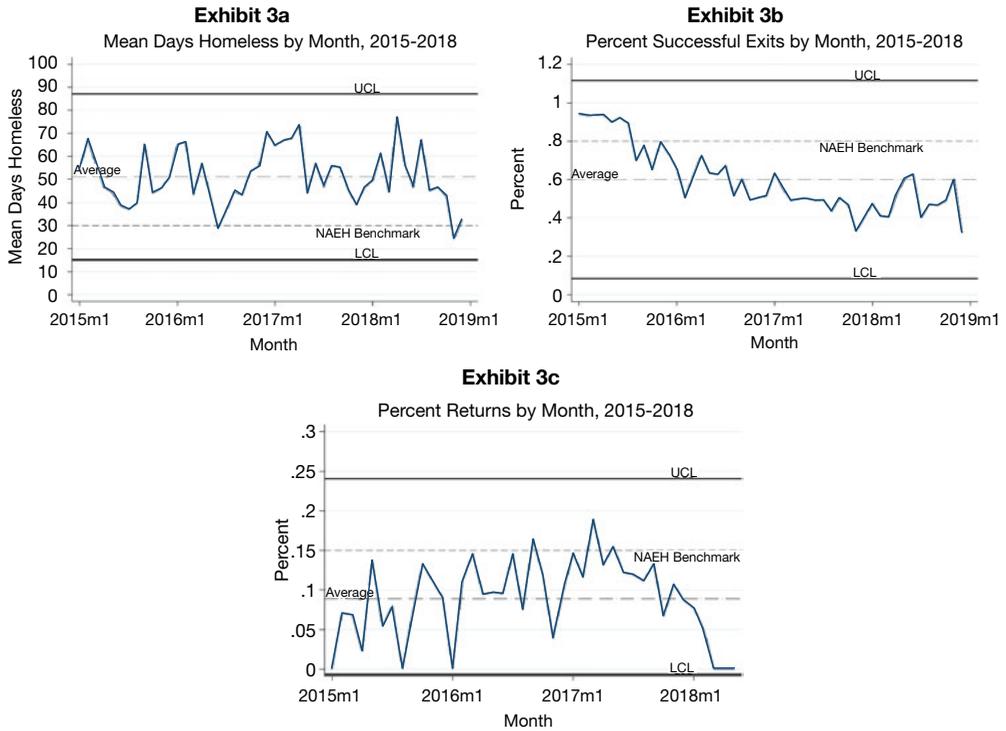
The control charts from the three NAEH metrics are presented in exhibits 3a to 3c. The short-dashed line is the outcome for the cohort of clients entering RRH programs each month. The long-dashed lines with dots are the average outcome, and the thick black lines present the upper and lower control limits.² The NAEH benchmark for each metric is shown as a short-dashed line. In all three cases, outcomes are considered stable from a statistical perspective because in no month does the measure cross the upper or lower control limits. Nevertheless, the control charts do reveal problems. For the days in the program prior to being housed, the average number of days is far above the 30-day benchmark, and in only 2 months does the system meet the benchmark. For the percent of clients exiting to stable housing, the system did briefly meet the benchmarks in early 2015, but since then, performance has steadily declined.

The analysis of returns to homelessness is more nuanced. Exhibit 3c indicates that the rate of returns is typically below the NAEH benchmark except for a few months in late 2016 and early 2017. It appears, nevertheless, that the percentage of returns was trending upward until the beginning of 2017 and has since trended down strongly. There are, however, two major caveats that need to be considered. First, the results for April and May of 2018 are based on clients that enrolled RRH in those months and exited by May. These fast exits are biased toward clients that have greater resources that enable them to find stable housing on their own, which makes the lack of any returns less noteworthy. Second, unlike the other two control charts, this one ends in May of 2018 instead of extending throughout the year because of the need for a full year of data to determine whether a return has occurred.

² When the lower control limit is negative, it is set just below zero.

Exhibits 3a-c

Control Charts for National Alliance to End Homelessness Benchmarks



m1 = January. NAEH = National Alliance to End Homelessness. UCL = upper control limit. LCL = lower control limit.

Although returns to homelessness remains an important metric and it has been the primary metric employed in evaluations of RRH (Brown et al., 2017; Byrne et al., 2016; Rodriguez and Eidelman, 2017), this feature of the metric limits its usefulness for ongoing program management because it reflects relatively dated program performance. The average length of stay in RRH is about 155 days. Adding that program stay to the 365-day projection required to determine whether a client has returned to homelessness means that this metric is primarily reporting on program performance for clients that enrolled almost a year and one-half prior to the analysis. Any performance issues that the metric may signal may no longer be relevant to current management decisions.

On the other hand, examining the returns metric in conjunction with the successful exit metric demonstrates the value of taking multiple perspectives on program performance. As the successful exit rate declined through 2017, the returns to homelessness also decreased, suggesting that the clients that did find stable housing had a greater capacity to remain housed. Conversely, as a community works to improve their rate of successful permanent housing placements out of RRH, managers would need to check the returns metric to ensure that their efforts to increase successful exits did not lead programs to the exit of clients who were not prepared to maintain housing on

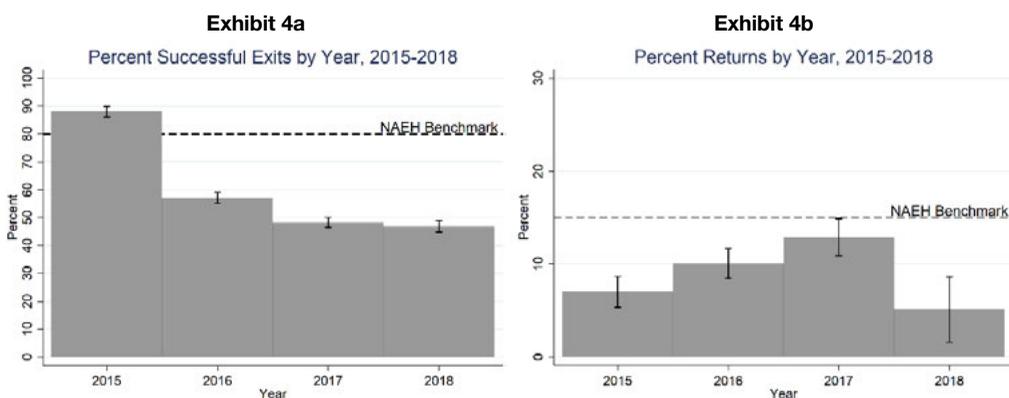
their own and therefore were more likely to return to homelessness. In this way, the two metrics work in conjunction to provide checks on such unintended consequences.

Comparisons Over Time. To further investigate the significance of the trends observed in the control charts for successful exits and returns, exhibits 4a and 4b show the average rates for the four cohorts enrolling in RRH in each of the years 2015 to 2018. In these bar charts, the confidence intervals are adjusted such that visual inspection of the overlap between confidence intervals is a valid statistical test (Goldstein and Healy, 1995). When the confidence intervals overlap between 2 years, one cannot reject the null hypothesis at the 5-percent level of significance that there is no difference between the years.³ A key goal of performance management is to only focus on performance anomalies that cannot be explained by the normal variation in performance, making normal hypothesis testing of group differences essential. Presenting these differences in bar charts with confidence intervals facilitates the communication of these tests to a broader audience.

Exhibit 4a shows clearly that there has been a deterioration in the percentage of clients with successful exits from RRH programs. In 2015, Sacramento met the NAEH benchmark, but the success rate tumbled to 57 percent in 2016 and experienced a further, statistically significant decrease in 2017 and 2018. Returns to homelessness in exhibit 4b provides some additional nuance beyond the control chart. Sacramento achieved the NAEH benchmark in all years, although the rate did increase by a statistically significant amount between 2015 and 2017. The year 2018 saw a large decline but also has a large confidence interval due to the smaller number of exits in 2018. Thus, although the rate in 2018 is statistically significantly lower than 2017, it does not differ from the other years once the margin of error is taken into account. In sum, positive changes may have occurred in 2018 that enabled RRH clients to retain housing, and although the evidence remains weak, further investigation may be warranted.

Exhibits 4a and 4b

National Alliance to End Homelessness Benchmarks by Year



NAEH = National Alliance to End Homelessness.

³ When comparing just two groups, the confidence intervals can be adjusted exactly to yield accurate hypothesis tests. When a data visualization includes multiple groups, the adjustment is averaged over every pair-wise comparison. Consequently, there are comparisons for which the significance level is slightly higher or lower than 5 percent.

In sum, the performance of RRH is stable in a statistical sense. Nonetheless, in terms of successful exits, the performance has deteriorated in recent years. The next step is to investigate the possible causes of this deterioration.

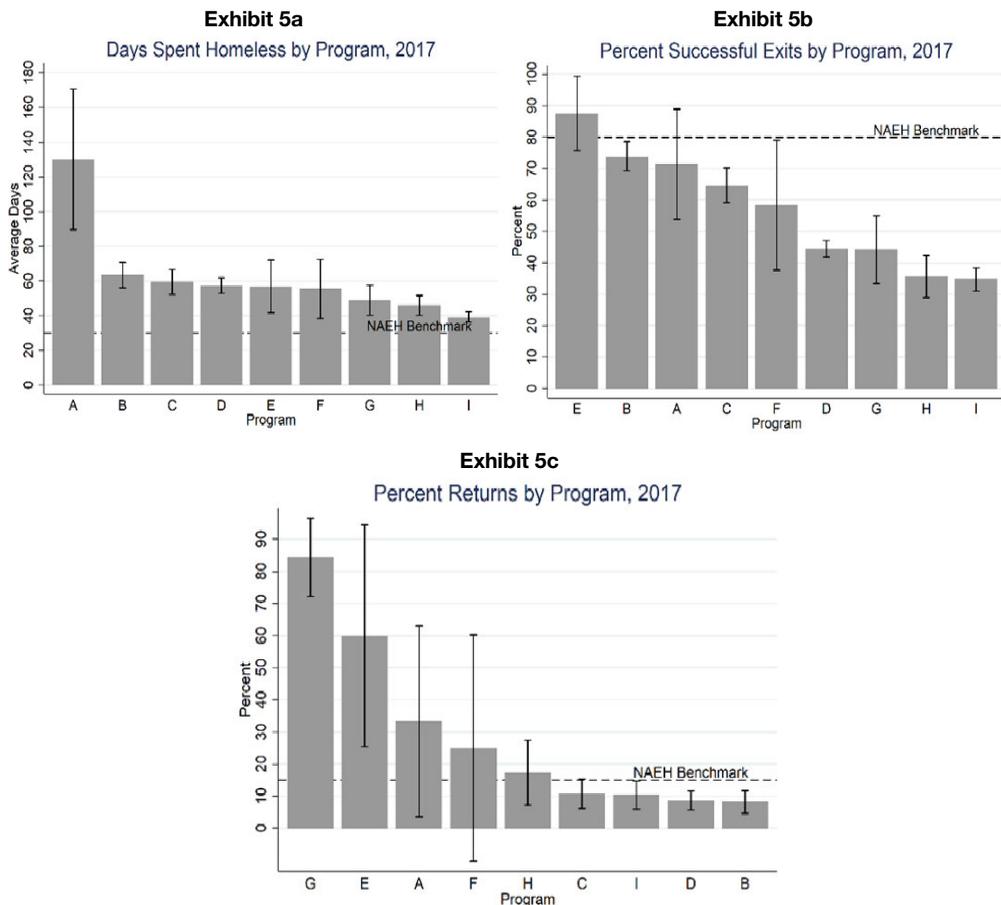
Program Comparisons. One tactic for investigating the root causes of observed performance deficits is to compare performance across subgroups within a system. RRH programs in Sacramento have been provided by 16 different providers, although not all have been active all years. This analysis focuses on 2017 data from nine programs that have been active in 2015 through 2018 and have served on average at least five clients per year. The comparisons are presented in exhibits 5a–c.

These charts begin to provide more useful clues on where performance improvement efforts should be focused. First, though, it is important to note two caveats that arise as the analysis examines ever more narrowly defined subgroups. First, as seen in the charts in exhibit 5, the estimates of the group means become significantly less precise and have much wider confidence intervals compared to previous graphs. This issue arises because point estimates from smaller samples have larger standard errors. These errors limit the distinctions that can be drawn between subgroups. For example, in exhibit 5a, the average days of homelessness for programs B to I vary widely from 63 to 39 days. Considering the overlaps in confidence intervals though, the average performance of programs B through G cannot be distinguished because of the large standard errors in the estimates. Similarly, programs E through I cannot be distinguished. Second, as the number of subgroup comparisons in the analysis increases, the probability of incorrectly identifying performance differences where none exists (for example, Type I errors) increases dramatically (Ioannidis, 2005). This multiple testing problem is well understood in evaluation research (Miller, 2012), although it does not feature prominently in the performance management literature.

Acknowledging these limitations, exhibit 5a provides two potentially important insights about days to housing. First, no program meets the NAEH standard of 30 days of homelessness prior to moving into housing, with most hovering between 45 and 55 days. This consistent level of performance indicates that managers may face challenges in efforts to achieve NAEH benchmarks. There are no existing examples of strong performance over time or across programs that could provide a model method by which the system could identify housing and move clients more quickly. Rather, managers will have to develop and implement wholly new strategies to address this problem.

Exhibits 5a-c

Comparisons of Program Performance, 2017



NAEH = National Alliance to End Homelessness.

Second, the data do point out a possible problem in program A. Clients in that program take a significantly longer amount of time to find housing, over 130 days on average, and the fact that the confidence interval does not overlap with any other confidence intervals indicates that this level of poor performance cannot be attributed to random variation.

Exhibit 5b demonstrates that there is much great inter-program variation in terms of successful exits. Program performance ranges between 87.5 percent of clients being placed in stable housing to less than 35 percent. Although the width of the confidence intervals indicates that there is much uncertainty with these data, there are stronger and poor performers. Programs E, B, A, and C constitute a group of higher performers, and programs D, G, H, and I are performing less well. It is less certain how well program F is faring in comparison because its confidence interval overlaps both high and low performing programs.

Exhibit 5c shows a similar division of programs between high and low performers in the term of returns to homelessness. Four programs (C, I, D, and B) meet the NAEH benchmark of 15 percent or fewer clients returning to homelessness. Two programs (G and E) have significantly more of their clients who fall back into homelessness, whereas the results for three programs (A, F, H) are too uncertain to determine whether they should be classed with the higher or lower performing programs.

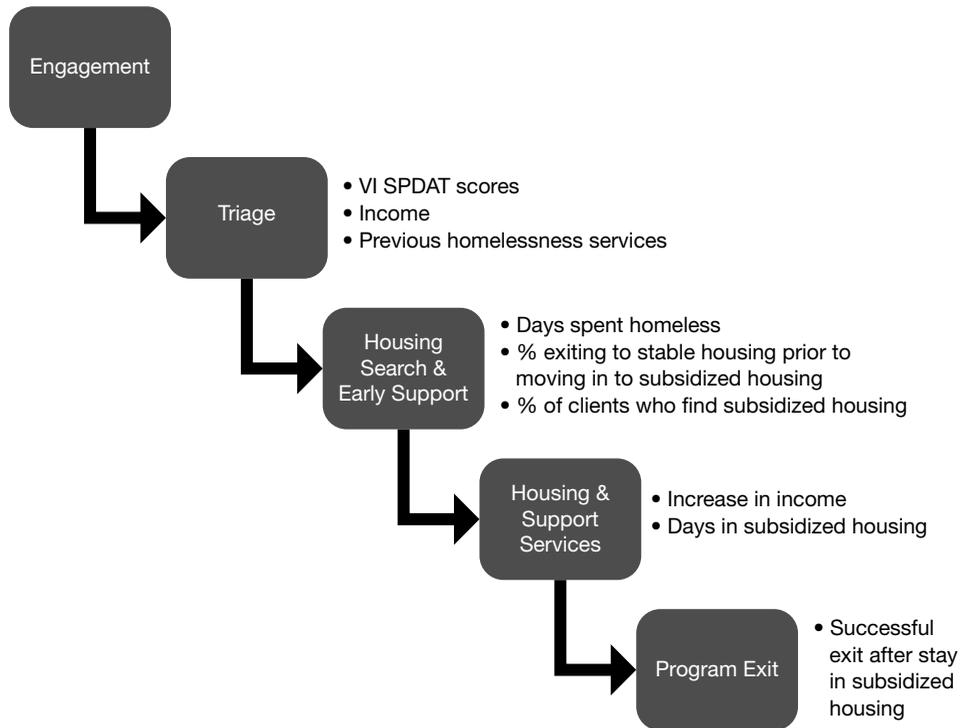
These comparisons begin to reveal potential strategies for performance improvement by distinguishing areas of strong and poor performance. The poor performers, such as program A in terms of length of time spent homeless or program G that combine low rates of successful exits and a high rate of returns, need attention to see if their poor performance can be improved. Program E reports very high rates of successful exits, but also has the second highest rate of returns, which indicates a possible issue that this provider exits its clients too quickly or is overly optimistic concerning the permanence of their placements at the time of exit. Also, programs that are faring better, such as programs B and C that combine relatively high rates of successful exits and low rates of return, can be further examined to determine whether they employ specific strategies that can and should be replicated by lower-performing programs.

Process Mapping. Process mapping is a technique commonly employed in performance management analyses to identify the root causes of high or low performance, and HUD has recommended its application for managing RRH programs (HUD, 2014). It involves mapping out the steps of helping clients within RRH programs and identifying metrics that can be used to assess the performance of each step of the process. The goal is to identify whether any specific steps are leading to overall problems and to determine whether the process is working well as a whole. Specifically, given the analysis that shows that performance has deteriorated, these metrics can assess which if any steps in this process have functioned more poorly over time.

Exhibit 6 presents a basic description of the RRH process.⁴ At each step, metrics that can be calculated based on HMIS data are proposed. Other metrics based on HMIS data are possible and, with additional data gathering, a CoC could implement still others.⁵ Nevertheless, this list provides a useful first-cut analysis of the process. Clients begin the RRH program by first engaging in the homelessness crisis system. Then there is a triage process by which clients that are well suited to benefit from RRH are referred to an RRH provider. Once clients are enrolled in RRH, they are provided with a range of services. Caseworkers may engage in diversion practices that seek to identify solutions to a client's homelessness that does not require a stay in subsidized rental housing. They are also offered help with housing identification and leasing and other social services. Once they identify and occupy a subsidized housing unit, social services continue to strengthen the client's ability to live independently after the program is completed. Finally, clients are exited from the program.

⁴ Sacramento has not fully implemented a centralized coordinated entry system. Thus, not all RRH clients enter the program in the same manner. Some are referred directly into RRH, whereas others may be referred to RRH through emergency shelters or street outreach caseworkers. These steps still provide a rough guide to the process.

⁵ Often, process mapping analyzes the time required for each step in the process to identify bottlenecks. In a system with a fully developed coordinated entry system, such time markers can be collected with the dates of evaluation and of referral actions. Unfortunately, these data do not have these timestamps.

Exhibit 6**Process Map and Relevant Metrics**

VI-SPDAT = vulnerability index–service prioritization decision tool.

For the triage stage, the metrics examine whether appropriate clients are being sent to the RRH program. RRH is a short-term program that assumes that clients will be able to remain housed independently at the end of the program. Thus, it targets clients that have no more than a medium level of vulnerabilities and demonstrate the capacity to earn enough to afford housing in the long run. Three metrics are available. The first is the client's VI-SPDAT score (Vulnerability Index–Service Prioritization Decision Tool), which is a commonly used instrument to rate the health, medical, and social vulnerabilities of clients. The scores range between 0 and 20, with higher scores indicating a higher level of need. There are slightly different instruments for transition-aged youth and families. Thus, all scores are standardized to make them comparable. The second is an indicator of whether the household had any income at the time of enrollment. The third is whether the client had previously been enrolled in an emergency shelter or street outreach. Previous bouts of homelessness may indicate that the client is more vulnerable, and previous research has shown that previous episodes increase the risk of a return to homelessness (Byrne et al., 2016; Rodriguez and Eidelman, 2017). The metric employed here counts any previous enrollment in an emergency shelter or street outreach as experience with homelessness. This specific metric differs from Rodriguez and Eidelman (2017) in that it includes street outreach and differs from Byrne et al. (2016) in that it does not include other contacts with the Veterans Administration. Including street outreach enrollments in this metric has a major impact. Exhibit 1 shows that 14.6 percent of RRH

clients had a previous shelter stay. In contrast, when one examines both shelter and street outreach enrollments in 2018, almost 80 percent of RRH clients had been previously homeless.

To assess the quality and effectiveness of housing search and early support services, there are three metrics. The first is the number of days until housing is secured. This metric is similar to the NAEH benchmark, although it is restricted to clients who do find subsidized housing. The second is the percentage of clients that exit the program into stable housing before receiving subsidized housing. This metric captures the effectiveness of diversion services that may be provided. The third metric is the percentage of households that find and move into a rental property through their RRH program. Ideally, information on the range of services and the amounts of cash supports provided to each client would be telling. Although these data are recorded, the quality of these data was not sufficient to include them in the analysis.

Once housed, RRH seeks to help the client prepare for life on their own. One goal is to increase their income, and another is to move them to self-sufficiency as rapidly as possible, which is tracked by the length of time spent in subsidized housing. Finally, at the time of exiting the program after receiving the full suite of services, a metric is the percent of clients who exit into stable housing (this percentage only includes clients that have moved into a rental through their RRH program).

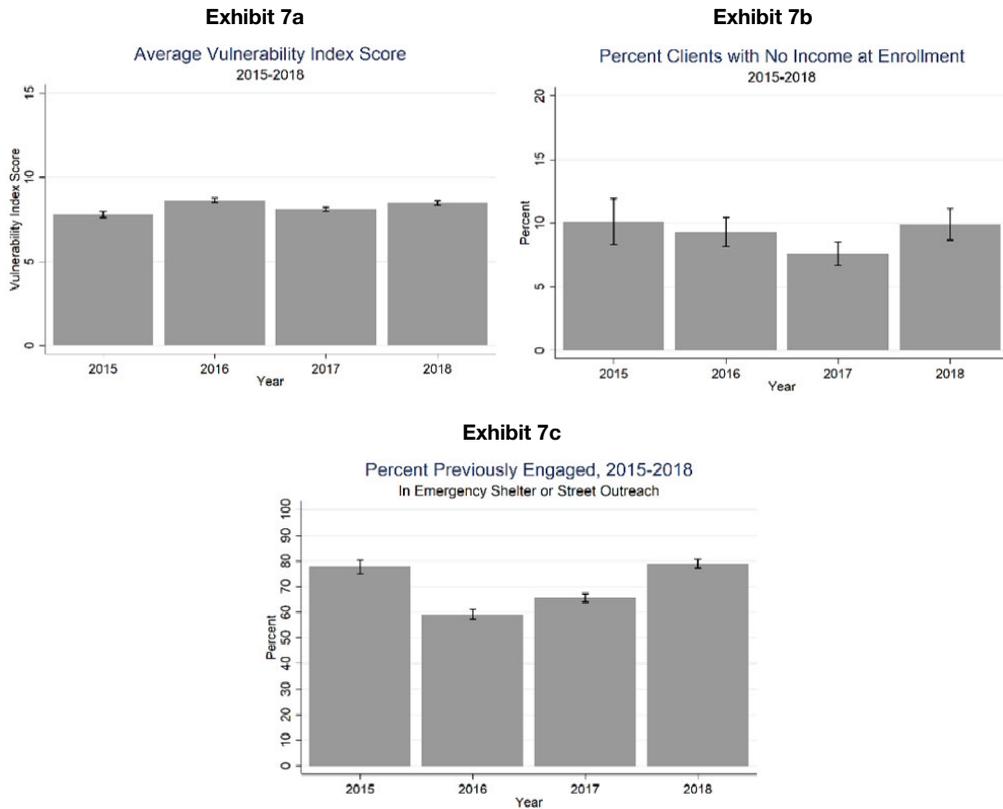
To assess whether the deterioration in performance in exits to stable housing may be attributable to specific steps in the program process, we examine the trends of these process metrics over time, examining whether issues have arisen that correlated with the decrease in successful exits. Exhibit 7 presents the changes of metrics in the triage step to check whether the triage process has been referring more difficult to serve clients to RRH. The evidence suggests that that has not changed. Exhibit 7a shows that the average VI-SPDAT scored has changed little over the 4 years, ranging between 7.8 and 8.6 on the 20-point scale. Similarly, exhibit 7b shows that the proportion of clients with no income at the start of the program remained steady at about 10 percent. There was a statistically significant, although small, increase in the proportion of households with no income between 2017 and 2018, but the proportion in 2018 does not differ from earlier years. In contrast, there is an indication in exhibit 7c that the proportion of clients that have previously experienced bouts of homelessness had increased from 2016 to 2018, although the 2018 percent was the same as in 2015 when program performance was stronger. The consistently high percentage of households that have previously experienced homelessness, nevertheless, is possibly a sign of system-level difficulties. Under housing first principles, RRH programs are intended to engage clients early in their experience with homelessness and to provide them housing quickly to avoid the accumulation of problems that arise from homelessness. These data, however, indicate that Sacramento is only engaging clients in RRH after they have struggled with housing instability for a longer period.

Exhibit 8 shows the metrics for pre-move-in services to assess whether there are any problems with the services provided to households early after program enrollment. Two metrics (exhibits 8a and 8b), the number of days until move in and percent housed prior to moving into a rental subsidized by the RRH program, show little change over time and are unlikely to be the root causes of decreased performance. The decrease in the percent housed without RRH subsidies in 2018 is likely due to data truncation caused by the shorter time some of these households have been

enrolled. In contrast, the percentage of clients that do find housing after enrolling in RRH has declined sharply over the years, from 78 percent in 2015 to 38 percent in 2017 and 2018. This is an anomaly that requires further investigation.

Exhibits 7a–c

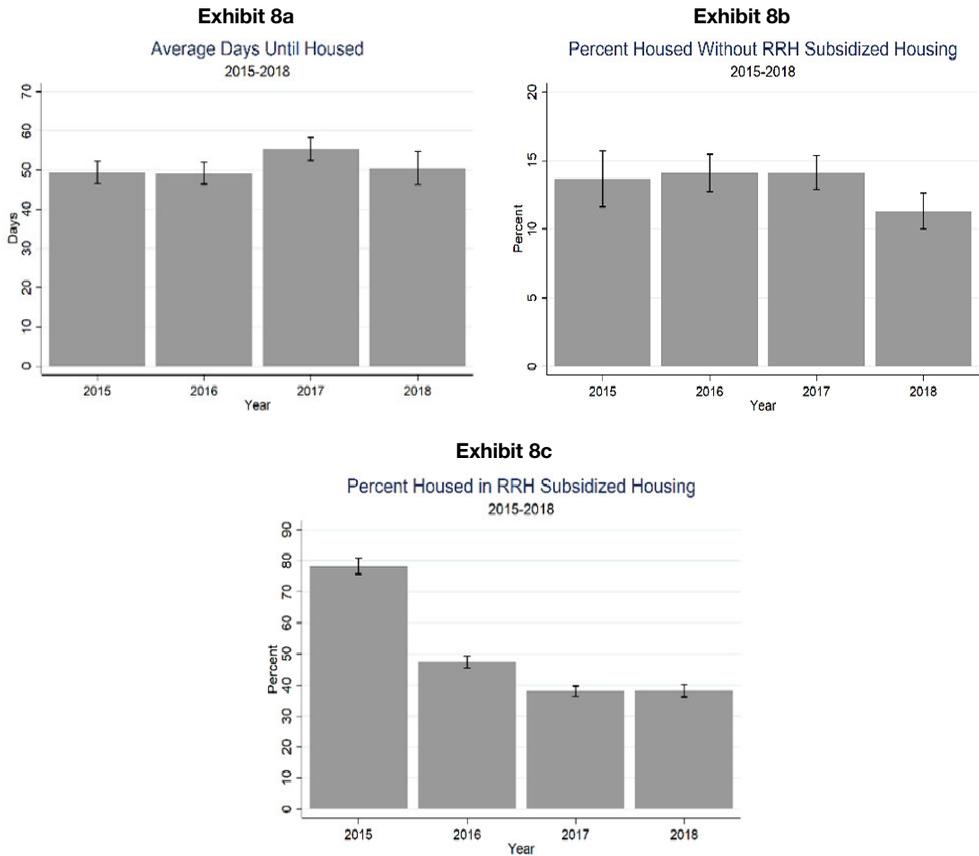
Triage Process Metrics



First, though, we examine the metrics for services after the client is placed in housing and upon exit. Exhibit 9a shows that for the subset of clients that do move into subsidized housing, success rates have been steadily at or above 90 percent over time. As seen in exhibit 9b, they have averaged about 180 days in subsidized housing from 2015 through 2017. The much lower number for 2018 is due to data truncation, in which clients that enter later in the year did not have time to complete the program and have their stay recorded in these data. The percentage of clients that increase their income shown in exhibit 9c, in contrast, is another source of concern. The percentage of clients that increased their income during the program dropped from 20 percent in 2015 to less than 8 percent.

Exhibits 8a-c

Early Program Services Metrics



RRH = rapid re-housing.

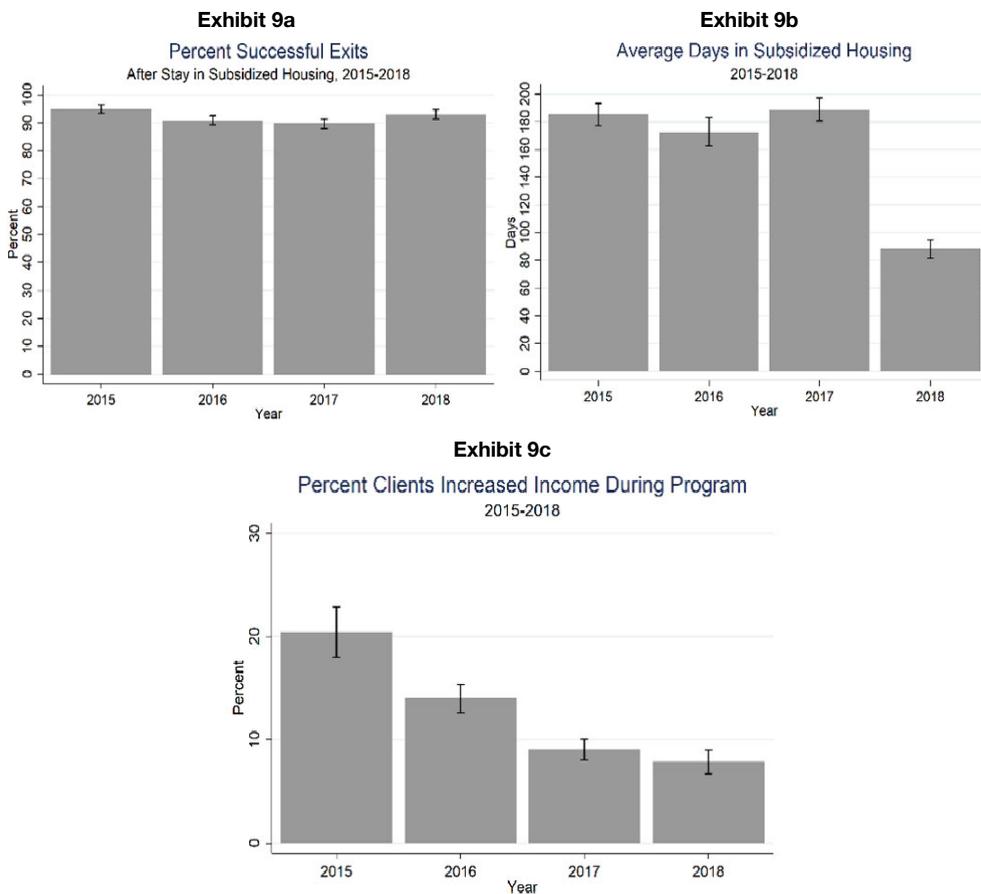
In sum, the review of the program process pointed out two issues that require attention. The first is that an increasing proportion of clients fail to find a housing option even after they are enrolled in the program, and that the program is not providing sufficient help to clients to enable them to increase their earning potential and afford housing on their own once the program is completed.

To delve deeper into the root causes of these process issues, comparisons between providers over time can be made. Unfortunately, not all providers operated in all years, and some had less than five clients in a year. Thus, exhibit 10 focuses on the five providers with sufficient data (Providers B, C, D, H, and I in previous graphs). Looking at successful move-ins, a clear distinction is seen between three providers (D, H, and I) that have had increasing problems finding housing for their RRH clients compared to two others (B and C) that have consistently performed better than D, H, and I since 2016. In terms of the percent of clients who increase their incomes, a similar pattern emerges. Although all programs are only able to increase

the incomes of a minority of their clients, two programs, B and C, sustained higher levels of performance. Program C consistently achieved desired outcomes for between 25 and 30 percent of its clients, and program B steadily improved its performance. In 2018, they both approached or exceeded 15 percent, a benchmark employed by some continuums (Batko, Gillespie, and Gold, 2019). In contrast, programs D, H, and I, as with their performance in finding housing, experienced dramatic and consistent deterioration in the proportion of clients for whom they were able to increase their incomes.

Exhibits 9a–c

Post-Housing Program Services Metrics

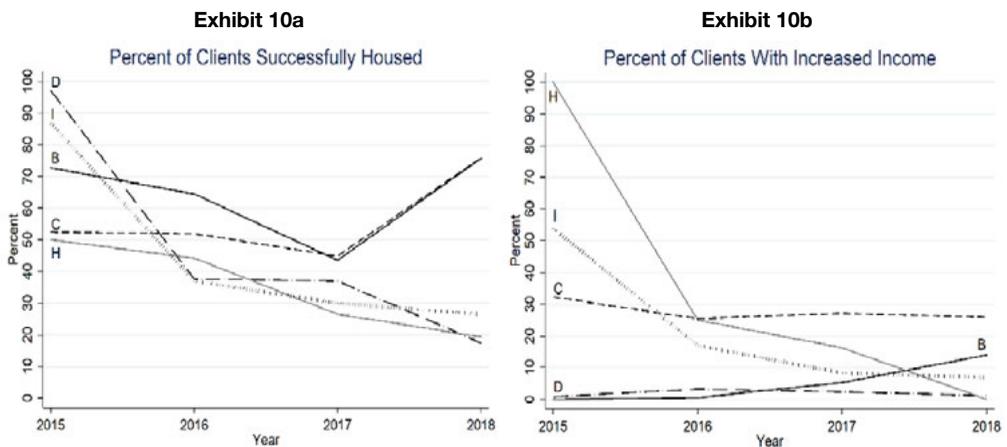


To summarize, the analysis followed a path delineated by the questions raised at each level of inquiry. First, significant performance deficits were identified through comparisons with NAEH benchmarks. The root causes of these deficits were further examined with control charts that indicated that, although the processes were in statistical control, the results for successful exits showed worrisome deterioration in performance over time. To examine the source of this

deterioration, comparisons between program providers were made that revealed significant variance in performance. Delving into the causes through process analysis placed further focus on issues related to successfully completing the housing search process and helping clients increase income.

Exhibits 10a and 10b

Outcomes by Program and Year



These insights provide useful and actionable insights for program-level and system-level managers. There is room to address issues with finding housing for RRH clients and for program supports that seek to increase clients' capacity to afford housing independently. Moreover, the analysis identifies three programs, D, H, and I, that deserve particular attention. NAEH and HUD have collated best practices for housing identification, including staffing, policies, and activities and case management (HUD, 2015; NAEH, 2016). NAEH suggests that programs should ensure that staff members are properly trained in housing identification services. Such training should ensure that staff progressively increase the supports provided in response to client needs and that staff set the subsidy level for rent at levels that enable clients to acquire a lease. It suggests that programs need to actively recruit and manage relationships with landlords. Strategies include signing master leases, guaranteeing short vacancy periods between tenants, and increasing the amount of security deposit provided. NAEH also recommends maintaining clearly defined relationships with employment and income programs to promote the capacity of clients to afford rent after program completion.

In a fully developed performance management system, managers would employ regular review meetings to focus on the poorly performing programs identified in this analysis. They could consult with program-level managers to compare their current practices to these best practices and develop appropriate strategies based on these comparisons. Once promising avenues are identified, system managers could work with program managers to implement these strategies and track their effectiveness through continued surveillance of the trends in performance metrics.

Prospects for Improvement

What is the potential magnitude for improved system-level performance if managers were to act on this analysis? To develop estimates, one needs to differentiate between two types of improvements: systemic improvements and error corrections. Systemic improvement moves the performance of an entire system to a higher level. Take, for example, a CoC with an average successful exit rate of 65 percent and in which no program in any year achieved higher than a 70 percent successful exit rate. For that CoC to raise its average rate to the NAEH benchmark of 80 percent would require systemic changes that increased the performance of providers beyond historical levels. Although this level of improvement is possible, it is challenging given that managers have no readily available models on which to build improvement strategies. Error corrections, in contrast, compare current performance to performance levels that have been achieved and seek to close the gap between current performance and past peak performance. The feasibility of these types of improvements is greater because the goals have been achieved previously in certain years and by certain programs, providing models to replicate.

Even with a more conservative focus on error correction improvements, the potential for improvements is significant. In this CoC, there have been programs that have met the 80-percent NAEH benchmark for successful exits. Thus, this goal is reasonable for the system as a whole. If programs were able to close one-half of the gap between their 2017 success rates and this benchmark, the number of clients stably housed would increase by 33 percent, from 747 to 995. Considering that HUD CoC grants have only increased at a 2.5-percent annual rate between 2010 and 2019, such performance improvements offer continuums a significantly greater avenue for increasing the program impacts compared to increasing budgets.

Discussion and Conclusions

The analysis presented here supports the contention that performance management can have significant positive effects on efforts to address homelessness in the United States. A guided search through performance metrics making comparisons over time and across subunits revealed weaknesses in program performance. Further process mapping then pinpointed the likely root cause of performance deficits as problems with identifying housing for program participants. Just partially closing the gap between low- and high-performing programs has the potential to improve overall program outcomes by between 30 and 40 percent.

The results also reinforce the findings of existing evaluation studies. As Rodriguez and Eidelman (2017) found that there is substantial variation in the performance of individual providers of RRH services, and the current analysis demonstrates how reducing the gaps between low and high performers can improve system-level outcomes. Also, the data presented here show that RRH can be an effective program. Certainly, in 2015, the year closest to the cohorts analyzed in the evaluation studies, the Sacramento program exceeded or came close to meeting the NAEH standards for housing placements and returns to homelessness. On the other hand, these data reveal a distinct decline in program performance from 2016 onward. These trends may be unique to Sacramento, given that its housing market has been impacted with particularly rapid increases in rents. Nevertheless, further study is warranted to see how pervasive these trends are especially

given the strong evidence that homelessness is strongly impacted by tight housing markets (Glynn and Fox, 2019; Quigley and Raphael, 2001).

The adoption of robust performance management regimes does involve risks. First, the insights derived from these analytic tools can suffer from issues of internal validity. Managers may misattribute performance differences to program features that are in fact due to extraneous factors. The use of confidence intervals limits the dangers of misidentification of problems. Also, ongoing assessment of strategic initiatives can root out strategies based on faulty assessments of the underlying problems. Performance comparisons, however, do not fully control for alternative explanations for observed performance deficits such as differences in client characteristics and environmental factors. Future work could focus more on controlling for confounding factors through propensity score matching or other statistical controls. Nevertheless, the use of real-time programmatic data in performance management limits the use of random treatment assignment to control for differences in clients and environmental conditions. Consequently, performance management systems cannot replace rigorous program evaluations that take care to isolate program effects.

Second, as performance management systems strive to increase accountability and improve resource allocations, they create incentives to game the system either by cream-skimming, where programs boost outcomes metrics by enrolling easier to serve clients while turning away individuals who are less likely to succeed, or by outright distortion of reported data (Hood, 2006; Musso and Weare, 2020). Avoiding such perverse consequences requires deft management that emphasizes the degree to which performance management can lift the entire system to better achieve common goals over negative attention from rigid accountability. It is also important to maintain oversight over data quality to detect any issues in reporting.

These results from Sacramento are also not generalizable. The particular performance issues found in these data would not necessarily be found in other communities, and each community is likely to have its own set of idiosyncratic issues with program operations. In contrast, the methods pursued in this analysis, the process of broadly searching for performance outliers and then seeking to understand their root causes, can be replicated. The search for performance deficits will likely lead down different paths for other CoCs, and there may well be CoCs that meet or exceed NAEH benchmarks, leaving little room for improvement. Nevertheless, the magnitude of potential performance improvements, in this case, suggests that the opportunities for improvement in other CoCs are significant.

The main policy recommendation arising from this analysis is simply that more systems need to apply these analytic tools to the management of homelessness programs. HUD's development of Stella models is a major step forward in this process. Given that CoCs frequently lack expertise in data extraction and analysis, the Stella models provide decisionmakers powerful tools while avoiding imposing heavy data analytic costs on CoCs. On the other hand, there are limitations to the Stella model. It provides a specific set of analyses focused on subpopulations and pathways through the homelessness crisis system. The analysis presented here, in contrast, highlights the importance of analytic flexibility. Problems may pop up in multiple components of specific programs or a system as a whole. Thus, a broad approach that examines multiple key performance

indicators is more likely to identify areas of concern. Then, a search for the root causes of performance deficits requires a combination of views into the data, including control charts, comparisons across time and programs, and process analysis. The relevant analyses are not evident until data anomalies are identified, making it difficult to define analytic packages ex-ante.

A second recommendation is the need to develop administrative controls of homelessness programs that are capable of effectively responding to data-analytic insights. Performance management is as much an exercise in leadership as in analytics (Behn, 2014). Major examples of successful performance management reforms involved skilled and committed leaders that operated in environments with centralized executive control. These examples include police departments with their military-like chain of command and parliamentary governments in other countries, such as New Zealand and Great Britain, where the ruling party has greater control to implement management changes (Moynihan, 2008). CoCs, in contrast, are loosely connected coalitions of providers and funders that lack a unitary executive function. Managing such governance networks with a focus on key performance metrics is a challenge, but one that must be confronted if communities are to realize the potential performance improvements illustrated by this analysis.

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Departments

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- *Graphic Detail*
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Affordable Design

The U.S. Department of Housing and Urban Development sponsors or cosponsors three annual competitions for innovation in affordable design: The Innovation in Affordable Housing Student Design and Planning Competition; the American Institute of Architects – HUD Secretary’s Housing Community Design Awards; and the HUD Secretary’s Opportunity & Empowerment Award, co-sponsored with the American Planning Association. This Cityscape department reports on the competitions and their winners. Each competition seeks to identify and develop new, forward-looking planning and design solutions for expanding or preserving affordable housing. Professional jurors determine the outcome of these competitions.

2020 Innovation in Affordable Housing Student Design and Planning Competition: Camino de Jacobo in Santa Fe, New Mexico

Jagruti D. Rekhi

U.S. Department of Housing and Urban Development

The Jury:

Danielle Arigoni, Director of Livable Communities, AARP

Christie DeSanctis, Director, Business and Conventional Finance Policy

Kathleen Dorgan, FAIA, LEED-AP, Principal, Dorgan Architecture and Planning

Rob Hazelton, CEO, Dominion Due Diligence Group

Elizabeth Plater-Zyberk, FAIA, LEED AP, Professor of Architecture and Director of the Master of Urban Design Program, University of Miami

Joe Ventrone, Vice President, Federal Policy and Industry Relations

Winning Team: Yale University, New Haven

Helen Farley

Kelley Johnson

Eva Leung

Jackson Lindsay

Runner-Up Team: University of Maryland, College Park

Sam Bohmfalk

Margaret Curran

Tochi Ohakawa

Shayne Piltz

Andrew Walker

The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. Government.

Introduction

The seventh annual HUD Innovation in Affordable Housing (IAH) Student Design and Planning Competition challenged multi-disciplinary graduate student teams to respond to an existing affordable housing design and planning issue. The IAH Student Design and Planning Competition is open to graduate students in architecture, planning and policy, finance, and other disciplines. The competition challenges the students to address social, economic, and environmental issues in responding to a specific housing development problem identified by a partnering public housing agency (PHA).

The overarching goal is to advance innovation in the design of affordable housing. The competitors' plans and designs must address the issues outlined by the PHA. The designs should identify improvements that could be implemented at the site, and the plans must promote durability, reduce energy consumption, increase the quality of housing, and enhance the social and economic vitality of the surrounding community.

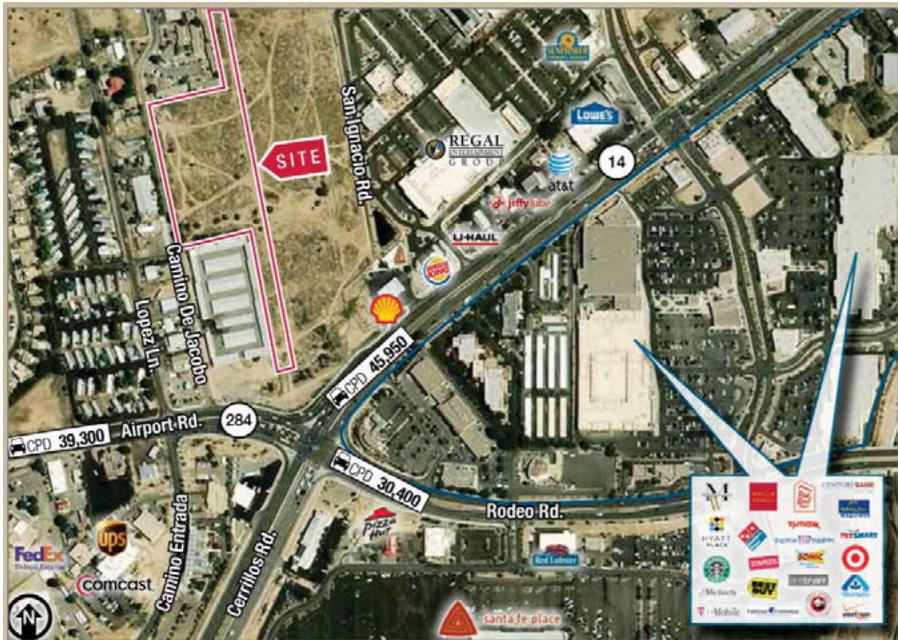
For the 2020 challenge, HUD partnered with the Santa Fe County (New Mexico) Housing Authority. Teams were challenged not only to innovate but also to preserve and celebrate the unique culture of Santa Fe. They were asked to design a new mixed-use development for low- and moderate-income residents, with a particular focus on expanding housing for women with children, with the usual planning constraints: zoning requirements, local economic conditions, financial feasibility, the built environment, and the larger social needs of the community. Executive Director, Joseph Montoya, envisioned a development similar to the Santa Fe city center, with a mixture of businesses, housing, and centers of faith all within the immediate area and consistent with an architectural heritage going back to the 1573 Law of the Indies promulgated by the King of Spain.¹

The County of Santa Fe purchased a vacant lot of 6.6 acres of land in the fastest-growing part of the city of Santa Fe, which has a very uncoordinated pattern of development in that area (see exhibit 1). The parcel also adjoins some infill sites and a commercial power center. The developer of the power center is working on zoning that will allow for more pedestrian-oriented, high-density mixed-use, and mixed-income residents. The land is zoned to allow for up to 29 units per acre, the highest allowable density in the city of Santa Fe. The Housing Authority would like to use low-income housing tax credits and other sources of capital to finance the development.

¹ <https://www.huduser.gov/portal/sites/default/files/pdf/The-Laws-of-the-Indies.pdf>

Exhibit 1

Site Location and Surrounding Area



Source: www.CPI.NM.com

The competition is designed in two phases. During Phase I, a jury of six practitioners (a planner, builder, realtors, finance specialist, and architects) evaluated the first-round proposals submitted by teams from 32 universities electronically. The jury selected four finalist teams from the 32 proposals to move on to Phase II of the competition. In Phase II, the finalist teams further refined their proposals—addressing complex issues, incorporating more detail, improving their design plans, and conducting additional analyses on the financing needed to create viable housing, following the site visit to Santa Fe. The site visit enabled the finalists to expand on their original proposal and submit a revised final project. Several weeks after the site visit, the original plan would have required the jurors and the four final teams to travel to HUD headquarters in Washington, DC, to present their plans and the awards ceremony. Due to the COVID-19 pandemic, the event was held virtually on April 16, 2020. At this event, finalist teams presented their revised project plans. Following the presentations, the jury selected the team from Yale University as the winner and the team from the University of Maryland, College Park, as the runner-up.

For this article, the winning student teams and members of the jury shared their thoughts about the competition. The students reflected on the biggest challenges the team faced and how they attempted to address them, opportunities to learn from mistakes, their concept of innovation, elements observed that provided value to the design of the project, and any tradeoffs that had to be made to get a feasible site plan. The Yale teams commented that their “team really tried to work together to create a complete design where the social, financial, and sustainable models all worked together to create a strong community fabric. It was through our many interdisciplinary

conversations that some of our best ideas came through.” Jurors commented that Yale’s project was “rooted in a communal lifestyle that can enrich the quality of tenants lives, and pays homage to New Mexico with its thoughtful integration of community at many scales,” and that the University of Maryland’s project design “provides social connection, stability, and support for some of Santa Fe’s most vulnerable community members.”

The Winning Team: Yale University

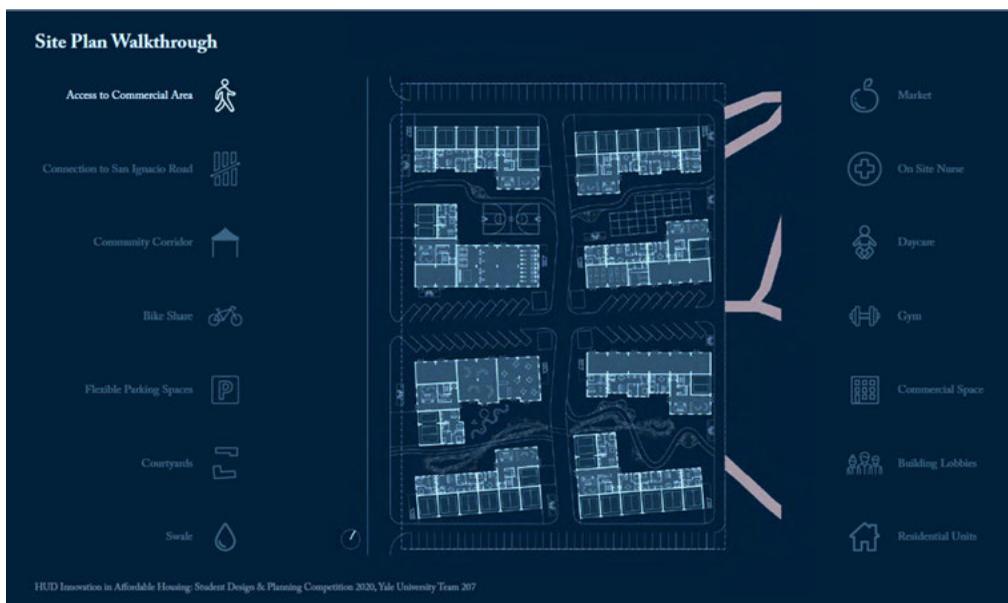
Helen Farley, Kelley Johnson, Eva Leung, Jackson Lindsay, and Miguel Mauricio

The award-winning site plan from Yale University, called *Jacobo Commons—Community at Many Scales*, would create 158 units, 62 percent of them affordable, with 10 percent of the affordable units reserved for households earning less than 30 percent of the area median income (AMI). The remaining 38 percent would be market rate. The total development cost of the project is \$44.4 million, \$245 per square foot, or approximately \$281,000 per unit.

The team’s design promotes communal living to enrich the tenants’ lives. They wanted their design to reflect the rich history of the indigenous people of New Mexico. Inspired by the pueblos, the project endeavors to develop a strong community among the residents and the surrounding neighbors by creating community paths providing access to the local shopping centers and neighbors (see exhibit 2). Team member Jackson Lindsay commented, “Our team really tried to work together to create a complete design where the social, financial, and sustainable models all worked together to create a strong community fabric.”

Exhibit 2

Overview of Jacobo Commons



Note: Some walkthroughs are highlighted on the right.

The design incorporates features to promote better health, economic, and environmental outcomes, such as including flexible spaces for work, community courtyards, community gardens, playgrounds, a gym, and daycare facilities. As a juror commented, *“The courtyard concept provides great integration of space, and community support spaces are distributed throughout the buildings along an access that makes the community more walkable and inclusive.”*

Outdoor Living: The design provides visual variety and open courtyards as inviting spaces while providing views out to the local mountains, especially the Sangre de Cristo range. The buildings themselves step down into the courtyards, replicating Pueblo architecture. The design would allow adults to supervise children at play in the courtyard from their windows (see exhibit 3).

Exhibit 3

Placement of the Courtyard at Jacobo Commons



Healthy Living and Connectivity: The public outdoor area consists of a series of active spaces, including a basketball court and playground. The paths (see exhibit 2) create connections to local walking and bike trails to the east and south of the site. The project features a community garden and dedicated space to host local farmers' markets. The paths would create access not only to the trail network in the adjoining lot but also to the cluster of retail stores across the lot. Two courtyards open up to the neighborhood off of the central axis, providing public recreation spaces for the surrounding families, and encouraging walking and biking to and from the site.

On the Environment: The team designed the hardscaped surfaces to be as porous as possible, with permeable pavers on the streets and a bioswale in the southern courtyards to help with stormwater retention and on-site filtration (see exhibit 4). The building uses solar energy for heat through the colder months, and in the hot summer months, window frames block solar rays. The Yale team kept Santa Fe's climate in mind in striving to achieve energy and water requirements on-site. The

jury was impressed with the green, energy-efficient construction with passive cooling, solar energy, and geothermal heating (see exhibit 5).

Exhibit 4

Jacobo Commons Water Drainage and Retention

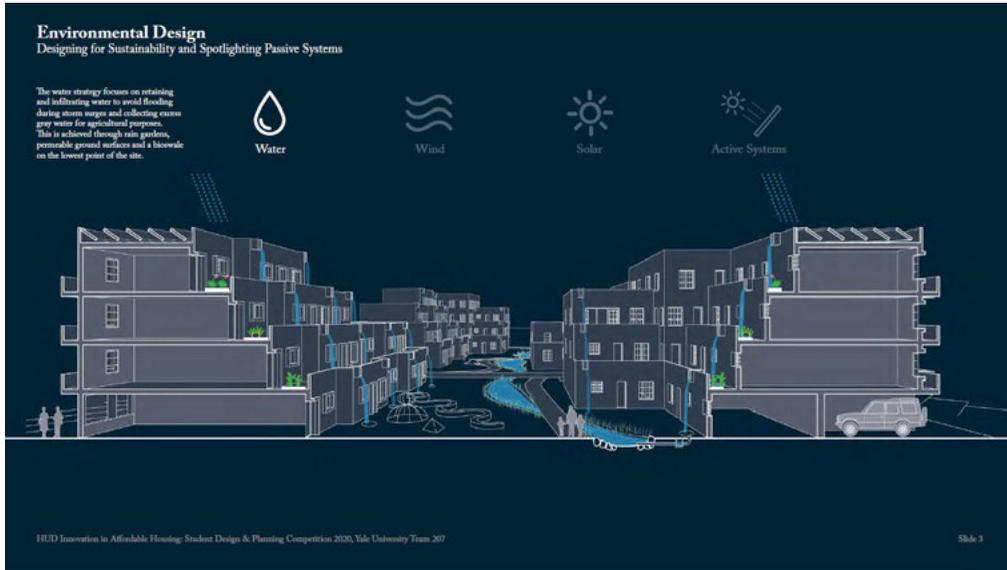
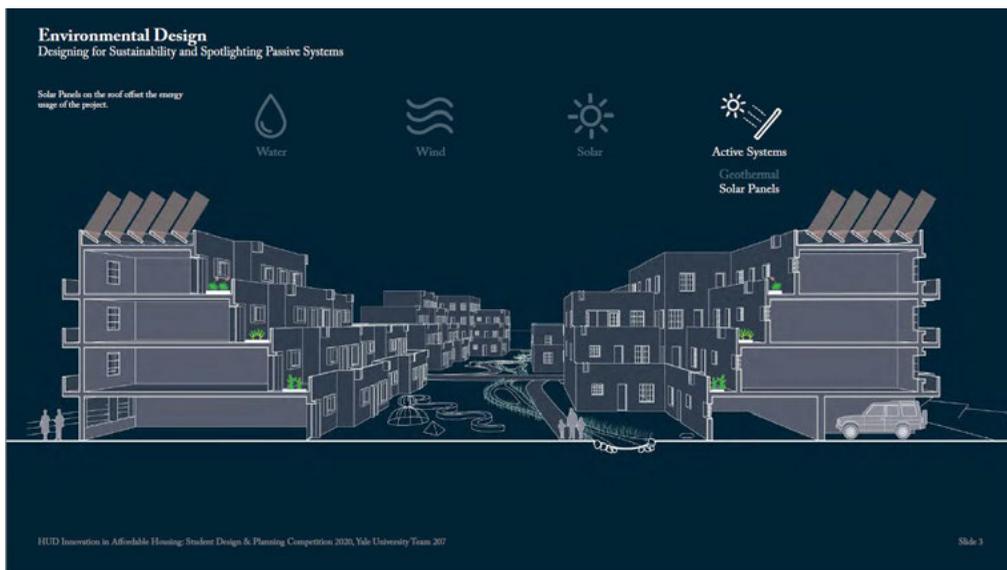


Exhibit 5

Jacobo Commons Building Solar Panels



On Innovation: The team opted for durable, sustainable, resilient adobe block and plaster construction materials, which resulted in a highly energy-efficient building with higher construction costs. They proposed master metering of the buildings to allow the housing authority to capitalize on the saving achieved. Head Juror Rob Hazelton was particularly inspired by the team's forethought, noting that the team "included a Year 15 exit strategy of converting portions of the property to a Limited Equity Co-op, providing a method for tenants to build sweat equity or pay-in over their resident tenure to achieve future homeownership." The team designed housing to allow for intermingling between different age groups, households, and incomes. In their final presentation, they noted that care was given to creating mixed housing so no one group— such as singles, households with children, elderly units, or market rent units—was isolated.

Jurors observed that Jacobo Commons would offer a blueprint for communities that place a strong emphasis on the preservation of local architectural traditions in places where people would want to live and retire, while adhering to the goal of extending housing options for residents regardless of income.

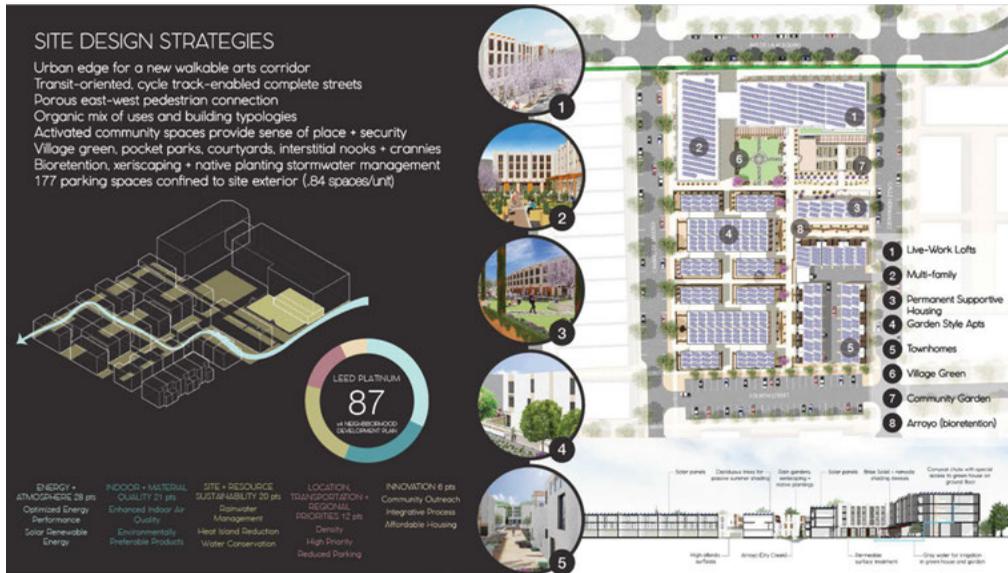
The Runner- Up Team: University of Maryland, College Park

Sam Bohmfalk, Margaret Curran, Tochi Ohakawa, Shayne Piltz, and Andrew Walker

The University of Maryland, College Park's *Nueva Acequia* was selected as the runner-up this year. Their development plan proposed a mixture of multifamily residences, townhomes, garden-style apartments, and permanent supportive housing for 210 units (see exhibit 6). The total cost of construction is \$47,338,693, or \$257 per square foot. The team proposal addressed three goals: (1) increasing the availability and affordability of housing, (2) extending a pathway to homeownership, and (3) reducing homelessness. Drawing from the Taos Pueblos tradition of shared irrigation systems, *Nueva Acequia* is designed with shared community resources to provide residents with economic opportunity, diversity, health and wellness, and sustainability.

Exhibit 6

Overview of Nueva Acequia Site with Building Typology



Source: University of Maryland presentation, April 16, 2020

The plan would establish an on-site wrap-around services center where residents could go to get assistance with job searches, health care, and homelessness prevention. Nueva Acequia would also provide flexible live-work units that can be used for work-live, live-live, or work-work, where families might also operate small businesses. The plan also includes space for both a youth education center and a daycare center with an enclosed outdoor play area.

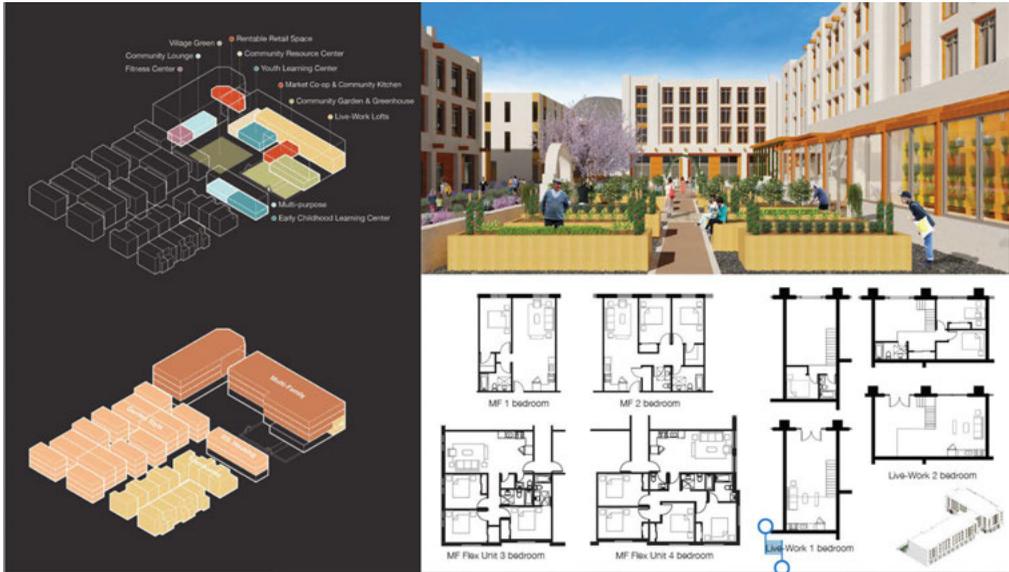
On Building: Nueva Acequia’s architecture merges contemporary design with the Pueblo tradition. The structures would be wood-frame with layered wood-and-stucco veneers. Production techniques would allow all buildings to achieve standards beyond the established International Energy Conservation Code. The project will use low-e windows² positioned to provide maximum sunlight, decreasing the use of lighting, and reducing the need for air conditioning.

On Health and Wellness: The community would feature both a fitness facility and a Green Living Center utilizing innovative indoor vertical farming techniques that save water and space (see exhibit 7). The center leads to a terrace with community garden plots available to the residents. The community is buffered on three sides by complete streets, prioritizing pedestrians over cars. The streets bridge the currently disconnected neighborhoods to the east and west. Head Juror Rob Hazelton congratulated the team on providing the community with a resident-only fitness center for the community, giving residents a way to maintain a healthy lifestyle.

² A low-e glass (or low emissivity) window is a windowpane coated in microscopic layers of metallic oxides, invisible to the naked eye. It allows natural light to come through while minimizing the infrared and ultraviolet (UV) rays from coming through. This controls radiant heat (infrared light) as it enters and leaves a room, keeping your house warmer in the winter by reflecting certain segments of the sun’s light spectrum back into the home, and cooler in the summer by reflecting particular sections outside.

Exhibit 7

Services Available at Nueva Acequia



Source: University of Maryland presentation, April 16, 2020

On Environment: The facility would have industrial composting to reduce waste. Solar panels and optimized building performance would lower the community's electricity costs by 55 percent. The landscaping further minimizes the impact on the environment by creating a stormwater-retention dry creek, fully permeable surface treatments, low water xeriscaping,³ and native vegetation.

On Financing: The community is financed with low-income housing tax credits (LIHTC) and mixed gap funding, including Rental Assistance Demonstration (RAD) conversion vouchers. The addition of RAD vouchers, in particular, is expected to increase the supply of affordable housing units and also include a diversity of housing types that will be made available to residents at various income levels. At 16 years, a portion of the units can be purchased by the tenants who have lease to purchase agreements. The homes will be available for purchase at an affordable price. Joe Ventrone, a juror representing the National Association of Realtors, remarked that he “loved the project's unit mix and financing package.” Collectively, the jurors felt that Nueva Acequia featured a sustainable design that included housing, studios, live-work space, fitness spaces, and community areas supporting seniors and young families alike. The team featured 14 townhouse condominiums, which in year 15 present potential homeownership opportunities for residents.

³ Landscaping that uses native, drought-resistant plants arranged in efficient, water-saving ways.

Thoughts from the Jury

Rob Hazelton, Danielle Arigoni, Christie DeSanctis, Kathleen Dorgan, Elizabeth Plater-Zyberk, and Joe Ventrone

The jury for the 2020 IAH Student Design and Planning Competition faced the difficult task of deciding which of the four outstanding student site plans best exemplified an innovative design. The members were asked specifically to consider how well the student teams successfully and convincingly addressed the following critical elements—

- If the proposed design is reasonable and feasible in its design and planning, demonstrating knowledge and understanding of codes and zoning.
- Whether the proposed design is resilient and environmentally responsive to local climate and site conditions (for example, healthy, energy efficient, water efficient, resource efficient, and low impact). Also, whether the proposal contains an economic life cycle analysis.
- If the proposed solution is affordable (cost effective to construct and operate).
- If the design innovates in a way that integrates the design into the neighborhood and community.
- Does the design promote social responsiveness, such as creating a sense of neighborhood or cohesive community, facilitating access to employment and services, addressing accessibility, demonstrating the opportunity for social networking, control, and comfort?
- Is the approach innovative in all aspects of the solution (for example, planning, design, construction, environmental concerns, and durability)?
- Is the design innovatively addressing the needs of singles and women with children?
- Were innovative approaches employed to integrate the design into the neighborhood and community?

The jurors found two of the four teams' proposals addressed nearly all of the issues discussed above clearly and with forethought. After eliminating two of the four presentations, the jurors emphasized that the deciding factor was how well the students identified and discussed innovation in their site plans. Narrowing the competition down to the University of Maryland and Yale University teams, the jury set about identifying elements of the site plans they thought were particularly innovative while keeping an eye on the critical elements listed previously. They quickly decided that the Yale University site plan was both inviting for the residents and provided innovative financing.

The Executive Director of the Housing Authority of the County of Santa Fe commended the students' hard work and their contribution toward finding innovative solutions to the affordable housing challenge that Santa Fe confronts: "Beyond the exceptional work and expertise that HUD staff, consultants, and jurors brought to the table, it was a joy to work with young, positive professionals who passionately pushed some exciting ideas. We will definitely be questioning some of our original assumptions and viewpoints with a fresh outlook as we move forward."

Acknowledgments

The U.S. Department of Housing and Urban Development (HUD) thanks the award-winning student teams from Yale University and the University of Maryland, College Park, for sharing their thoughts and for all the hard work they put into their submissions for this year's competition. We also thank the remaining two teams that were selected to participate this year: The University of Michigan, Ann Arbor, and the University of California-Berkeley. HUD greatly appreciates the 2020 Innovative Affordable Housing jury members' dedication and hours devoted to the awards selection process. Finally, HUD thanks Schatz Publishing Group LLC for planning and logistics efforts under the constraints of the COVID-19 pandemic. Their hard work and flexibility made this year's competition a success.

Author

Jagruti D. Rekhi is a social science analyst in the Affordable Housing Research and Technology Division of the U.S. Department of Housing and Urban Development.

Postscript

The competition is thoroughly documented on the web.

To learn more about the award: <https://www.huduser.gov/portal/challenge/home.html>.

To read about the 2020 design guidelines: https://www.huduser.gov/portal/challenge/competition_2020.html.

Annual HUD Secretary's Opportunity and Empowerment Award: Ebeid Neighborhood Promise Initiative, Toledo, Ohio

Regina C. Gray

U.S. Department of Housing and Urban Development

The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. government.

The American Planning Association (APA) was established in the late 1970s with the central mission to create great communities for all through effective planning, education, and advocacy. Since its inception, the organization has fostered partnerships with national, state, and local entities committed to a similar vision. For more than two decades, the U.S. Department of Housing and Urban Development (HUD) and the APA have co-sponsored the HUD Secretary's Opportunity and Empowerment Award, which recognizes communities that adopt creative and effective strategies for improving the quality of life for area residents. In their submissions, nominees discuss the role of planners throughout the process and how the submission actively engaged with residents, the public, and partnering organizations. Nominees are required to address how their project, plan, or proposal incorporates innovative approaches to problemsolving; how it achieves measurable results; and how those results might be replicated in communities similarly situated. This year, a jury of industry professionals selected the Ebeid Neighborhood Promise Initiative and its partner organization, ProMedica, as the award recipient.

The UpTown neighborhood is an old exurb nestled between historic Downtown Toledo and the Old West End community. UpTown residents face a number of challenges: disinvestment in commercial corridors; lack of infrastructure to support a grocery store; clusters of subsidized housing with few supportive services; high rates of unemployment, poverty, and homelessness; and poor health conditions. Although UpTown is a diverse community, the vast majority of the residents are renters, many are low-skilled workers, and the prospects for educational attainment are limited. Those challenges were documented in the UpTown neighborhood master plan. Local planners called for a holistic, "all-in" strategy focused entirely on improving the community's socioeconomic determinants of health.

ProMedica, a mission-based organization in upper northwest Ohio, teamed with philanthropist Russell Ebeid to establish the Ebeid Neighborhood Promise Initiative (ENP). The initiative reflects a 10-year, \$50 million commitment to improve health outcomes, provide stable housing, and expand access to educational and employment opportunities. Although the program is relatively young, ENP has demonstrated remarkable progress toward building a socially and economically sustainable community. Using existing community plans, a robust and creative placemaking strategy, unique partnerships, and innovative funding models, ENP demonstrates that it is possible to build on the existing community landscape and create a more welcoming environment for all who live there.

Planning

The planning award category requires that nominees explain how their submission addresses a real-world challenge in the community, as identified by an existing comprehensive, regional, or neighborhood plan. Applicants must describe the role of planners in working with local decisionmakers, partnering organizations, and the public in achieving success from implementation and beyond. In the spirit that this award represents, submissions must demonstrate how the community engaged and empowered residents throughout the process.

The Ebeid Neighborhood Program is a place-based initiative that reflects two decades of planning activities that have resulted in a shift toward improving the conditions of the UpTown neighborhood. ProMedica's model envisions a comprehensive approach to planning that centers on the social determinants of health. In the earliest phase, ProMedica and its partners instituted a series of signature programs meant to empower residents by improving access to quality housing, health care, job training, employment opportunities, education, and small business enterprise. The strategy entailed creating a one-stop-shop at a facility that offers a range of supportive services for residents seeking opportunities for a better life. The ProMedica Ebeid Institute, pictured below,



Source: ProMedica

The ProMedica Ebeid Institute is an all-in-one community hub that houses the market and provides job training, education, health screenings, family planning, and financial and housing counseling.

serves residents by increasing access to healthy food, delivering nutritional education, and offering job training, among other programs and cultural events.

Partner organizations, including the Local Initiatives Support Corporation (LISC) and AmeriCorps, worked with residents to identify community needs and priorities. For instance, ProMedica health providers surveyed residents and found that among their biggest concerns was food insecurity. In 2015, the institute opened Market on the

Green, a nonprofit co-op that offers a variety of healthy, affordable food options. The market targets area residents for onsite job training. ProMedica and partners expanded access through a mobile market that delivers food to seniors and people with disabilities and offers online ordering, delivery, and pickup. A community garden adjacent to the facility provides fresh produce for the store.

Investment capital of \$86.7 million was deployed for housing at all income levels. To expand and preserve affordable housing, ENP offers loans of up to \$7,500 to residents looking to purchase or renovate units in designated Low-Income Housing Tax Credit (LIHTC) program properties that have reached the end of their 15-year compliance period. To combat blight, the ENP community revitalization program incentivizes builders by offering up to \$40,000 per unit¹ to renovate vacant properties. A new mixed-income housing development called Village on the Green offers a variety of housing types, such as garden-style or high-rise. Education and training programs are also available onsite, targeted to residents who either work at the grocery co-op or are searching for jobs in the medical field. Those programs include housing counseling, financial literacy, mentorship, and coaching.

Results

The second award category requires that applicants clearly describe how the project, plan, or initiative achieves goals through measurable outcomes. Examples include the number of jobs created and retained, improvement in education outcomes (for example, graduation rates), or data showing a reduction in crime or poverty. The following examples of outcomes are reported from ProMedica's recent report, *Embracing an Anchor Mission: ProMedica's All-In Strategy* (Oostra, Zuckerman, and Parker, 2018).

Health

- ENP partners invested \$600,000 annually to hire at least one school nurse for every public elementary school in Toledo.
- To address food insecurity, about 2,600 meals were provided to low-income persons and families who were screened for acute or severe hunger, and 600 pre-packaged meals were delivered to food clinics (Oostra, Zuckerman, and Parker, 2018: 24–5).
- Together with Mercy Health, the University of Toledo Medical Center, and the Hospital Council of Northwest Ohio, ENP created Northwest Ohio Pathways HUB. This program used medical home teams to screen 20,000 pregnant mothers. Of those screened—
 - Sixty-nine percent were referred to additional services, including the Pathway HUB and a home visiting program.
 - Women enrolled for more than 90 days in the program had a 90-percent rate of healthy birth outcomes.

¹ The program is part of a ProMedica-LISC and Key Bank initiative, which allows former renters to borrow between \$30,000–40,000 per unit to make necessary renovations. The program infuses LIHTC program tax credit funds, local bonds, and other sources to encourage a path to homeownership (Oostra, Zuckerman, and Parker, 2018: 42–43).

- Those who enrolled in the program for more than 90 days had lower rates of low-birth-weight deliveries than the state or county average (Oostra, Zuckerman, and Parker, 2018: 36). African-American mothers tend to have higher rates of low birth weight and infant mortality than do White mothers.

Housing²

- ENP created 178 units of new affordable housing in the UpTown neighborhood.
- Individuals who receive housing and financial counseling have witnessed an 89-percent increase in net income.
- A 300-unit housing development was created to house seniors and persons with disabilities.

Education

- Fifty-two percent of enrollees in the ProMedica Ebeid Institute financial counseling program have engaged with a financial coach at least once a month.
- Participants in the program achieved a 25-percent increase in net income and a 17-percent increase in credit score.
- Three hundred individuals received free tax preparation, receiving \$510,000 in federal tax savings and \$200,000 in Earned Income Tax Credit (Oostra, Zuckerman, and Parker, 2018: 30).

Employment³

- Between 2017 and 2019, 55 percent of Ebeid job trainee participants obtained employment after 12 months, with 39 percent employed by ProMedica.
- Forty-two former job trainees achieved full-time employment.

Innovation

The third category challenges nominees to convince jurors that their project is innovative or advances a new, effective way of solving a community's problems. APA and HUD jurors were most impressed with how the ENP and ProMedica collaboration worked to implement a long-term, sustainable plan of investment for the UpTown community. Partnering with LISC, the collaborative established an investment portfolio that includes a business incubator program for small, minority- and women-owned businesses and more than \$45 million devoted to capital improvement projects along the downtown corridor (ProMedica, 2018). According to the most recent annual report, the initiative has invested nearly \$90 million for housing, commercial, and public infrastructure. To further diversify its investment portfolio, the partnership offers microloans of up to \$3 million to small banking institutions to support job creation, new or existing businesses, and other

² See Oostra, Zuckerman, and Parker (2018), page 42.

³ See Oostra, Zuckerman, and Parker (2018), page 34.

community programs. The funds are replenished as long as the bank demonstrates a continued commitment to expanding services and opportunities for the town residents.⁴

Equity

Nominees must explain how their submission advances social equity throughout the planning process. They must clearly describe how historically underrepresented groups were empowered by these efforts, leading to improved life outcomes. The ProMedica Ebeid Institute facility provides free financial coaching and has served more than 1,000 individuals by offering financial counseling and job training to neighborhood residents. The job training program provides 12 months of training on technical and soft skills, plus an additional 4 hours per week of GED (general educational development) classes, vocational training, digital literacy training, or other development opportunities. Once a participant graduates from the program, he or she is paired with a “job navigator” to assist in the search. The program has met with some success, connecting more than one-half of program graduates with viable employment options. Residents are connected with a social worker, or “neighborhood navigator,” to address health and wellness, homelessness prevention, motherhood preparation, and childhood development. A new walking trail designated for seniors promotes physical activity and beautification projects.



Source: ProMedica

Arts and afterschool programs are offered to area residents at the ProMedica Ebeid Institute.

⁴ See Oostra, Zuckerman, and Parker (2018), page 38. The partners use certificates of deposit through the Certificate of Deposit Account Registry Service to invest in local banks while maintaining protection of the original deposits through Federal Deposit Insurance Corporation insurance. The banks are then required to use funds to invest in the community by offering valuable job training skills, expanding after school programs, and encouraging homeownership, among other activities. To ensure long-term commitment, lending institutions are also required to report on measurable outcomes, such as the number of residents served by their programs.

Transferability

The fifth and final award category asks award nominees to explain how, and to what extent, their submission serves as a model for other localities working to address similar challenges. To satisfy this requirement, the response should describe prescriptive measures that communities should employ to achieve success over time. The ProMedica model has been replicated in other local jurisdictions adjacent to Toledo and in the neighboring state of Michigan. In 2017, with a new neighborhood plan underway and various planning efforts in adjacent neighborhoods taking place, ProMedica, LISC, and other stakeholders brought all neighborhood activity under the ENP umbrella for continued—but greater—implementation efforts to take place, with an additional focus on improving health outcomes in the neighborhood. Beyond that, ProMedica and its partners continue to expand the program to other jurisdictions that seek to improve community outcomes through a health and wellness lens.

The HUD Secretary's award recipients were recognized in a virtual celebration on the APA Facebook page earlier this year: <https://www.facebook.com/login.php?next=https%3A%2F%2Fwww.facebook.com%2Fwatchparty%2F2453728664939060%2F>. To learn more about the HUD Secretary's Opportunity and Empowerment Award, visit HUD User: https://www.huduser.gov/portal/publications/pdf/hud_583_2015.pdf.

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Data Shop

Data Shop, a department of Cityscape, presents short articles or notes on the uses of data in housing and urban research. Through this department, the Office of Policy Development and Research introduces readers to new and overlooked data sources and to improved techniques in using well-known data. The emphasis is on sources and methods that analysts can use in their own work. Researchers often run into knotty data problems involving data interpretation or manipulation that must be solved before a project can proceed, but they seldom get to focus in detail on the solutions to such problems. If you have an idea for an applied, data-centric note of no more than 3,000 words, please send a one-paragraph abstract to david.a.vandenbroucke@hud.gov for consideration.

Learning More About HUD-Assisted Tenants Through Data Linkage

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Introduction

The U.S. Department of Housing and Urban Development (HUD) administers several rental assistance programs that help low-income households afford their rental units, aiding demographics such as seniors, people with disabilities, and veterans. These programs include the Public Housing (PH), Housing Choice Voucher (HCV), and project-based rental assistance (PBRA) programs.¹ Altogether, HUD's rental assistance programs provide housing for over 4.6 million households or about 10.5 percent of U.S. renter households.

To administer rental assistance programs in a manner consistent with statutory, regulatory, and program-specific requirements, HUD must collect information from its beneficiaries. Like many federal programs, however, HUD's information collection is generally limited to the information

¹ For the purposes of this article, other small project-based programs are included in the PBRA total.

necessary to implement the program—a legal requirement stemming from the Paperwork Reduction Act of 1995.² The limited information collected by an agency is often not sufficient to fully monitor ongoing program performance or evaluate longer-term program impact, including both impacts on the beneficiaries themselves and the public.

Linking administrative records to existing surveys provides a promising method for low-cost evaluation of program performance and impact, and HUD has been a leader in this area. As one example, HUD rental assistance administrative records were linked to the Center for Disease Control’s National Health and Nutrition Examination Survey and National Health Interview Survey. Researchers using this linked data have produced several important findings about HUD-assisted households, including findings about blood lead levels (Ahrens et al., 2016); cigarette smoking (Wang et al., 2015); levels of physical activity (Wong et al., 2018); health insurance uptake (Simon et al., 2017); health services use (Brucker, Helms, and Souza, 2018); and overall adult health (Fenelon et al., 2017).

Numerous other researchers have used the U.S. Census Bureau’s linking infrastructure to link administrative records to existing surveys to study a range of topics, including the impact of Medicaid expansion on mortality (Miller et al., 2019); family relationships (O’Hara, Shattuck, and Goerge, 2017); economic inequality and mobility (Medalia et al., 2019); minority-owned and women-owned businesses (Jarmin, Krizan, and Luque, 2016); the effect of pollution exposure on adult wages, education attainment, and incarceration (Voorheis, 2017); and the impact of transportation on physical and mental health and the environment (Cavoli et al., 2015).

Following these numerous examples, social and data scientists at HUD and the Census Bureau developed a procedure to link HUD rental assistance administrative records to the American Community Survey (ACS), thereby identifying ACS households as receiving HUD rental assistance. ACS contains a wealth of household and demographic information that is not currently collected by HUD. Some examples of information in ACS include—

- Type of occupation and commuting mode.
- Veteran status.
- Health insurance status.
- Expanded racial categories and household relationship types.
- Internet access.

This new linked dataset allows HUD to gain insights into HUD-assisted housing units and households that would otherwise not be possible with current rental assistance administrative records, potentially leading to more robust program evaluation. Our record linkage process takes full advantage of both address- and person-level matching to overcome HUD address quality issues.

² U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Assistance, Paperwork Reduction Act (PRA), 44 U.S.C. § 3501 et seq.

A full technical description of the data sources, linking process, and linking performance metrics is available in Bucholtz, Molfino, and Brummet (2020).

The remainder of this article describes the data and record linkage process, presents an evaluation of the linkage quality, and discusses early insights gleaned from the linked data.³ We conclude with a discussion of how to access the linked data for further research.

Data

We linked the HUD rental housing assistance administrative records to ACS. To accomplish this, we relied on two other Census Bureau data sources integral to the linking process: the Master Address File (MAF) and the Social Security Administration (SSA) Numerical Identification (Numident) File. A fuller description of the data sources is available in Bucholtz, Molfino, and Brummet (2020).

ACS internal use file (IUF) microdata differ from the public versions of the ACS microdata in three important ways. First, the ACS IUFs contain precise location information (that is, housing unit address), which can be used to link to other data sources through address matching or other spatial matching techniques. Second, the ACS IUFs contain respondent names, which can be used to link to other data sources through person-matching techniques. Finally, the ACS IUFs include all the survey responses, whereas the ACS public use microdata typically includes about two-thirds of the actual number of respondents (U.S. Census Bureau, 2009).

The HUD rental assistance administrative records are derived from HUD forms 50058 (for PH and HCV) and 50059 (for PBRA). These forms are used to collect information from tenants who are participating or seeking to participate in rental assistance programs. Although the data collection forms are paper, virtually all PHAs implement an electronic version of the forms. The electronic data are transferred to HUD daily, and HUD uses them to monitor program compliance and performance.

The Census Bureau's MAF is a collection of all addresses in the United States. MAF was originally built for the 2000 Decennial Census, using addresses from the 1990 Decennial Census as well as the U.S. Postal Service (USPS) Delivery Sequence File (DSF) (National Research Council, 2004). Currently, the MAF is updated twice a year using the USPS DSF and other USPS information, as well as information gathered during other census surveys and decennial preparation operations (U.S. Census Bureau, 2014a). A key feature of MAF is that every address it contains is assigned a unique key called a MAF identifier, or MAFID.

The SSA Numident file contains the name, date, place of birth, and parent's names for each social security number (SSN). It also contains all transactions for an SSN, such as name changes and deaths. Using the SSA's Numident file as a base, the Census Bureau builds their own version of a Numident file regularly. This process augments the SSA's Numident with information from other

³ The U.S. Census Bureau reviewed all tables in this article for unauthorized disclosure of confidential information and approved the disclosure avoidance practices applied to this release.

federal and state administrative records to include current address and household composition (Wagner and Layne, 2014).

Record Linkage Process

At a high level, the record linkage process included four steps, which are outlined below. Some steps of the linkage process are considered probabilistic, meaning a linkage between two records is considered “acceptable” if a “probability of linkage” threshold is achieved. Other steps are considered deterministic, meaning the linkage is either a “yes” or “no.” A complete description of the record linkage process, as well as potential problems with the linkage process, is available in Bucholtz, Molfino, and Brummet (2020).

The first step of the linking process is to extract HUD rental assistance administrative records from HUD’s systems. One extract is made per year and represents all households receiving HUD assistance at any time during the calendar year.

The second step in the linking process is address matching. This step begins by “cleaning” the addresses in HUD rental assistance administrative records. The Census Bureau uses standardization algorithms that edit and standardize the addresses. The standardization algorithms are themselves probabilistic.⁴ Then, the HUD rental assistance administrative record addresses are probabilistically matched to the Census Bureau’s MAF addresses using a Census Bureau address matching algorithm. The result is that each HUD rental assistance administrative record receives a unique MAFID based on its address. Finally, we deterministically match the HUD rental assistance administrative records to ACS using MAFID. It is important to note that each ACS record already had a MAFID because the ACS housing unit sample is derived from housing unit addresses in MAF.

The third step in the linking process is person-level matching. This step starts with a process to deterministically match HUD rental assistance administrative records (which include SSNs) to the Numident file using SSNs. This results in each HUD rental assistance administrative record receiving a “PIK or Protected Identification Keys,” which is functionally a pseudo-SSN used to safeguard real SSNs throughout the matching process. Then, we probabilistically match the ACS households to the Numident file. The Census Bureau developed an algorithm to match ACS respondents to the Census Bureau’s Numident file using the information provided by the ACS respondent. This algorithm is embedded in a system called the Person Identification Validation System, or PVS. As discussed in Wagner and Layne (2014), PVS uses the respondent’s name, gender, address, date of birth, and household relationship to match a respondent to the Numident file probabilistically. This step results in each ACS person record receiving a PIK value. Finally, we deterministically matched HUD rental assistance administrative records to ACS using the PIK values.

The fourth and final step in the linkage process is to make a final linkage determination. In our linking process, any ACS housing unit that matches to a HUD rental assistance administrative record by a MAF address match is considered a valid link. Any additional ACS household that matches to a HUD rental assistance administrative record by SSN match is also considered a valid link, so long as the HUD administrative record and the ACS record are in the same county.

⁴ Refer to Brummet (2015) for further descriptions of this process.

Exhibit 1 shows the number of ACS records linked to a HUD administrative record by the type of link. Although not the subject of this article, we speculate that the downward trend in the total number of ACS records linked to a HUD administrative record reflects a general downward trend in response rates for HUD-assisted households. The authors have observed a similar trend in another household survey, the American Housing Survey.⁵

Exhibit 1

Breakdown of American Community Survey/HUD links made by Address (MAF) and Person (PIK)

	Year						
	2011	2012	2013	2014	2015	2016	2017
MAF-Matched	60,000 81.6%	63,500 81.9%	55,500 82.2%	58,000 82.9%	57,000 82.6%	54,500 83.8%	51,500 84.4%
PIK-Matched	13,500 18.4%	14,000 18.1%	12,000 17.8%	12,000 17.1%	12,000 17.4%	10,500 16.2%	9,500 15.6%
Total	73,500	77,500	67,500	70,000	69,000	65,000	61,000

*MAF = Master Address File. PIK = Protected Identification Key.
 Note: Numbers are rounded to comply with Census Bureau disclosure guidelines.
 Source: 2011-2017 Linked HUD/American Community Survey Internal Use Files*

Finally, it is important to note that the record linkage process is not perfect. There are numerous ways in which the process can fail to link an ACS and HUD record (false negative) or incorrectly link an ACS and HUD record when they do not represent the same housing unit (false positive). For instance, the addresses in HUD’s rental assistance administrative records may not be of sufficient quality to be cleaned (step 2) or uniquely matched to a MAF address (step 2). Likewise, the address matching algorithm (step 2) may fail. The person-matching algorithm (step 3) used to match ACS household members to the Numident file can produce both false positives and false negatives, as persons could move across units, and there is a small amount of error inherent in the PVS process (Layne, Wagner, and Rothhaas, 2014).

Record Linkage Quality Assessment

To determine whether the multifaceted linking process performed well, we compared the “pre-linking” count of HUD rental assistance administrative records with the “post-linking” ACS weighted estimate of ACS housing units identified as HUD-assisted. All else being equal, if the linking process performs well, the post-link ACS weighted estimate of HUD-assisted units should be very similar to the pre-link known record count.

Exhibit 2 presents linking quality metrics for 2015 through 2017. The table shows that HUD provided the Census Bureau with 4.74 million rental assistance administrative housing unit records in 2017. When these records were linked to ACS housing units, the weighted estimate of HUD-assisted housing units was 4.62 million, or 97.3 percent of the real total. Across all years of

⁵ Based on unpublished analysis of 2015, 2017, and 2019 American Housing Survey internal use files.

the data linkage (2011–2017), the ACS-weighted estimate of HUD-assisted housing units ranges from 97.0 to 99.4 percent. There is some variation in linkage rate across the three categories of HUD programs, however, with the PBRA program consistently performing worse than PH or HCV. Reasons for this difference are explored in Bucholtz, Molfino, and Brummet (2020), but are generally due to variations in the quality of HUD addresses.

Given the results in exhibit 2, a reasonable conclusion is that the linking process performed well enough to ensure that the ACS housing units flagged as HUD-assisted units are a representative cross-section of all possible ACS housing units that are truly HUD-assisted units. In statistical terms, although there are false negatives (positives), they appear to be limited in quantity, and we feel their omission (inclusion) should not result in biased estimates of housing or household characteristics of HUD-assisted households. Regardless of the extent to which our linking process introduced any bias, a method for overcoming this bias is described in Bucholtz, Molfino, and Brummet (2020).

Exhibit 2

Results of American Community Survey/HUD Administrative Linking					
		All	PH	HCV	PBRA
2015	HUD records provided to Census	4,757,000	998,200	2,265,000	1,494,000
	ACS estimate of HUD-assisted households	4,678,000	1,021,000	2,256,000	1,400,000
	ACS estimate as share of HUD records	98.3%	102.3%	99.6%	93.7%
	ACS 90% Margin of Error	0.7%	1.4%	1.2%	1.3%
2016	HUD records provided to Census	4,760,000	1,014,000	2,300,000	1,446,000
	ACS estimate of HUD-assisted households	4,623,000	1,001,000	2,248,000	1,374,000
	ACS estimate as share of HUD records	97.1%	98.7%	97.7%	95.0%
	ACS 90% Margin of Error	0.7%	1.5%	1.1%	1.1%
2017	HUD records provided to Census	4,744,000	977,100	2,313,000	1,453,000
	ACS estimate of HUD-assisted households	4,615,000	979,700	2,268,000	1,367,000
	ACS estimate as share of HUD records	97.3%	100.3%	98.1%	94.1%
	ACS 90% Margin of Error	0.8%	1.5%	1.1%	1.3%

ACS = American Community Survey. HCV = Housing Choice Voucher program. PH = public housing.

PBRA = project-based rental assistance.

Source: 2011-2017 Linked HUD/American Community Survey Internal Use Files

Uses of the Linked Data

In this section, we illustrate two uses of the linked data to produce estimates that are otherwise not feasible to derive using HUD rental assistance administrative records alone.

On HUD forms 50058 and 50059, current and prospective HUD-assisted renters supply a host of demographic information, including age, sex, race, and ethnicity. Consistent with federal guidelines governing the collection of race and ethnicity data, HUD collects race information using five standard categories: White, Black or African-American, Asian-American, American Indian or

Alaska Native, and Native Hawaiian or Pacific Islander. ACS follows the same federal guidelines but expands the number of categories for Asian-American from one (Asian American) to six detailed Asian race categories and offers respondents a write-in option.

The linked ACS/HUD data can be used to estimate the number of HUD-assisted householders reporting their race as Asian, by detailed Asian race category. Exhibit 3 below presents these results from the 2013–2017 ACS 5-year data. The results reveal significant variation within the Asian race groups in the share of households receiving HUD assistance relative to those *eligible* for HUD assistance. While it is beyond the scope of the article to explain these differences further, this analysis illustrates the potential value of the data linkage for better understanding who is served by HUD rental assistance programs.

Exhibit 3

Detailed Asian Race for HUD-Assisted Households, 2013–2017

Householder Race	HUD-Assisted Households	Households Eligible for HUD Assistance	Share of Eligible Households Receiving HUD Assistance (%)
Asian Indian	5,973	105,533	6
Cambodian	5,480	16,640	33
Chinese	53,810	259,710	21
Filipino	12,340	82,330	15
Hmong	4,515	14,389	31
Japanese	3,117	34,187	9
Korean	24,000	116,480	21
Laotian	2,289	9,847	23
Other Asian or Two Groups	9,879	116,379	8
Vietnamese	32,370	89,910	36

Source: 2011–2017 Linked HUD/American Community Survey Internal Use Files

As another example, HUD and the U.S. Department of Veterans Affairs (VA) partner to implement the VA Supportive Housing (VASH) program, which provides housing vouchers to homeless veterans. As of 2017, the HUD-VASH program provided housing to nearly 88,000 households with a veteran (Montgomery and Cusack, 2017). HUD leaders long suspected that other HUD rental assistance programs provided housing to many additional veterans that were not part of the VASH program. As is the case with detailed race and ethnicity data, however, HUD forms 50058 and 50059 do not collect information on veteran’s status.

The linked ACS/HUD data can be used to estimate the number of HUD-assisted households with a veteran to inform this program. Exhibit 4 presents these results by year from the 1-year ACS for 2011 through 2017. The results reveal that HUD is serving between 285,000 and 324,000 households with a veteran.

Exhibit 4

Number of HUD-Assisted Households with Veterans by Year, 2011–2017

Year	HUD-Assisted Households with a Veteran
2011	302,000
2012	314,200
2013	289,900
2014	288,200
2015	286,000
2016	285,600
2017	291,900

Source: 2011–2017 Linked HUD/American Community Survey Internal Use Files

Conclusion

Using a multifaceted approach, we have linked administrative data from HUD’s rental housing assistance programs to ACS housing units using address and SSN information for years 2011 through 2017. In the future, this work will continue, and we plan to link HUD administrative records to future years of the ACS as they become available. In each year of the ACS, we identify 61,000 to 78,000 ACS households as being HUD-assisted. Our analysis of the data linkage quality suggests that false-positive links and false-negative links are minimal, enabling high-quality analysis of the linked data. A full technical report on the process is found in Bucholtz, Molfino, and Brummet (2020).

Our goal with this project was to develop the linkage process and build the linked data sets so researchers can further explore the data. Access to the ACS/HUD IUFs is available to researchers through a Federal Statistical Research Data Center (FSRDC), after obtaining Special Sworn Status and approval for their project. The process is as follows:

1. Identify the FSRDC located nearest to you (<https://www.census.gov/fsrdc>).
2. Contact the FSRDC administrator to explain your interest in using the linked ACS/HUD IUF.
3. Complete a proposal following the proposal guidelines (https://www.census.gov/ces/pdf/Research_Proposal_Guidelines.pdf).
4. If your proposal is approved, complete additional application materials and submit to a background check.
5. Conduct your research at the FSRDC.
6. Submit your results to the FSRDC for clearance.

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American Enterprise Institute Housing Market Indicators

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Abstract

The American Enterprise Institute Housing Market Indicators (HMIs) provide analysts a holistic view of the single-family housing market. The indicators cover home prices and supply, mortgage risk, measures of affordability, land prices, and new construction sales. The HMIs deliver reliable data at fine geographic levels to address the local nature of housing markets. Due to innovative methodologies, the data have minimal latency. The HMIs come with interactive visualization tools, and most data, aggregated to fine levels of geography, are available to download, allowing for data-driven decisionmaking and analysis by governments, the private sector, and consumers.

The American Enterprise Institute (AEI) Housing Center has amassed one of the deepest and most robust sets of housing market indicators (HMIs) available. Through utilizing numerous data sets, the HMIs provide analysts a holistic view of the single-family housing market. The data are unprecedented in their availability at fine levels of geography and their minimal latency. All data can be accessed at no cost and can be downloaded from the [AEI Housing Center's website](#).

The following exhibit presents an overview of the HMLIs:

Exhibit 1

Overview of Housing Market Indicators

Interactive Explorer	Key Indicators	Additional Features	Geography	Frequency	Price Tiers	Purpose
Home Prices and Supply	Home Price Appreciation, Months' Supply	Interactive maps and price tier cutoffs	National, largest 40 metros	Monthly	Overall and four price tiers	Real-time data on Home Price appreciation and months' supply for 40 metros.
National and Metro Housing Market Indicators	Home Price Appreciation, Months' Supply, Mortgage Risk Index, New Construction Share of Sales, Average Sale Price	Reports for each metro and interactive maps	National, largest 60 metros	Quarterly	Overall and two segments (entry-level & move-up)	A more comprehensive analysis of the housing market in 60 metros (but slightly less recent and only for two market segments).
Mortgage Risk Index	Mortgage Risk Index	Time series data on credit scores, CLTVs, DTIs, and other key metrics	National	Monthly	Overall, first-time and repeat buyers	Comprehensive resource for mortgage origination and risk data for agency loans.
The State of the Housing Market	County and State data on: Home Price Appreciation, Months' Supply, New Construction, Mortgage Risk Index, Entry-Level Price-to-Income Ratio	Housing market metrics (supply, new construction, leverage, etc.) and how they affect entry-level affordability	State and county, some metro indicators	Annual	Varies by indicator	A multitude of housing market indicators at the county and state levels. These data are aggregated to derive trends on the state of the housing market.
The Carpenter Index	Share of Entry-level Sales Affordable to the Average Carpenter Household	Metro rankings, affordability heat map, change in affordability, and other affordability metrics	Largest 100 metros	Annual	Entry-level	"They can build it, but can they afford it?" The study ranks housing affordability in the entry-level market for 100 metros for blue-collar workers.
Best and Worst Metros to Be a First-Time Homebuyer (FTB)	Price-to-Income Ratio for over 3 million FTB Purchases	FTB statistics on home prices, income, price/sq. ft., and sq. ft. of living area	Largest 50 metros	Annual	First-time buyers	This study ranks 50 metros based on their affordability for first-time homebuyers.
New Construction — still in development	New Construction Share of Sales	TBD	National, State, County, ZIP Code, Census Tract	Quarterly	Overall and three price tiers (combines med-high and high)	Real-time new construction data at the census tract level and above.
Land Price and Land Share	Change in Land Share and Land Prices	Interactive maps on land prices, land shares, and changes over time in these indicators	ZIP Code (census tract, county, metro, state, and nation are available for download)	Annual	None	The change in land share has been found to be highly predictive of house price boom/bust cycles.
Market Trends Report — in development	TBD	TBD	110+ million U.S. property addresses	Updated as data become available	Overall and four price tiers	Provides trends affecting the market price and intrinsic value of the subject property, the subject's neighborhood, and its broader market areas.

CLTV = combined loan-to value ratio. DTI = debt-to-income ratio. FTB = first time homebuyer. TBD = to be determined.
 Source: American Enterprise Institute Housing Center, www.aei.org/housing

Several features distinguish HMIs from other data sources. First, as mentioned, HMIs provide a holistic picture of the housing market; they measure demand (the number of home sales and the level of mortgage risk of these sales), supply (new construction sales and remaining months of existing inventory for sale), and home price trends. Second, HMIs deliver reliable data at fine geographic levels to address the local nature of housing markets. For instance, the number of new construction sales is available at the ZIP Code and census-tract level. Third, due to innovative methodologies, the data have minimal latency. For example, home price appreciation (HPA) data are available for the previous month, while trends in underwriting are available in near real-time. Fourth, since borrower access to credit (leverage) has a profound impact on market trends, many indicators are divided into four leverage-based price tiers, rather than into tertiles, quartiles, or quintiles. Fifth, HMIs come with interactive visualization tools, and most data, aggregated to fine levels of geography, are available free-of-charge to download.

Underlying Data

The primary data for HMIs are national public records data from First American via DataTree.com. The authors utilize the deed file, which provides information about the sale and mortgage, as well as the tax assessor file, which provides information on the characteristics and location of the structure. We limit the data to single-family home sales from 2012 forward, but in the coming months, previous years will be added. Other datasets used, such as Optimal Blue rate lock data, are described below.

Price Tiers

A defining feature of HMIs is that the data are segmented into dynamic, leverage-based price tiers. Housing trends are driven by lending standards and the availability of supply, which may not map neatly onto evenly sized price tiers.¹

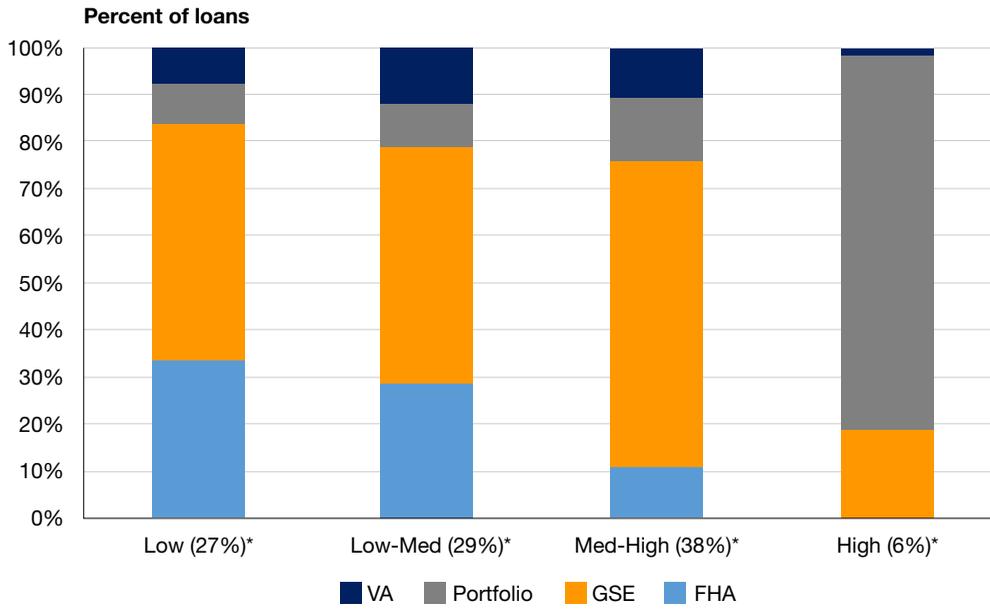
HMIs divide homes into four flexible price tiers that are set quarterly at the metro level. The low and low-medium tiers consist of sales at or below the 40th- and 80th-percentile of Federal Housing Administration (FHA) sales prices, respectively. The medium-high tier consists of sales at or below 125 percent (to account for an 80 percent loan-to-value [LTV]) of the government-sponsored enterprise (GSE) loan limit, and the high tier consists of all other sales.

Within the lower two price tiers—often referred to as entry-level—around 30 percent are financed with FHA loans. As seen in exhibit 2, these tiers have by far the highest mortgage risk with a mortgage risk index (MRI) of 14–15 percent. (The MRI measures how the loans originated in a given month would perform if subjected to severe stress—more on MRI later). The medium-high tier has only a 10 percent FHA share and an MRI of about 9 percent as it consists of higher-priced homes and borrowers with generally lower loan-to-value ratios or debt-to-income ratios or higher credit scores. The high price tier is largely outside the reach of government lending due to loan limits. This tier only represents about 6–8 percent of the share of all sales, and it is very low risk.

¹ Lending standards vary depending on borrowers' credit profiles, house prices, and competition among government housing finance agencies. Prices are set by the marginal buyer: borrowers who receive additional leverage drive up prices for all borrowers. In this way, extending extra leverage to some borrowers has spillover effects for entire neighborhoods (Davis et al., 2020).

Exhibit 2

National Price Tiers by Guarantor Type, Market Share, and Mortgage Risk Index: 2019



2019	Price Tier			
	Entry Level		Move-up	
	Low	Low-Med	Med-High	High
Mortgage Risk Index	15.5%	14.3%	8.9%	3.1%
Market Share*	27%	29%	38%	6%

FHA = Federal Housing Administration. GSE = government sponsored enterprise. VA = U.S. Department of Veterans Affairs

*Market share of all institutionally financed home sales in 2019 by tier.

Note: Data excludes Rural Housing Service. In 2017, Rural Housing Service loans made up 3 percent of the low tier, 2 percent of the low-medium tier, and a negligible amount of the two upper tiers.

Source: American Enterprise Institute Housing Center, www.aei.org/housing

House Price Appreciation Housing Market Indicators

The AEI HPA Index differs from the most widely known home price indexes (HPI), which are either repeat sales pair (for example, S&P CoreLogic Case-Shiller HPI or Federal Housing Finance Agency [FHFA] HPI [Calhoun, 1996]) or hedonic (for example, Zillow Home Value Index [Hryniw, 2019]) indexes. AEI creates a “quasi” sales pair consisting of one actual sale and a second reference “sale” as measured by the home’s estimated sale price using an automated valuation model (AVM). AVM approximates a property’s sale price at a given point in time. The current AVM used is from December 2018. AVMs come from First American DataTree LLC (DataTree.com) and, on average, provide accurate and unbiased estimates (Davis et al., 2020). The HPA Index’s results are similar to price indexes from the FHFA HPI and Case-Shiller HPI, which confirms this approach’s validity.

AEI's quasi-repeat sales index approach comes with several benefits. Unlike a true repeat sales model, it includes virtually all existing homes sold for which an AVM is available.² This process results in a large sample size, which can be used to construct separate indexes by price tier and at fine geographic levels and with much less latency. For example, the AEI HPAs released in May are for the prior month (April). The Case-Shiller HPI released in May is for March; however, the data are a 3-month rolling average of January, February, and March. Also, by requiring only one AVM at a given point in time, this methodology is a cost-effective way to produce an HPA index. Notably, the HPA Index is incorporated into our other HMIs.

The HPA Index data are found at the Housing Center's [HPA Index and Months' Remaining Inventory](#) interactive data explorer. The data are available monthly for the largest 40 metro areas in the United States. The listings and sales data are provided by Zillow Group Inc. (Zillow).

Land Price and Land Share Housing Market Indicators

The price of land represents a net market value for a variety of factors such as size and shape of the lot, access to jobs, type of street, commute, schools, crime, weather, neighborhood, amenities, and more. Land share, or land price expressed as a percentage of a residential property's value, is a particularly useful indicator for public policy research. Previous work (Davis et al., 2017) found that the increase in the land share of house value prior to the Great Recession was a significant predictor of the decline in house prices during the bust (the “canary in the coal mine”).

While land prices and shares are a crucial component in assessing house price risk, reliable and accurate data are hard to come by and generally have only been available for relatively small subsets of the country (Davis et al., 2017; Nichols, Oliner, and Mulhall, 2013). Due to a new working paper, this is no longer the case (Davis et al., 2019a). Davis et al. use millions of appraisal records that separate total property value into the value of land and the depreciated value of the structure, making land data available for nearly the entire country for the first time.

As Davis et al. acknowledge, appraisals anchored to tax assessments and limited to GSE financed sales can potentially bias the results. Therefore, the data likely understate the amount of home price appreciation³ and, by extension, the amount of increase in land prices.

To overcome these potential biases from anchoring, the AEI Housing Center only relies on land prices and shares for 2012 as a stake in the ground. We then enhance these data using AEI's constant-quality [HPA index](#).⁴ The 2012 land values are then rolled forward in time using various AEI metrics and assumptions.⁵

² New home sales are excluded for two practical reasons: due to a lagging assessment, the AVMs for new homes are often missing. We also exclude interfamily sales and sales that occur within 6 months of each other.

³ When appraisers anchor their estimates to tax assessments, this may understate house price appreciation because (1) the rate of tax assessments may be capped to prevent rapid tax increases in high home-price growth environments, and (2) low tax assessments are likely to go unchallenged, while high ones are challenged (Lutz, Molloy, and Shan, 2011).

⁴ Other benefits are that since the AEI constant-quality HPA Index is based on all financed sales, we include a larger part of the market than the GSE financing in the Davis et al. (2019a) dataset. Finally, since the AEI constant-quality HPA Index is updated monthly, AEI-adjusted land prices and land shares may also be updated monthly.

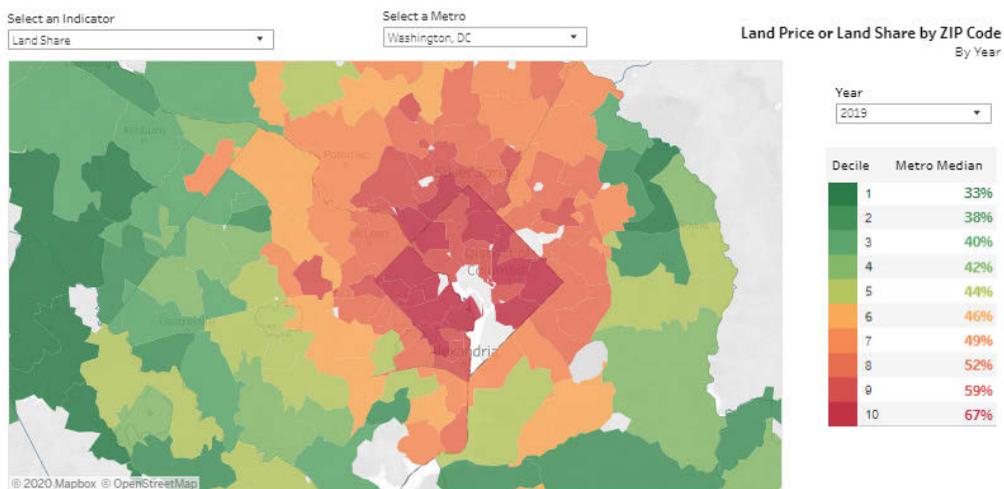
⁵ To read the detailed methodology, see <https://www.aei.org/wp-content/uploads/2020/03/Land-Price-Interactive-QA-FINAL.pdf>.

The AEI-adjusted data are available on the [Land Price and Land Share Indicators](#) interactive data explorer on the AEI Housing Center's website. The interactive data explorer features land prices, land shares, land share change, and land panel data. The data are available at census-tract, county, metro, state, and national levels and are downloadable.

For instance, the Housing Center's map of the Washington, D.C. metro highlights how land share varies across the region. Land makes up a larger share of the total value in the District of Columbia (D.C.) and wealthier suburbs in Maryland and northern Virginia than in more distant suburbs and exurbs. Since 2012, however, land shares have risen more in the less affluent parts of the metro, such as Prince George's County and southeast D.C. (not shown).

Exhibit 3

Land Share by ZIP Code in the Washington, D.C. Core-Based Statistical Area: 2019



Source: American Enterprise Institute Housing Center, www.aei.org/housing

New Construction Housing Market Indicators

Another innovative aspect of the AEI HMIs is its methodology for identifying new construction home sales in near real-time at the property level. Granular and timely data on new construction trends are particularly relevant for policy analysts given dramatic home price increases and the lack of new homebuilding in recent years.

The AEI data are available monthly. They have minimal latency because the underlying data come from the county public records data (deed and assessor files) and listings data from Zillow, which are frequently updated. The key field to identify a newly constructed home is the home's "year built" variable in the county assessor file. If the "year built" is missing, the authors check the home's seller name from the county deed file. If the seller matches a name in a list of over 400

builders or it includes a generic keyword that helps identify smaller builders (such as “Builder” or “Construction”), then the sale is most likely a new construction that has not yet been assessed.⁶

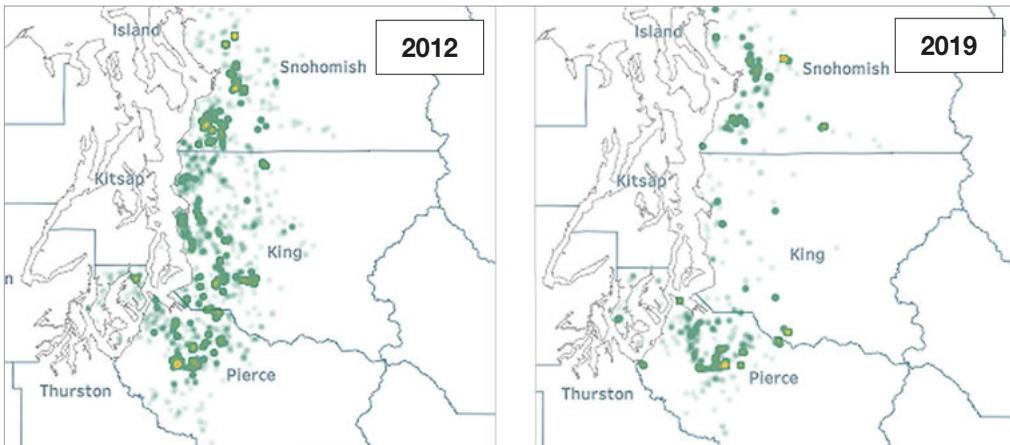
We have verified the accuracy of our methodology through extensive random sampling and checking newly constructed and existing homes using Zillow data, Google Street View, and satellite images. We find around 2 percent false positives and around 1 percent false negatives. Moreover, the process yields similar results to the totals published in the U.S. Census Bureau’s new home sales data, providing further confirmation that the AEI methodology is sound.

The nature and methodology of the new construction data offer benefits compared to the Census Bureau’s data that may be of interest to researchers. Aggregated AEI data are available at the census-tract/ZIP Code level. Pivotaly, the AEI data represent a comprehensive count of properties, rather than relying on estimation from survey data. Moreover, since homes are segmented by new construction status, analysts can identify how new homes differ from the existing housing stock by location, price, square footage, and more. One can also plot the data to observe trends in new construction sales over time.

Exhibits 4 and 5 illustrate changes in new construction activity in the Seattle metro. Between 2012 and 2019, entry-level new construction sales in King County have fallen from over 1,100 sales to just under 200. In Snohomish County, they have fallen from 1,200 in 2012 to 600 in 2019. In Pierce County, by contrast, they have only fallen from 1,100 to 800.

Exhibit 4

Entry-Level New Construction Sales Heat Map in the Seattle, WA Core Based Statistical Area



Source: American Enterprise Institute (AEI) Housing Center, www.aei.org/housing

⁶ In the case that “year built” or seller name are missing, listings data are checked for a “year built” or “land use code,” which helps determine the new construction status of the home. Only the first sale of a home is counted as a new construction.

Exhibit 5

New Construction Sales in the Seattle, WA Core Based Statistical Area

County	Segment	2012	2013	2014	2015	2016	2017	2018	2019
Entire Metro	Overall	6,303	7,076	6,736	7,116	7,824	7,922	7,717	6,843
	Entry-level	3,363	3,415	2,584	2,622	2,438	1,955	1,910	1,635
	Move-up	2,940	3,661	4,152	4,494	5,387	5,968	5,807	5,207
King, WA	Overall	3,107	3,630	3,494	3,592	3,877	3,674	3,313	3,015
	Entry-level	1,126	1,201	795	721	508	229	148	184
	Move-up	1,981	2,430	2,699	2,871	3,369	3,446	3,165	2,831
Pierce, WA	Overall	1,306	1,796	1,744	1,727	1,915	2,038	2,242	1,675
	Entry-level	1,084	1,436	1,286	1,309	1,305	1,163	1,242	856
	Move-up	222	360	458	418	610	875	1,000	819
Snohomish, WA	Overall	1,890	1,650	1,498	1,796	2,033	2,211	2,162	2,153
	Entry-level	1,154	779	503	592	625	563	520	596
	Move-up	737	871	995	1,204	1,407	1,647	1,641	1,558

Source: American Enterprise Institute Housing Center, www.aei.org/housing

All summary data are available upon request, and heat maps are available in the [State of the Housing Market](#) interactive data explorer.

National Mortgage Risk Index and Housing Market Nowcast

The National Mortgage Risk Index (NMRI) tracks demand and underwriting standards. It illuminates the buildup of risk in the mortgage market to prevent a repeat of the housing crash by fostering transparency. The risk-rated NMRI dataset covers 99 percent of the agency market and consists of over 43 million loans that are released monthly as mortgage-backed security data by GSEs and Ginnie Mae.

NMRI measures how loans originated in a given month would perform if subjected to the same stress as in the financial crisis that began in 2007. This is similar to stress tests routinely performed to ascertain an automobile's crashworthiness or a building's ability to withstand severe hurricane-force winds.

The expected stressed default rates come from Davis et al. (2019b) and measure stress by dividing loans into 320 risk buckets defined by credit score, combined LTV ratio (CLTV), total debt-to-income ratio (DTI), and more for four loan types. Then, for each risk bucket, the authors calculate the share of loans originated in 2007 that defaulted by December 31, 2018.⁷

Risk rating loans in NMRI and Nowcast is objective and transparent. Every month, loans are risk rated against a known stress event (the 2007–08 financial crisis). By tracking actual underwriting, analysts can monitor changes in mortgage risk. Many loan characteristics such as credit score, DTI, and CLTV are available for download online at the AEI Housing Center's [MRI](#) interactive data explorer.

⁷ The original methodology was first developed by AEI with expected stressed default rates that were based on Freddie Mac primary owner-occupied, 30 year fixed rate, fully amortizing, fully documented loans originated in 2007 Loan Performance data through 2012. This methodology was later adopted and refined in Davis et al. (2019b).

Since NMRI data are released with a lag, the AEI Housing Center has also developed a new dataset to measure risk in real-time using mortgage rate lock data from Optimal Blue. After extensive historical analysis of Optimal Blue data going back 7 years, the AEI Housing Center concludes that while the Optimal Blue data only cover roughly one in three loans in the U.S., they follow similar trends to NMRI.⁸ As a result, the rate lock data are used to construct the Housing Market Nowcast, which provides an advanced look at borrowing trends that will not be available in the NMRI data until 3 months later. These data are particularly valuable during a fast-changing environment, such as the COVID-19 pandemic. Weekly reports are available on the Housing Center's [Nowcast](#) page.

Tracking Affordability with the Housing Market Indicators

In an era of generally declining housing affordability, the AEI Housing Center has developed two interactive data explorers to track housing affordability at the metro level. The first is [The Carpenter Index](#), which measures if the workers who build homes can afford to buy a home of their own. The Index compares housing affordability in the largest 100 metros across the nation. The report concludes that in two-thirds of the 100 largest metros, entry-level or starter homes are still affordable for the average carpenter household—a proxy for a blue-collar worker—in 2018.

The [Best and Worst Metro Areas to Be a First-Time Homebuyer](#) (FTB) is the Housing Center's second housing affordability interactive data explorer. The report ranks the largest 50 metro areas for FTB affordability. Cities are evaluated by observing the ratio of home prices to buyer income for over 2.5 million FTB sales from 2013 to 2018. In 2018, Pittsburgh was the most affordable metro, while San Jose was the least affordable one.

These affordability interactive data explorers are useful because they take local conditions into consideration. The key to understanding affordability is observing its two key components: house prices and income or wages. Metros with higher house prices need higher wages to be affordable. Moreover, the indexes utilize data specific to blue-collar workers and data from individual FTB purchase transactions, providing a far more accurate picture than taking simple averages for wages and purchase prices in an entire metro area.

Other Housing Market Indicators

The State of the Housing Market

For those interested in state and county data, the [State of the Housing Market](#) is a comprehensive interactive report that features HMIs for the 50 states and nearly every county. The annual data includes housing affordability, months' supply of available homes for sale, new construction, mortgage risk, and outcomes for low-income and minority buyers.

The report has a special focus on housing affordability and the drivers of growing house price appreciation. For instance, there are data examining how house prices have risen faster than

⁸ We checked credit score, DTI, LTV, sale price, and note rate by loan type and observed that the data follow very similar trends to the ones observed in the NMRI. There are slight level differences, however, due to the lower coverage of the Optimal Blue data.

incomes in the majority of counties from 2012 to 2019. Additionally, there are data examining the positive correlation between mortgage risk and a census tract's minority share of the population.

National and Metro Housing Market Indicators

The [National and Metro HMIs](#) is another far-reaching interactive data explorer that provides HMIs for the nation's 60 largest metro areas. The quarterly data include house price appreciation, months' supply, mortgage risk, new construction, and average sale prices, among others. There is an emphasis on differences between entry-level and move-up market segments. A key finding is that entry-level markets tend to have fewer months' supply remaining and higher HPA compared to the move-up segment in the same metro.

Conclusion

Housing markets are inherently local, making them notoriously difficult to analyze due to the lack of accurate and reliable data at fine geographic levels. The AEI Housing Center aims to fill this void by compiling a variety of HMIs. All historical data are available to housing researchers and the public for download or upon request.

While each indicator is useful in its own regard, collectively, HMIs present a holistic picture of the housing market, allowing for data-driven decisionmaking and analysis by governments, the private sector, and consumers.

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Policy Considerations on Housing, Wealth, and Inequality

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Disclaimer: The views expressed and arguments employed herein are solely those of the authors and do not necessarily reflect the views of the OECD or its member countries.

Abstract

This paper discusses policies on housing from wealth accumulation and wealth distribution perspectives, relying on new evidence and stylized facts from recent Organisation for Economic Co-operation and Development (OECD) research (Causa, Woloszko, and Leite, 2019). A key policy issue is whether and how housing-related policies affect wealth distribution. Another related issue is whether housing-related policies raise potential trade-offs between equity, inequality reduction, and other policy objectives; these other objectives include employment growth, productivity growth, and macroeconomic resilience. Informed by the stylized facts and existing evidence, this paper discusses housing-related policy reforms to promote inclusiveness and social mobility, to enhance efficiency in the allocation of labor and capital, and to strengthen macroeconomic resilience.

Introduction and Motivation

Housing is an important social indicator of development along several dimensions: access to affordable housing for different socioeconomic groups, poverty and deprivation risks, and spatial inequalities such as housing segregation in metropolitan areas. One important dimension less explored in the literature, especially on a cross-country basis, is the distributional implications of housing from a wealth perspective. Recent OECD work (Causa, Woloszko, and Leite, 2019) fills in this gap by delivering new insights on housing and wealth across OECD countries, allowing readers to draw policy implications across a range of policy objectives such as inequality, efficiency, and resilience.

Housing and wealth distribution warrants attention for several reasons. Housing is the largest asset in household portfolios. It is therefore a fundamental driver of the accumulation and the distribution of assets and wealth across the lifecycle and generations, hence contributing to wealth inequality. Assessing housing from a wealth distribution perspective is all the more important in a context where inequality has been rising, the capital share of income has increased relative to labor, and wealth inequality is much higher than income inequality, potentially undermining equality of opportunity and social mobility (OECD, 2018c).

Housing debt is also the largest liability in household portfolios. One of the reasons why housing is a major vehicle of wealth accumulation is because it can be acquired with leverage. Housing-related debt enables households with low income and few assets—such as young households—to accumulate wealth. The benefits of leverage need to be balanced against its risks—one major lesson from the 2008 financial crisis. Assessing housing from a wealth distribution perspective requires looking at housing assets and liabilities, with particular attention focused on the bottom of the income and wealth distributions.

A number of public policies affect the housing market and therefore wealth and its distribution. Such policies intend to repair market failures, pursue broader economic efficiency goals, and promote affordable quality housing for citizens. They include fiscal measures, macroprudential regulations on mortgage markets, the provision of social housing, regulations aimed at influencing rental markets and the quantity and quality of dwellings through land-use policies, urban planning, and the enforcement of competition in related activities (such as construction or real estate).

Promoting homeownership is a policy objective for many governments, whether stated explicitly or not. Public policy tends to favor ownership relative to renting and other investments, typically via the preferential tax treatment of owner-occupied housing (Andrews and Caldera Sánchez, 2011; Salvi del Pero et al., 2016).¹ The main economic argument for favoring homeownership over renting is that it may give rise to positive spillovers for society. For instance, homeownership is a vehicle for wealth accumulation, leads to better outcomes for children, and is associated with more community engagement and voting behavior. Empirical evidence does not consensually support the existence of these channels; a common problem is establishing causality, because correlation between homeownership and a variable of interest may reflect the influence of a third omitted factor and self-selection bias.

¹ Also, the vast majority of OECD countries offer financial assistance to households to support the purchase of a home (Salvi del Pero et al., 2016).

Still, the argument that homeownership provides the most stable tenure arrangement to satisfy basic household needs could justify pursuing higher homeownership as a public policy goal. Yet this policy goal can conflict with other policy goals, such as efficiency, by distorting labor and capital from their most productive use; unemployment reduction by slowing down labor adjustment in a downturn; and social mobility throughout the lifecycle and across generations by discouraging people from relocating and benefiting from new opportunities.

This paper takes stock of empirical evidence in Causa, Woloszko, and Leite (2019) to frame a policy discussion on housing and wealth distribution. Reforms affecting housing wealth and its distribution tend to be unpopular. In this context, this paper attempts to analyze housing from a wealth distribution perspective by taking into account the political economy angle. The discussion focuses on a wide range of policy areas that affect housing and its distribution, such as taxation, housing market regulations, and borrower-based macroprudential policies. These focuses enable us to draw some policy implications of housing-related reforms to promote inclusiveness and social mobility, to enhance efficiency in the allocation of labor and capital, and to strengthen macroeconomic resilience.

Stylized Facts in a Nutshell

The contribution of housing to wealth inequality varies significantly across countries, but the following facts stand out from the data:

- **Wealth inequality is much higher and much more dispersed across countries than income inequality.** On average across OECD countries, the bottom 40 percent of households receive around 20 percent of disposable income but only 3 percent of net wealth. The higher level of wealth compared to income inequality partly reflects lifecycle effects.
- **There is a strong negative cross-country association between homeownership and wealth inequality.** Low homeownership countries exhibit high wealth inequality, even when income inequality is low.
- **Housing tends to equalize the distribution of wealth from a static cross-country perspective.** This finding is because housing is the most important and most widely-owned asset in household balance sheets, representing a much higher source of wealth among middle-class households than at the top.
- **The data do not lend strong support to the argument that housing acts as a vehicle to encourage higher long-term savings.**

Access to mortgage markets enables credit-constrained households to have a better chance of owning their own home, but it entails risks:

- **Housing-related debt is the most important liability in households' portfolios, particularly for young homeowners and homeowners at the bottom of the distribution.** OECD countries exhibit stark variation in the extent to which households hold mortgage debt, ranging from almost 50 percent in the Netherlands to less than 10 percent in Slovenia.

- **Mortgage debt is both an opportunity and a risk.** Although it allows households, especially those with little initial assets, to accumulate wealth, it could expose households, especially those at the bottom of the distribution, to economic and social vulnerabilities.

Informed by the stylized facts delivered in Causa, Woloszko, and Leite (2019) and summarised here, the remainder of this paper discusses policy implications of housing reform to promote inclusiveness and social mobility, to enhance efficiency in the allocation of labor and capital, and to strengthen macroeconomic resilience.

Reforming Property Taxes to Make the Overall Tax System More Progressive and Efficient

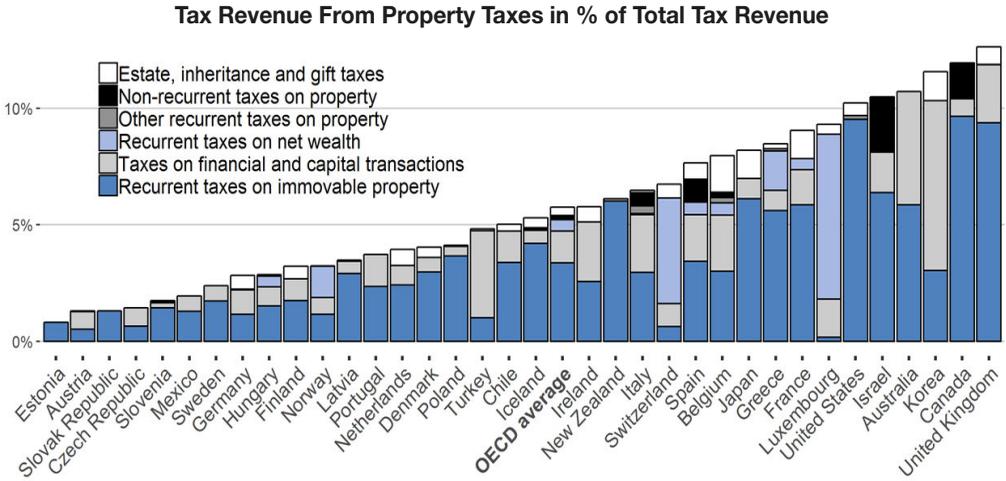
Shifting the Tax Mix Towards Property Taxes

Policy analysts and international organisations have increasingly advocated reforms to shift the tax burden toward property taxes to switch to a more growth- and equity-friendly tax system (for example, OECD, 2019a). The case for shifting towards property taxes is based on vast empirical evidence showing that greater reliance on property taxes boosts growth and tends to reduce or have neutral effects on income inequality. From an efficiency perspective, recurrent taxes on immovable property (such as taxes levied regularly on the ownership of immovable property) have been found to be the least damaging to economic growth, followed by consumption taxes, other property taxes, personal income taxes, and corporate income taxes (Brys et al., 2016, OECD, 2010). Compared with recurrent taxes on immovable property, non-recurrent taxes on immovable property, such as property transaction taxes, can have distortionary effects. For instance, they can discourage the owner of a house from moving to an area with better labor market opportunities. Transaction taxes, however, can have the advantage of discouraging speculative behavior and thereby cooling down house prices. From a distributional perspective, Akgun, Cournéde, and Fournier (2017) have recently found that greater reliance on recurrent taxes on immovable property has no effect on disposable income inequality and that greater reliance on inheritance taxes tends to reduce disposable income inequality.

Despite their growth and equity benefits, OECD countries make little use of property taxes (exhibit 1). Overall, property taxes make up slightly more than 5 percent of tax revenues on average, ranging from less than 2 percent in Estonia, Austria, and the Slovak Republic and Slovenia, to around 10 percent in Korea, Canada, and the United Kingdom. The share of property tax revenues in the OECD average tax mix has declined over time, reflecting the widespread repeal of net wealth taxes, inheritance taxes, and gift taxes and the failure to update property values (OECD, 2018b). All in all, there is scope for shifting the tax burden toward property taxes across the OECD. Such reforms would be particularly relevant in countries where the tax mix is particularly skewed toward income relative to property, as can be seen by comparing the share of tax revenue raised from labor, capital income, social security contributions and payroll to that raised from recurrent taxes on immovable property and on estate, inheritance and gift (exhibit 2).

Exhibit 1

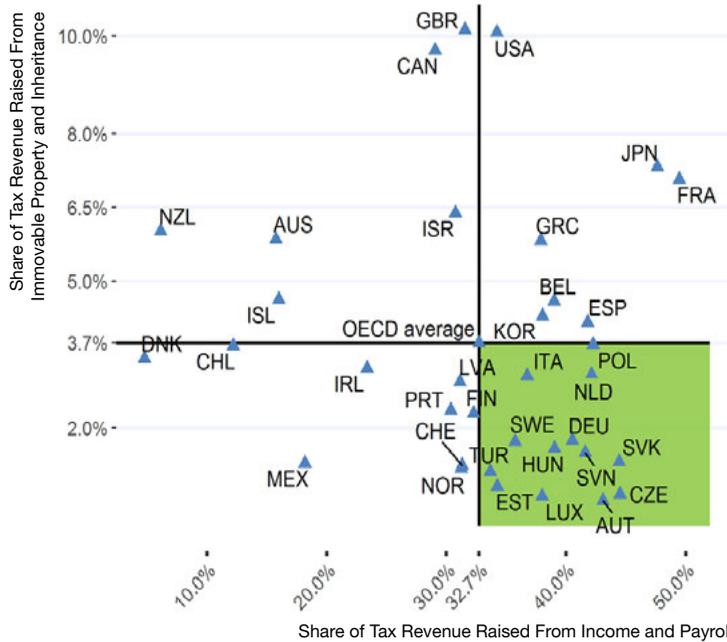
OECD Countries Have Ample Room to Shift the Tax Burden Towards Property Taxes



OECD = Organisation for Economic Co-operation and Development.
 Source: OECD Tax Revenue Statistics

Exhibit 2

Some Countries Could Move Away from Taxing Income to Taxing Immovable Property and Inheritance



Note: Share of tax revenue raised from labor, capital income, social security contributions, and payroll (categories 1000, 2000, 3000 of OECD Tax revenue statistics); share of tax revenue raised from recurrent taxes on immovable property and on estate, inheritance and gift (categories 4100, 4300 of Organisation for Economic Co-operation and Development [OECD] Tax revenue statistics).
 Source: OECD Tax Revenue Statistics

Enhancing the Efficiency and Progressivity of Immovable Property Taxation

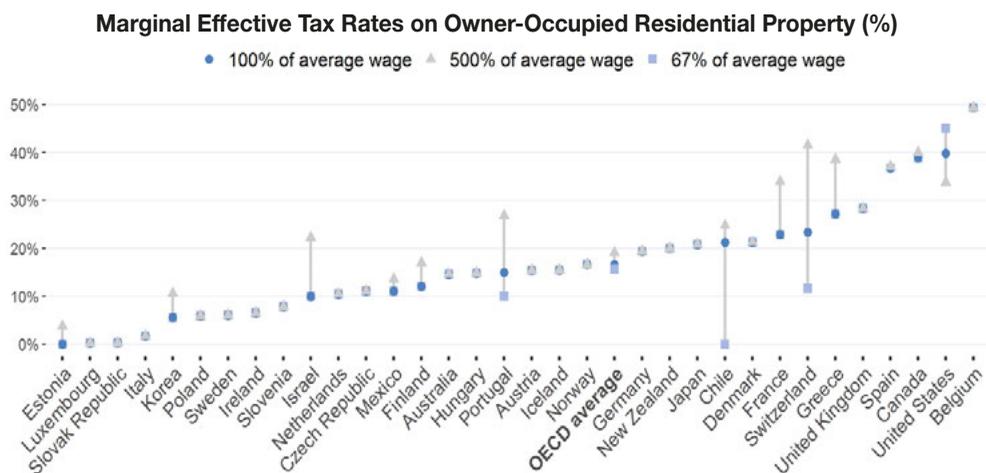
Housing taxation can be made more efficient and progressive. Owner-occupied residential property is highly tax-favored in most countries compared to other forms of household savings, with the exception of retirement plans (OECD, 2018a). This preference is due to the exemption of imputed rent and of capital gains from taxation, whereas mortgage interest is often deductible. This favorable tax treatment of owner-occupier property is economically inefficient by creating several distortions in investment decisions, capital and labor allocation, and excessive leverage (Fatica and Prammer, 2017).

Equity considerations would not justify the favorable tax treatment of owner-occupied property, because it is unlikely to benefit low-income people most. In particular, the literature has shown that mortgage interest rate deductibility has a regressive impact in most cases (Fatica and Prammer, 2017). This finding reflects the fact that high-income households are much more likely to finance their houses with mortgage debt, as documented in this paper (exhibit 3). Another argument against mortgage interest rate deductibility is that generous tax relief can be capitalized in house prices, thereby redistributing income from new entrants in the housing market to insiders (Andrews, Caldera Sánchez, and Johansson, 2011).

The presumption that the favorable tax treatment of owner-occupied housing is regressive or at least flat is confirmed by comprehensive modeling of property taxation. New estimates of marginal effective tax rates on various components of household savings and wealth show that in most countries owner-occupied property taxes are not progressive (OECD, 2018a). This finding is illustrated in exhibit 3, which provides estimated average effective tax rates on owner-occupied housing for three income levels: 67, 100, and 500 percent of the average wage. In most OECD countries, the tax rates are flat across the distribution, and in the United States, they are even higher for low-income households.

Exhibit 3

Owner-Occupied Property Taxes Could be Made More Progressive



Notes: Estimates from Organisation for Economic Co-operation and Development (OECD), 2018a. Marginal effective tax rates on owner-occupied residential property, equity-financed. Personal tax rate: 67, 100, and 500 percent of the average wage (AW). These taxes include recurrent taxes on immovable property, transaction taxes, possible taxes on income, and capital gains taxes, when applicable.

Source: OECD, 2018a

Housing should ideally be taxed in the same way as other assets by taxing imputed rental income while allowing for mortgage interest deductibility. In practice, few countries tax imputed rental income, and using recurrent property taxes as a substitute is most often not sufficient as these taxes are not large enough to offset the mortgage subsidy. In these cases, a “second best” approach is to remove the mortgage subsidy or to scale up recurrent property taxes (OECD, 2010).

Removing or reducing mortgage interest rate deductibility would increase the progressivity of the tax burden on owner-occupied property.² This removal should be done gradually to prevent a crash in house prices insofar as mortgage deductions tend to be capitalized in house prices (Andrews, Caldera Sánchez, and Johansson, 2011). If removing mortgage interest rate deductibility is not an option, granting the rebate as a capped tax credit (for example, a capped reduction of the tax liability), rather than a tax allowance (such as, a reduction of the taxable income) is one way to make the tax relief less regressive. A more direct way to achieve progressivity in owner-occupied property taxation is to apply a progressive recurrent tax rate schedule and introduce a tax allowance or income-tested property tax credit. Another approach is to allow deferral of the tax payment until the death of the taxpayer or sale of the property for older taxpayers, but one major drawback in this case is the risk of lock-in effects. OECD countries have used these types of measures to increase the progressivity of their property taxes (Brys et al., 2016)

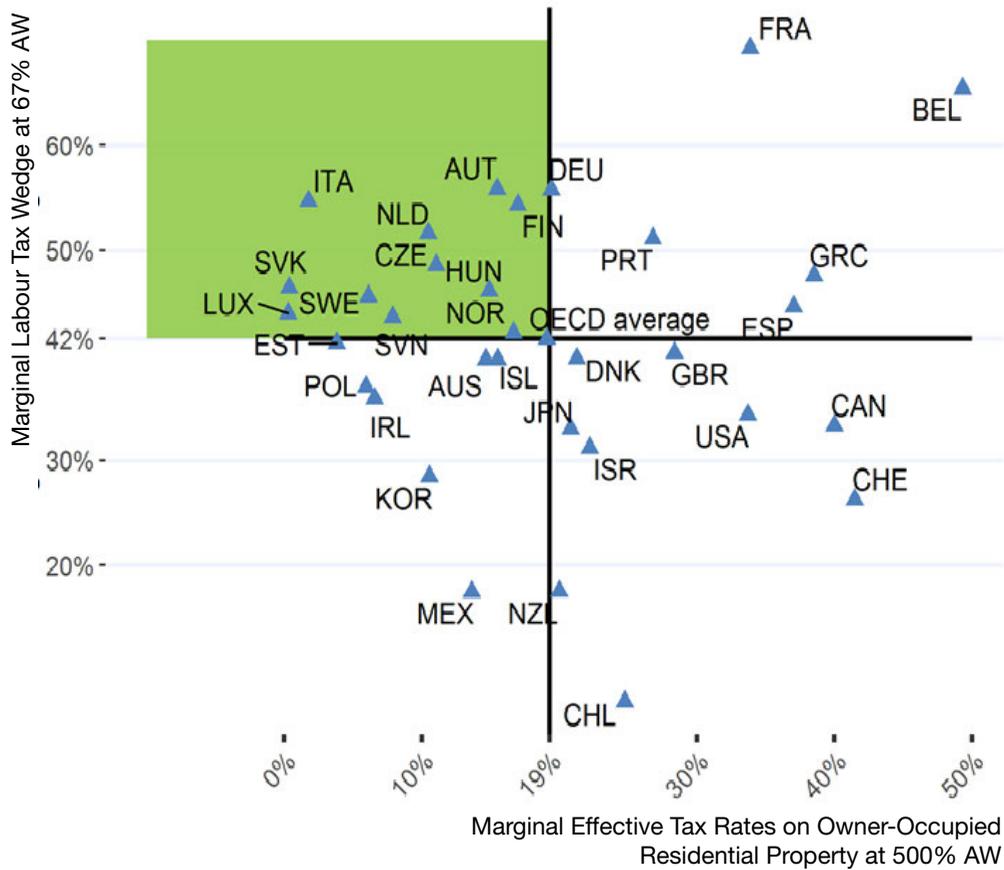
Increases in recurrent taxes on immovable property must be accompanied by regular updating of property values to market values. Denmark recently introduced a property tax reform that includes a new system for housing valuation and replaces a nominal freeze of property taxes with proportional taxation, maintaining a progressive element for the most valuable homes (OECD, 2019c). Reforms in this area can be designed to address liquidity constraints for people with low incomes and non-liquid assets, for instance, by making it possible to spread tax payments throughout the year or by introducing escrow accounts.

Going further, tax reforms to shift from labor to immovable property taxation are likely to enhance tax efficiency, progressivity, and labor market inclusiveness in countries where the taxation of low wages is relatively high and the taxation of owner-occupied property for high-income households is relatively low (exhibit 4). This likelihood implies recurrent taxes on immovable property featuring generous allowances and a progressive tax schedule, especially when homeownership is widespread.

² The current low interest environment may strengthen the case for removing mortgage deductibility.

Exhibit 4

Higher Progressivity in the Tax System Could be Achieved by Raising Owner-Occupied Property Taxes at High-Income Levels while Reducing Labor Taxation at Low-Income Levels



AW = average wage
 Note: Marginal labor tax wedge is defined as marginal personal income tax and social security contribution rate on gross labor income. Marginal effective tax rates on owner-occupied residential property, equity-financed.
 Source: Organisation for Economic Co-operation and Development (OECD) Tax Database and OECD, 2018a

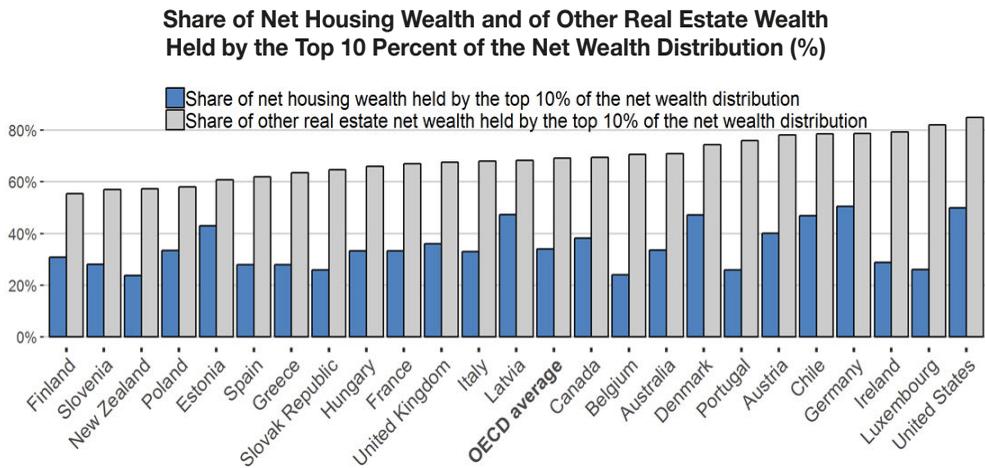
There is also scope to review taxation of secondary and rented residences. Indeed, the distribution of other real estate is extremely unequal (exhibit 5), with households in the top 10 percent of the net wealth distribution owning 34 percent of net housing wealth and 69 percent of net other real estate wealth. Available tax indicators suggest that the taxation of other real estate is higher and more progressive than that of an owner-occupied residential property (OECD, 2018a). Comparing the marginal effective tax rates on an owner-occupied residential property relative to those on rented property suggest that: (1) marginal effective tax rates on rented property are significantly higher than those for primary residences because of the non-taxation of imputed rental income, as opposed to actual rental income, and because most countries apply capital gains tax to rented residential property; and (2) marginal effective tax rates on rented property tend to be progressive

across the income distribution because rental income is most often taxed at progressive marginal personal income tax rates.

The fact that rented property exhibits higher and more progressive taxation compared with owner-occupied property does not necessarily imply that reforms in this area are not needed. As discussed in Causa, Woloszko, and Leite (2019), the ability to debt-finance a property may open up tax-planning opportunities that benefit wealthier households the most. Real estate is also a potential asset class that can be attractive for hidden wealth. More broadly, how to tax the buy-to-let property market at the individual and corporate level is becoming a topical question, for instance, given the increasing presence of institutional investors and buyers in globalized cities that have experienced rising house prices [see chapter 3 in (IMF, 2018)]. More work needs to be done to properly document the policy features at stake, but reviewing the taxation of real estate investments—in the broader context of alternative investment vehicles—is warranted on efficiency, equity, and resilience grounds.

Exhibit 5

Household Main Residence and Other Real Estate: A Tale of Two Inequalities



Notes: Households are ranked by net wealth. Therefore, this exhibit shows the share of net housing /net other real estate wealth held by households at the top of the net wealth distribution.

Source: Organisation for Economic Co-operation and Development Wealth Distribution Database (oe.cd/wealth)

Taxing Inherited Wealth: The Role of Housing

Taxing inherited wealth is justified on equity and efficiency grounds. From an equity perspective, well-designed inheritance taxes may increase intergenerational mobility and equality of opportunity by reducing and dispersing wealth holdings at death. Indeed, wealth transfers can be viewed as a source of opportunity that is not linked to the recipient's effort and should therefore be taxed, regardless of whether the donor has already paid income tax or capital gains tax on the assets. In cases where the main residence is a significant portion of the estate's wealth, it may even not have faced income or capital gains taxes prior to the donor's death.

From an efficiency perspective, inheritance taxes tend to be less distortive than other forms of wealth taxation because, for example, their effects on savings are smaller than in the case of recurrent taxes on personal net wealth.³ Another argument in favor of inheritance taxes is that the double taxation argument is weaker than for recurrent taxes on net wealth; there is no double taxation of the donor, and the inherited wealth is also only taxed once in the hands of the recipient. Finally, inheritance taxes are also easy to administer and comply with as they are only levied once. A recent report on net wealth taxes argues that capital income taxes alone will most likely not be enough to address wealth inequality, suggesting the need to complement capital income taxes with inheritance taxes (OECD, 2018b).

Despite the strong case for wealth transfer taxes, revenues from inheritance or estate and gift taxes are very low and have been declining over time on average in OECD from 1.1 percent of total taxation in 1965 to 0.4 percent today (OECD, 2018b). Low revenues reflect the fact that inheritance/estate and gift tax bases are often narrowed by numerous exemptions and deductions, and that avoidance opportunities are widely available. The decline in tax revenues also reflects the fact that a number of countries have either abandoned or scaled back their wealth transfer taxes. Differences, however, across countries—for instance higher revenues collected in Belgium and France—suggest that the revenue potential of these taxes could be further exploited in many countries.

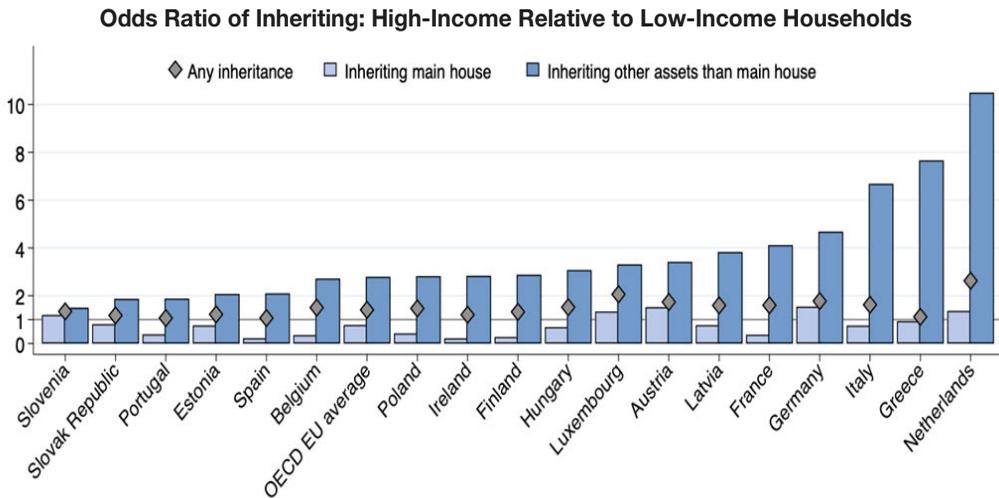
Designing efficient and fair wealth transfer taxes calls for progressive inheritance taxes. This taxation involves taxing large inheritances, but not taxing (or taxing at low rates) small inheritances received by poor taxpayers and allowing for deferred payments and installments to address liquidity constraints. One question is whether inheritance taxes should involve a favorable tax treatment when the transmitted asset is the home in which the recipient lives.⁴ Such treatment could take the form of a higher exemption threshold for the home than for other assets transmitted. This treatment may be justified on distributional grounds, because low-income households tend to inherit their houses, whereas high-income households tend to inherit other assets (exhibit 6).

³ Akgun, Cournéde, and Fournier (2017) find net wealth taxes have a negative effect, whereas inheritance taxes have no effect on long-term output.

⁴ Other important questions arise in the design of inheritance taxes, such as the treatment of family-owned business. These questions are beyond the scope of this paper.

Exhibit 6

High-Income Households Have Much Higher Chances of Inheriting Other Assets Than the Main Residence



Notes: High and low incomes refer to the top and bottom income quintiles. How to read this figure: in the Netherlands, households in the top income quintile are 2.6 times more likely to receive any inheritance or gift than households in the bottom income quintile; households in the top income quintile are 1.3 times more likely to receive the main residence as inheritance or gift than households in the bottom income quintile; and households in the top income quintile are 10.5 times more likely to receive assets other than the main residence as inheritance or gifts than households in the bottom income quintile.

Source: Household Finance and Consumption Survey (HFCS)

Among countries that have inheritance taxes, the main residence generally receives special treatment in the form of higher tax-exemption thresholds (in the United Kingdom, for example), preferential valuation rules (such as in France), or even full exemptions under strict rules on usage of the home (as in Ireland). The level of the general inheritance tax exemption threshold is often used to ensure that small inheritances can be passed on tax-free. In addition, there can be measures to address liquidity constraints when it comes to the payment of inheritance tax on the main residence, such as allowing tax payment deferral until the property is sold for individuals who still occupy the home or allowing tax payments in installments.

Exhibit 7

Across European Countries, Housing Inheritance is Negatively Correlated with Inheritance Tax Revenues (1 of 2)

Inheritance/Gifts of Housing and Non-Housing Assets and Tax Revenue Raised From Inheritance and Gift Taxes

Panel A. Proportion of Households Having Received Their House as Inheritance or Gift in Age Group <35 and Tax Revenue Raised From Inheritance and Gift Taxes

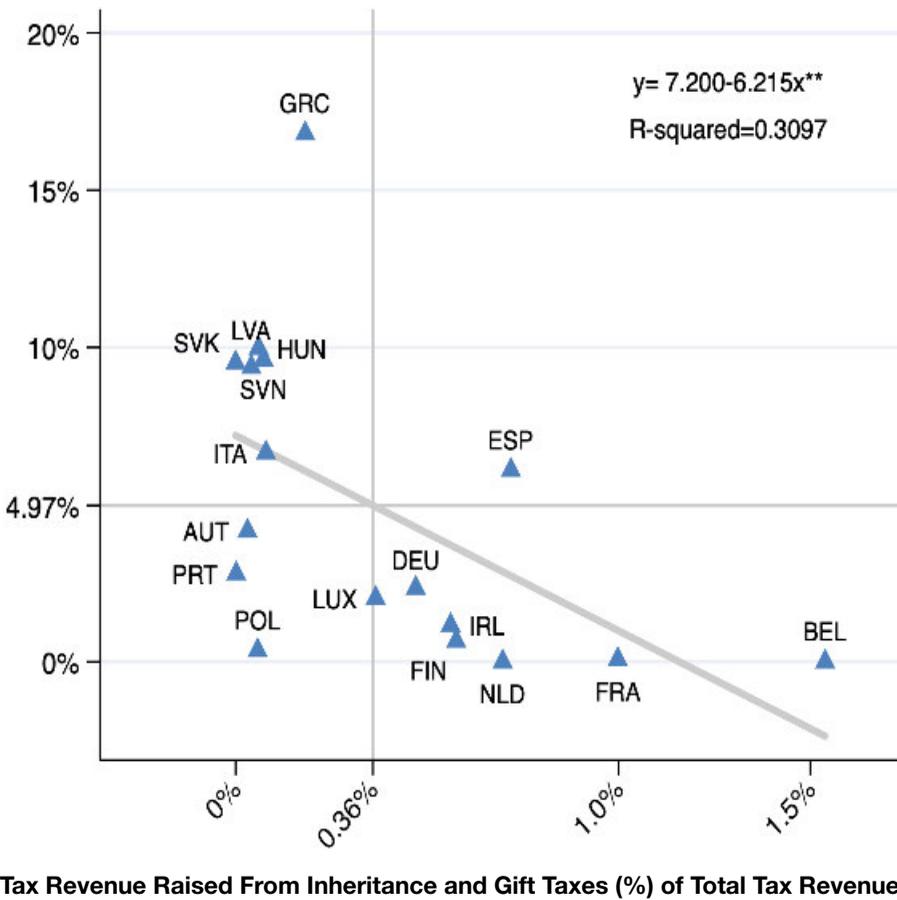
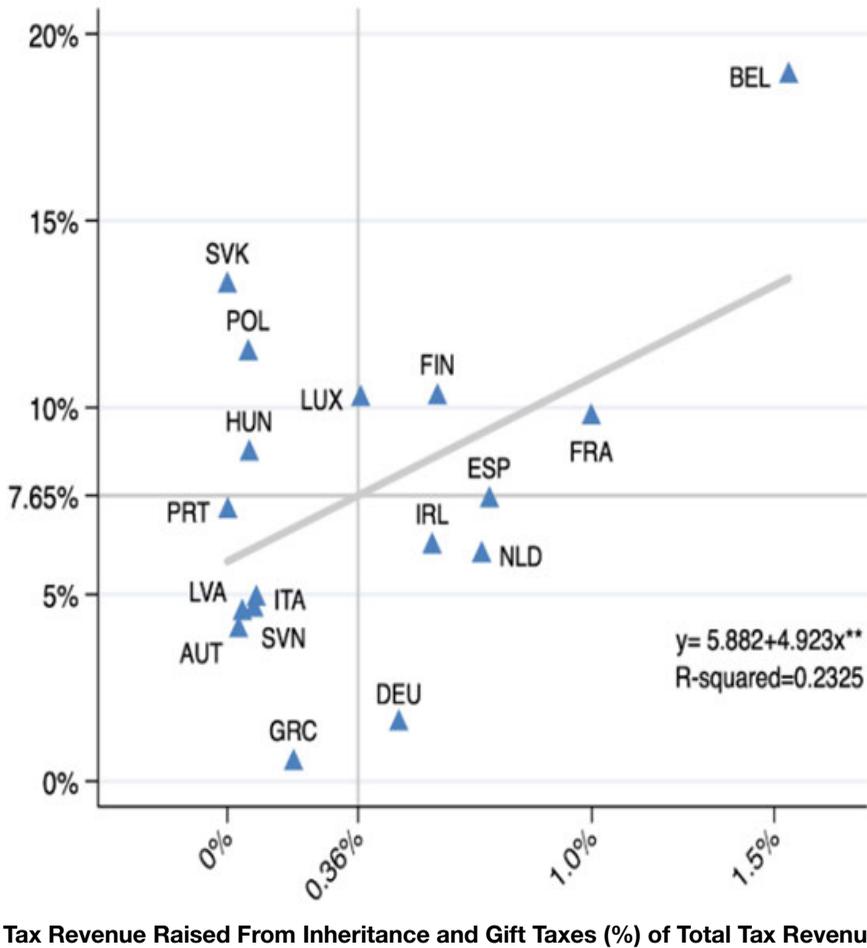


Exhibit 7

Across European Countries, Housing Inheritance is Negatively Correlated with Inheritance Tax Revenues (2 of 2)

Panel B. Proportion of Households Having Received Assets Other Than Their House as Inheritance or Gift in Age Group <35 and Tax Revenue Raised From Inheritance and Gift Taxes



Note: Tax revenue from estate, inheritance, and gift taxes, average over the period 2009-2014.
 Source: Household Finance and Consumption Survey and Organisation for Economic Co-operation and Development Tax Revenue database

Full exemption of the main residence from inheritance taxes is likely to have regressive effects by allowing rich households to transmit expensive houses for free. It may also open up tax planning opportunities (such as providing incentives to hold more wealth in housing in anticipation of favorable inheritance tax treatment). Moreover, it risks locking-in recipients in their house, thereby reducing residential mobility. Indeed, the data indicate that households that have received

their houses as inheritances or gifts tend to be less mobile than those that have acquired them.⁵ Finally, this exemption will narrow the tax base and reduce revenues from inheritance taxes on houses (OECD, 2018b). In fact, across European countries, inheritance tax revenue is negatively correlated with inheritance of the main residence and positively correlated with inheritance of other assets (exhibit 7).

Political Economy Considerations in Housing Taxation

Political economy considerations affect the design and implementation of housing taxation. One reason why OECD countries make little use of immovable property taxes, and even less of inheritance taxes, is because those taxes are highly unpopular, and distributional concerns are major reform obstacles. To start with, this paper has shown that housing is the chief asset of the middle class.⁶ In virtually all OECD countries, the median voter is a homeowner. Concern is often raised that property taxes impose an unfair burden on middle-income families because middle-income families tend to hold a high proportion of their wealth in the family home, whereas top earners may hold a significant proportion of their wealth in more liquid assets that are not subject to property taxes. Concern is also raised about the impact of inheritance taxes on asset-rich but cash-poor households, especially in the case where the house is being inherited; a substantial tax bill combined with a low income may result in a property needing to be sold to pay the tax. These concerns are not unjustified:

- Although being a homeowner drastically reduces the risk of being asset poor, it does not affect the risk of being income poor (exhibit 8).⁷ Going further, in a number of OECD countries, especially high-ownership ones such as Eastern European countries, Spain, and Japan, homeowners are over-represented among the income-poor (exhibit 9).
- Housing is transmitted from one generation to the other, and in most European countries, more than one in five low-income homeowners has inherited their houses (exhibit 10).

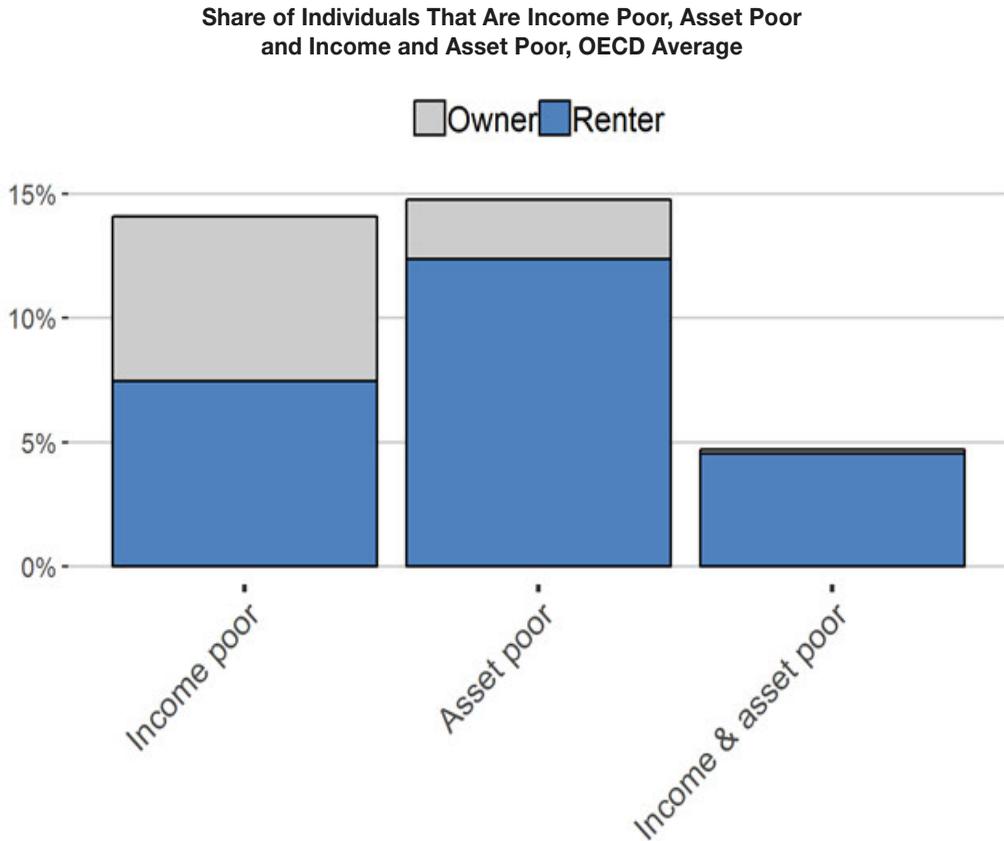
⁵ Not shown to save space. However, causality is hard to infer, as lack of mobility could reflect other confounding factors such as low education.

⁶ For a discussion on housing and the middle class see for example (Wolff, 2017).

⁷ One potential limitation and explanation of this finding is that the income poverty measure used here does not include imputed rents. This definition of income poverty is in line with standard practice due to the difficulty of properly estimating imputed rents in a comparable way across countries.

Exhibit 8

Being a Homeowner Reduces the Risk of Being Asset-Poor but Not the Risk of Being Income Poor

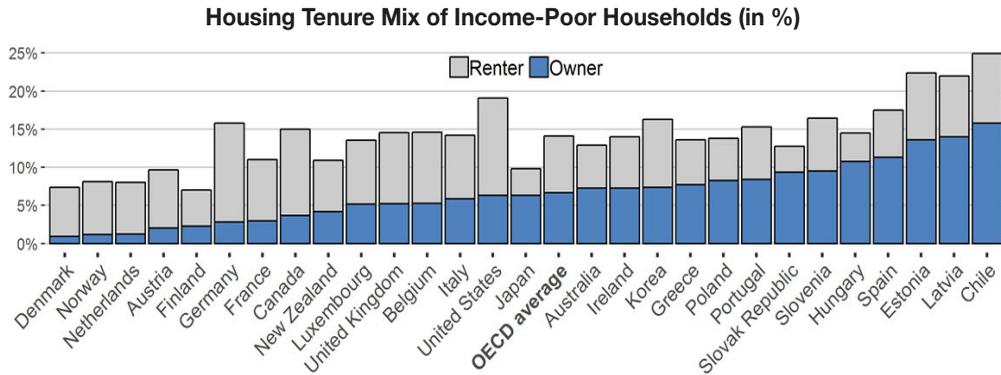


Notes: For the purpose of poverty measurement, both income and wealth are equalized so that the unit of analysis is the individual. (1) income-poor individuals are defined as those with equalized annual income below the income poverty line (50 percent of median); (2) asset-poor individuals are defined as those with equalized net worth insufficient to cover 3 months of the income poverty line; and (3) income and asset poor individuals as those with equalized net worth insufficient to cover 3 months of the income poverty line and with equalized annual disposable income below the income poverty line. Different wealth concepts and reference periods can be used to derive asset poverty measures, which has an impact on the estimated poverty levels. For instance, when net wealth is used, measures of asset-based poverty are around two-thirds lower than those based on the liquid financial wealth concept. As expected, the share of the population identified as asset poor increases with longer reference periods, although the relative ranking of countries is insensitive to the reference period used. See Balestra and Tonkin (2018) for details.

Source: Organisation for Economic Co-operation and Development Wealth Distribution Database (oe.cd/wealth)

Exhibit 9

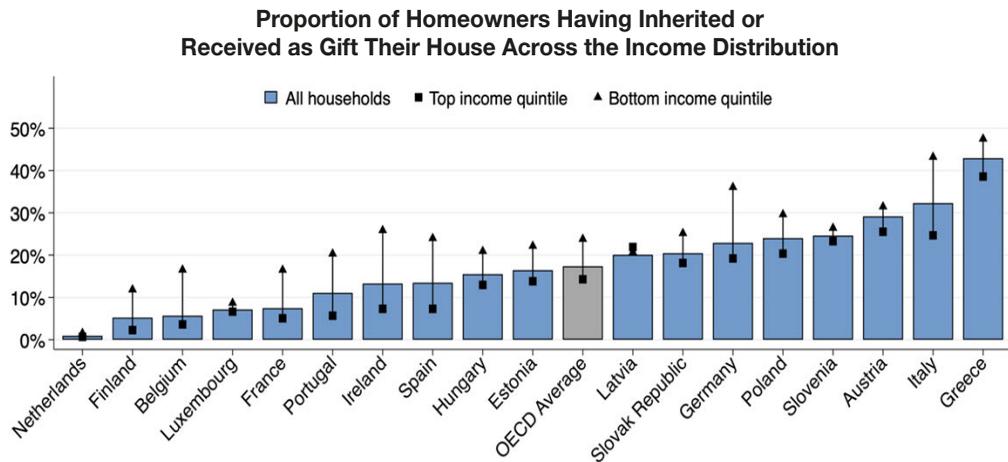
Homeowners are Over-Represented Among the Income Poor in Some OECD Countries



Note: How to read this figure: in Chile, 25 percent of individuals are income-poor, out of which 15 percent are homeowners and 10 percent are renters.
 Source: Organisation for Economic Co-operation and Development (OECD) Wealth Distribution Database (oe.cd/wealth)

Exhibit 10

In Most European Countries, More than One in Five Low-Income Homeowners Have Inherited Their Houses



Note: How to read this figure: in Germany, 23 percent of homeowners have inherited their house, 36 percent of homeowners in the bottom income quintile and 19 percent of homeowners in the top income quintile have inherited their house.
 Source: Household Finance and Consumption Survey

Still, as discussed, housing taxation reforms can be designed in a way that addresses these obstacles, ultimately producing a more efficient and more progressive tax system. No approach is one-size-fits-all, and tax reform will depend on country-specific context, challenges, and social preferences.

Housing Policy Reforms to Promote Resilience and Labor Mobility

Reducing Household-Level Vulnerabilities Through Prudential Regulation

This paper has shown that access to mortgage debt allows households with little assets a chance to own their own home and to accumulate wealth, but it can expose households at the bottom of the distribution to financial vulnerabilities. This section discusses preliminary policy implications focusing on borrower-based prudential policies alongside their potential differential effects across the distribution (see Alam et al. [2019] for recent evidence on the effects of loan-targeted instruments on aggregate household credit and consumption).

The implementation of borrower-based prudential regulation may raise distributional concerns. As shown in this paper, borrowers with high loan-to-value ratios are concentrated at the bottom of the wealth distribution, and borrowers with high loan-to-income ratios at the bottom of the income distribution. Subsequently, caps on loan-to-value and debt-to-income may exclude low-income and low-wealth households from the mortgage market. The downpayment constraint resulting from more restrictive caps will be particularly binding for first-time buyers and liquidity-constrained households, such as younger and low-income households (see, for example Ortalo-Magne and Rady, 2006). Recent analysis by Kelly, Le Blanc, and Lydon (2019) on the effect of tightening credit standards on the distribution of borrowers shows that European countries that experienced a boom-and-bust in the housing market saw the composition of buyers shifting from young and low-income to old and high-income households after 2010.

However, distributional concerns associated with the implementation of borrower-based macroprudential policies are likely to disappear over a longer term horizon. Excessive expansions of mortgage credit can trigger higher house price increases, which reduce housing affordability and thus price out low-income households from the market. By curbing the joint increase of credit volume and house prices during leverage cycle booms, macroprudential caps may enhance housing affordability (Glick and Lansing, 2010; Kohl, 2018; Mian and Sufi, 2009).

The policy implication is that macroprudential policies can enhance micro-resilience, especially for those households most vulnerable to price and income shocks. Although associated credit constraints may prevent young households from accumulating wealth through homeownership, long-term positive gains are likely to outweigh short-term costs, and therefore such instruments can improve welfare by (1) preventing young households from prematurely investing in housing, hence reducing vulnerability to price and income shocks, ultimately allowing better consumption smoothing (Xiong and Mavropoulos, 2018); and (2) more generally, contributing to housing affordability by curbing leverage-induced increases in house prices. The effectiveness of such instruments will ultimately depend on specific policy design: more data and work are needed to properly evaluate the micro distributional effects of macroprudential instruments.

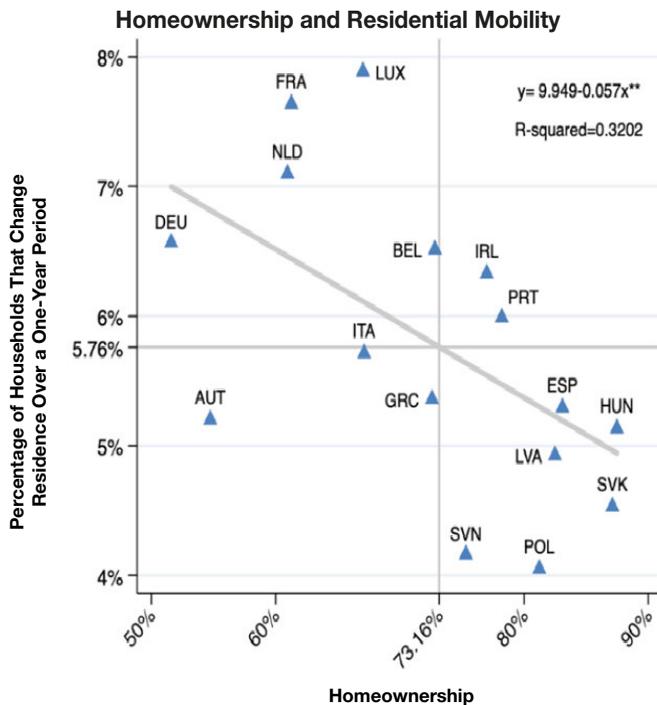
Promoting Residential Mobility by Reducing Relocation Costs

The ease of moving residence geographically has positive efficiency implications by enhancing the functioning of the labor market through the job-matching process and therefore the efficient allocation of human resources. It can also have positive inclusiveness implications, especially from a dynamic perspective. Moving can be an opportunity for people from disadvantaged areas and backgrounds to find better jobs and achieve a better quality of life, and available evidence tends to support this argument (Chetty, Hendren, and Katz, 2016).

Ideally, housing markets and policies affecting them should not hinder residential mobility. The data used in this paper allow for shedding some light on this topical issue. Keeping in mind that the data do not distinguish residential turnover within the same geographical area from geographical mobility, the evidence is that of a strong negative cross-country association between homeownership and households' mobility (exhibit 11).⁸ In the average European country, 6 percent of households change their residence over a 1-year period. Such mobility is low in high-ownership countries in the East and South of Europe, compared with low-ownership countries in the middle and North of Europe, where households move twice as often.

Exhibit 11

Across European Countries, High Homeownership is Associated with Low Residential Mobility



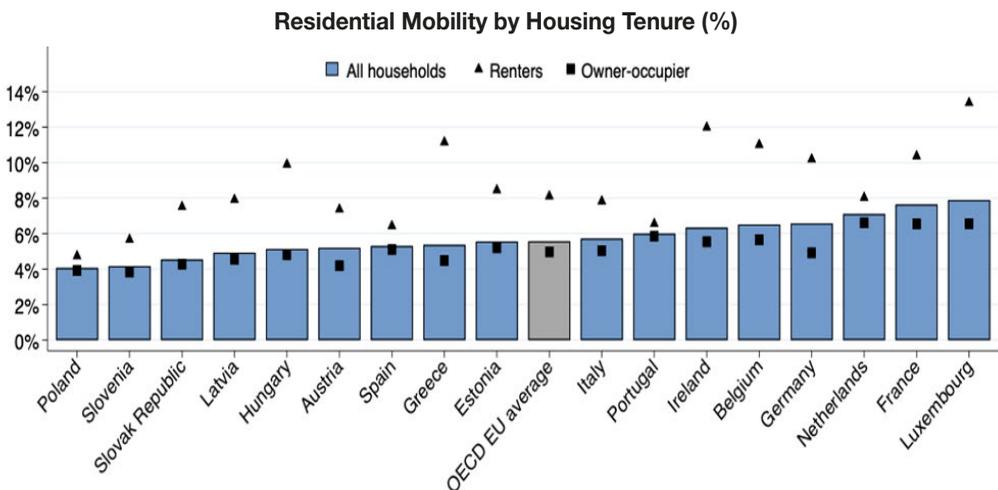
Notes: Residential mobility is defined as the proportion of households that change their main residence over a 1-year period. Restricted to age group 35–64. Source: Household Finance and Consumption Survey

⁸ The sample is restricted to the age group 35–64 to reduce the impact of differences in demography, notably in the share of older households. That said, country rankings are unaffected by using the whole sample.

The negative association between homeownership and residential mobility directly reflects cross-country differences in the housing tenure mix to the extent that homeowners tend to be less mobile than private renters (exhibit 12).⁹ A common conjecture is that mobility is lower among owner-occupiers than renters; owners face higher transaction costs of moving homes and therefore spend a longer time in their residence to spread the costs over a longer time period. Causation cannot be easily established, and differences in mobility across tenure types could also reflect self-selection into various tenures. For example, some households may have a preference for stability and be more likely to choose owner occupancy. The negative association between homeownership and residential mobility can also reflect that when the tenure mix is skewed toward owner-occupancy, the size of the rental market, and therefore turnover in the rental market, is limited, which reduces mobility among renters. Indeed, the lowest level of mobility among renters is observed in high homeownership countries such as Eastern European countries, Portugal, and Spain. One crude implication from the negative association between homeownership and residential mobility would be that there is a trade-off between promoting homeownership and encouraging residential mobility.

Exhibit 12

Owner-Occupied Households Tend to be Less Mobile Than Renters



Notes: Residential mobility is defined as the proportion of households that change their main residence over a 1-year period. Restricted to age group 35-64. Source: Household Finance and Consumption Survey

Reducing policy-driven residential mobility costs can help mitigate the trade-off between promoting homeownership and encouraging labor mobility. One relevant area is property transaction costs. For instance, stamp duties and registration taxes are typical transaction costs in buying and selling a property—together with real estate agent fees and legal fees, which are also influenced by government regulations. Data from Global Property Guide’s in-house research published online¹⁰ and used in World Bank (2018) suggest that such transaction costs differ

⁹ This finding is in line with a number of papers such as Causa and Pichelmann (2020) and Caldera Sánchez and Andrews, (2011).

¹⁰ <https://www.globalpropertyguide.com/home>

considerably across OECD countries: they are comparatively high in Belgium, France, Italy, and Greece and comparatively low in the Nordic and Anglo-Saxon countries—in line with replies to the 2009 OECD questionnaire on housing. High transaction costs may discourage property transactions and thus curb the liquidity of housing markets, with potentially negative repercussions for residential mobility. Empirical evidence has indeed shown that high transaction costs tend to reduce residential mobility (Caldera Sánchez and Andrews, 2011; Causa and Pichelmann, 2020; World Bank, 2018).

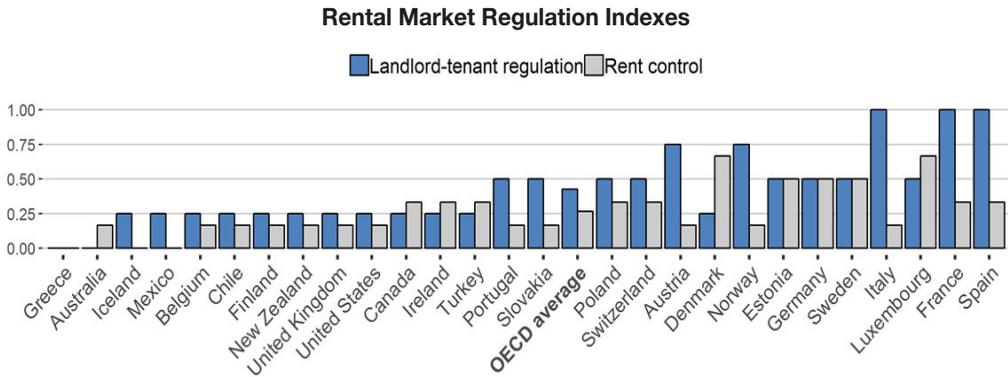
The existing literature has suggested reforms to reduce transaction costs in two areas:

- Shifting from transfer taxes and stamp duties to (progressive) recurrent taxes on residential property. Reforms in this area are likely to make the housing market more liquid and efficient, but they could also make it more volatile and therefore less resilient. Governments need to seek an appropriate balance, taking into account country-specific conditions because transaction taxes can be useful at curbing over-heated housing markets.
- Liberalising professional services to reduce notarial, legal, and real estate agency fees linked to housing transactions. This result can be achieved by reforming conveying procedures to allow for more competition among the providers of housing transaction services. For example, in some countries, the use of notaries is mandatory in real estate transactions. The case for reducing the role and cost of professional services in this area is all the more justified in the context of digitalization that allows using new technologies (such as blockchain) to secure property transactions.

Curbing excessively strict rental regulations can also increase residential, and therefore labor, mobility. Empirical evidence has shown that stricter rent controls and tenant-landlord regulations significantly reduce residential mobility by discouraging the supply of rental housing and by locking-in tenants (Caldera Sánchez and Andrews, 2011; World Bank, 2018). Recently developed indexes of rental regulations suggest that rent control is comparatively strict in countries with a relatively large rental sector such as Denmark and Germany, possibly reflecting that, in countries with large rental sectors, the demand for regulation is greater. Tenant-landlord regulation, however, is measured as comparatively strict both in countries with large (Austria and France) and small (Italy and Spain) rental sectors (exhibit 13). Reforms in the area of rental regulations need to strike a balance between landlords' and tenants' interests to create a security of tenure and avoid market segmentation between sitting and new tenants (Andrews, Caldera Sánchez, and Johansson, 2011). On the one hand, the absence of rent regulations can lead landlords to hold up tenants by unexpectedly raising rents. On the other hand, very strict rental regulations can hold up landlords' property and reduce incentives for investing in rental housing, maintenance, and upkeep.

Exhibit 13

Excessive Rental Market Regulation May Hamper Residential Mobility



Note: The index varies between 0 and 1 and increases in the level of regulation.
 Sources: Kholodilin (2018), Deutsches Institut für Wirtschaftsforschung (DIW)

Reforms to land-use regulations can influence housing supply and, in turn, residential mobility. In particular, where housing supply is more responsive to demand, residential mobility is higher (Caldera Sánchez and Andrews, 2011). This finding may reflect that higher supply responsiveness reduces housing affordability differentials and price gaps across regions, potentially easing relocation. In this context, policies to increase the responsiveness of housing supply are likely to deliver more efficient and inclusive housing markets by curbing excessive house prices and making housing more affordable, reducing geographical disparities and urban sprawl, and encouraging residential mobility. Reforming land-use regulations and building restrictions is key in this respect, while balancing economic, social, and environmental aspects. Security of property rights and better quality of land administration (such as coverage of registration system, reliability of administrative infrastructure, and accessibility of information) have also been found to lead to higher residential mobility across European countries (World Bank, 2018).

Housing-related social transfers and subsidies aimed at addressing inclusiveness and redistributive concerns also influence residential mobility and require careful design to reconcile efficiency and equity objectives. Several studies have found that tenants in social housing are less mobile than private tenants, possibly reflecting the reluctance to give up their below-market rents and their generally more secure tenancies (Caldera Sánchez and Andrews, 2011; World Bank, 2018). This circumstance has been found to be particularly the case in countries where social housing is highly targeted. The causality is unclear, however, since households that are inherently less mobile to begin with—possibly due to unobserved characteristics such as cultural and or social attachment to their local area—may self-select into social housing.

Well-designed income-based portable housing allowances may be preferable to the direct provision of social housing as they do not seem to directly hinder residential mobility. Governments could also consider providing housing or rent subsidies for targeted groups, such as young people who are more likely to move, potentially making benefits conditional on job search responsibilities.

Finally, experimenting with housing vouchers to encourage low-income households to move to higher income neighborhoods is another policy option to encourage residential and social mobility (see Chetty, Hendren, and Katz [2016] for empirical evidence based on the United States). That said, housing allowances have limitations; they cannot guarantee good housing and may adversely affect rent prices. They require careful design in terms of efficiency and targeting to avoid discouraging labor market participation and ensure take-up by households in greatest need for housing (World Bank, 2018).

In this context, social housing is needed, but it should prevent residential segregation by ensuring that it is well integrated in the urban structure with appropriate access to transport sectors and public services. Urban transport planning policies are key complementary instruments, and they should aim at desegregating and connecting people in disadvantaged communities. In addition, frequent reassessment of eligibility of social housing incumbent tenants with appropriate action if eligibility has changed is important, as it frees up accommodation for needier households. Such reassessments may also help encourage residential mobility, but they should be designed to avoid possible disincentives to labor market participation among incumbent tenants.

Conclusion

Political economy considerations affect the design and implementation of housing-related reforms and often make them unpopular:

- **The median voter is a homeowner in many countries.** Besides providing shelter, homeownership is the most important source of wealth accumulation for middle-class households. For low-income households, it is often the only source of wealth transmission across generations through inheritance.
- **One often stated challenge to housing reform is the fact that homeowners can be asset-rich and income-poor.** Indeed, being a homeowner significantly reduces the risk of being asset poor, but it does not affect the risk of being income poor.
- **Public policy tends to favor homeownership relative to renting,** typically via the preferential tax treatment of owner-occupied housing relative to rented housing. Yet the case for departing from housing tenure neutrality in policy design is not clear, neither on efficiency nor on equity grounds.

Informed by the stylized facts in Causa, Woloszko and Leite (2019) this paper discusses policy implications of housing reform to promote inclusiveness and social mobility, to enhance efficiency in the allocation of labor and capital, and strengthen macroeconomic resilience:

- **Making the overall tax system more progressive and efficient,** for instance, by (1) shifting from income to progressive recurrent taxes on immovable property and on inheritance and gifts; and (2) phasing out the regressive features associated with the preferential tax treatment of owner-occupied housing such as mortgage interest deductibility.

- **Reducing household-level financial risks associated with mortgage debt through borrower-based prudential regulation** such as loan-to-value or debt-to-income caps.
- **Promoting residential mobility by** (1) reducing housing transaction costs associated with taxation and the regulation of professional services; (2) curbing excessively strict rental regulations; and (3) reforming social housing programs with a view to avoiding lock-in effects and residential segregation and expanding well-designed portable housing allowances. These actions require complementary investments in public transportation and effective urban planning.

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Graphic Detail

Geographic Information Systems (GIS) organize and clarify the patterns of human activities on the Earth's surface and their interaction with each other. GIS data, in the form of maps, can quickly and powerfully convey relationships to policymakers and the public. This department of Cityscape includes maps that convey important housing or community development policy issues or solutions. If you have made such a map and are willing to share it in a future issue of Cityscape, please contact alexander.m.din@hud.gov.

Using HUD Crosswalk Files to Improve COVID-19 Analysis at the ZIP Code and Local Level

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The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. Government.

Abstract

As the novel coronavirus disease (COVID-19) continues to infect, harm, and kill thousands of Americans, many jurisdictions and institutions are publishing data at the ZIP Code-level, including counts of tests performed, people infected, hospitalizations, and deaths. These data are leading to quickly produced publications with strong conjectures about the forming of geographic patterns. We present an alternative to ZIP Codes when working with local COVID-19 data.

The large, ambiguous shapes and skewed underlying data of ZIP Codes adversely affect statistical analyses, which can lead to incorrect conclusions, particularly in the health sciences (Beyer, Schultz, and Rushton, 2007; Cudnick et al., 2012; Grubestic and Matisziw 2006; Krieger et. al., 2002; Oregon Health Authority, 2020; Sadler, 2019; Wilson, 2015). In particular, a recent study by Harris (2020) from the National Bureau of Economic Research (NBER) simply overlaid New York City (NYC) subway ridership patterns with ZIP Code data to suggest the subway is responsible for COVID-19 concentration patterns across the city.

Using COVID-19 data from the NYC Department of Public Health¹ and subway exit turnstile data from the NYC Metropolitan Transit Authority (MTA),² we examine if any spatial relationships exists between the two, with a more statistically robust analysis than other authors. The COVID-19 data are cumulative to April 30, 2020. The turnstile data are between November 1, 2019, and March 15, 2020; Staten Island data were unavailable for this analysis.³

Using the HUD 2020 quarter 1 ZIP-to-census-tract crosswalk file,⁴ we created positive COVID-19 case density estimates for a more local-level analysis at the census tract-level, thus escaping the adverse effects of ZIP Codes. Our disaggregated estimates from these larger geographic units are robust because of numerous empirical results that exemplify Gibrat's law, which states that a growth rate is proportional to the size of the distribution with which it is in contact (Santarelli, Klomp, and Thurik, 2006; Yigit, 2020). With respect to the growth of COVID-19 in specific neighborhoods, it is expected that the virus growth is clustered in census tracts with a higher population.

The bivariate cluster map in exhibit 1 shows the statistical relationship between census tract distance to the subway station and positive COVID-19 estimate densities (per square kilometer). The Short Distance-High Density (dark orange) are the clusters of interest, which represent census tracts near subway stops that are surrounded by census tracts with high positive COVID-19 estimate densities.

The Bronx and upper Manhattan are the only two boroughs that show a systemic relationship between proximity to the subway stations and high COVID-19 density estimates. However, the subway exit averages, shown as red circles, in these positive density hot spots vary from low to high, with many non-hot-spot subway stops having consistently high exit averages. This is inconsistent with the idea that COVID-19 hot spots would be near high-use subway stops and lines.

¹ <https://github.com/nychealth/coronavirus-data>

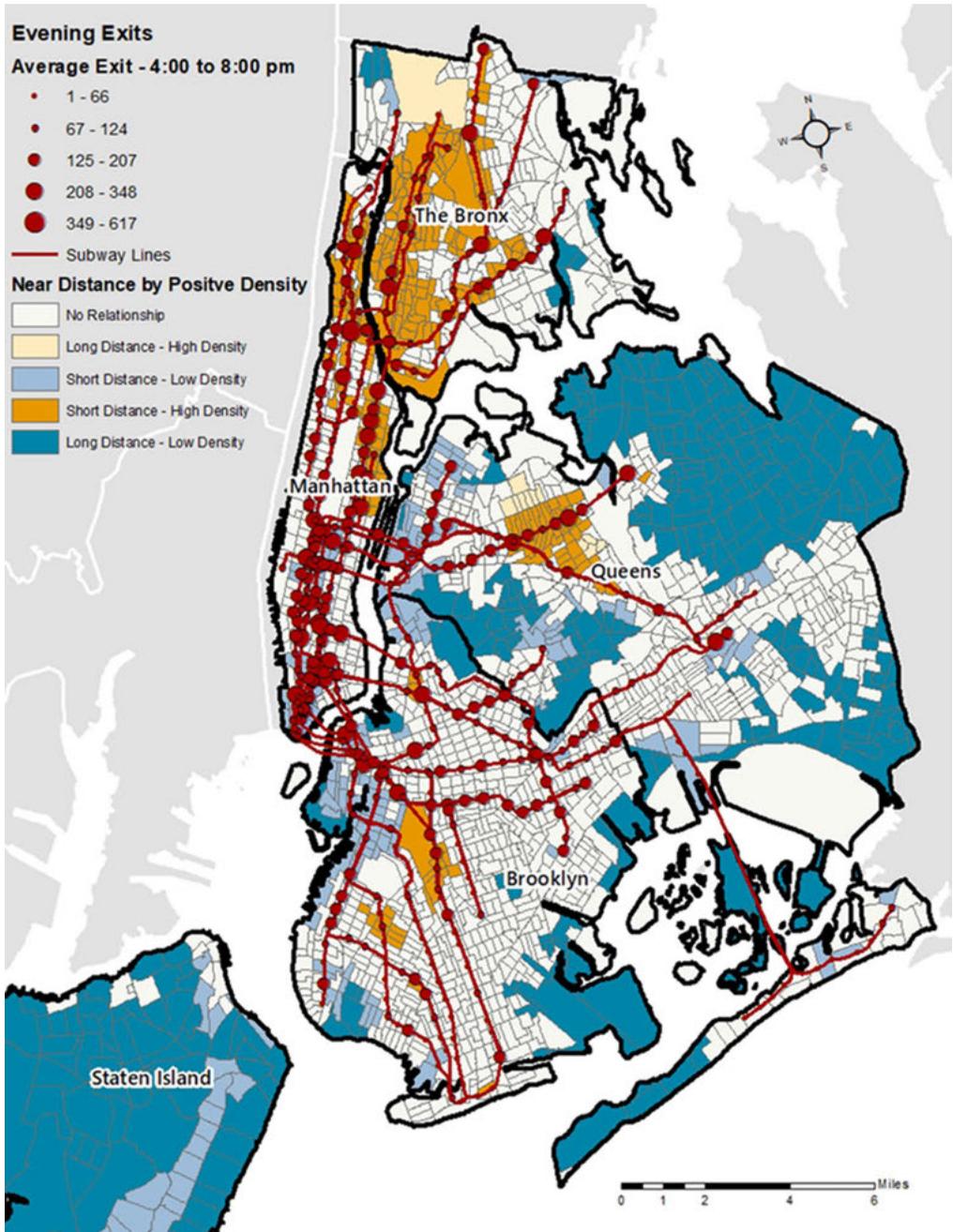
² <http://web.mta.info/developers/developer-data-terms.html>

³ The New York City Subway does not connect to Staten Island. While Staten Island does have passenger rail service via the Staten Island Railway, it does not connect to any of the other four boroughs.

⁴ https://www.huduser.gov/portal/datasets/usps_crosswalk.html

Exhibit 1

COVID-19 Cluster Relationships between Subway Exits Levels and Positive Density Estimates



Source: Metropolitan Transit Authority Turnstile Data November 1, 2019 – March 15, 2020 <http://web.mta.info/developers/turnstile.html>

Lower Manhattan does not show hot spots near subways, while Brooklyn and Queens only show three hot spots. Further, Brooklyn and Queens either show no relationship between distance to the subway and positive densities (light grey) or have Long-Distance Low-Density (dark blue) cold spots that are census tracts far from the subway, surrounded by tracts with low positive densities. Queens has two large cold spots, one in-between a series of subway stops, indicating no in-fill of positive density clusters emanating from being surrounded by the subway.

With some of the above studies suggesting a relationship between high positive densities and population density (population per square kilometer), we examine this relationship in conjunction with distance to the subway (exhibit 2). The first two correlations are the distance to the subway with positive densities and population densities, which primarily indicate that positive and population densities are moderately associated with closer proximity to the subway at about the same levels. However, the third correlation between positive and population densities shows a strong relationship, suggesting that COVID-19 densities are more associated with population density than proximity to the subway.

Exhibit 2

Correlation of Densities of COVID-19 Cases with Distance to the Subway and Population Densities

Geography	Distance & Positive Densities			Distance & Population Densities			Positive & Population Densities		
	<i>r</i>	<i>t</i>	<i>p</i>	<i>r</i>	<i>t</i>	<i>p</i>	<i>r</i>	<i>t</i>	<i>p</i>
The Bronx	-0.41	-8.13	< 0.001	-0.42	-8.33	< 0.001	0.88	33.52	< 0.001
Brooklyn	-0.32	-6.47	< 0.001	-0.37	-10.92	< 0.001	0.72	27.99	< 0.001
Manhattan	-0.15	-2.63	0.009	-0.12	-1.93	0.055	0.77	19.97	< 0.001
Queens	-0.37	-10.31	< 0.001	-0.49	-14.47	< 0.001	0.82	37.85	< 0.001
Staten Island	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>
New York City	-0.32	-15.64	< 0.001	-0.43	-21.35	< 0.001	0.75	51.48	< 0.001

A simple regression of positive COVID-19 density estimates (*y*) in relation to the distance to the subway (*x*₁) and the population density (*x*₂) shows no statistical relationship between the positive estimates when controlling for the population density (exhibit 3). This baseline model indicates that increased COVID-19 estimates are related more to increased population density than to proximity to subway stations. The adjusted R-squared of 0.57 shows that this initial baseline model indicates that it has a strong explanatory power of the positive estimates being unrelated to tracts near subway stations.

Exhibit 3

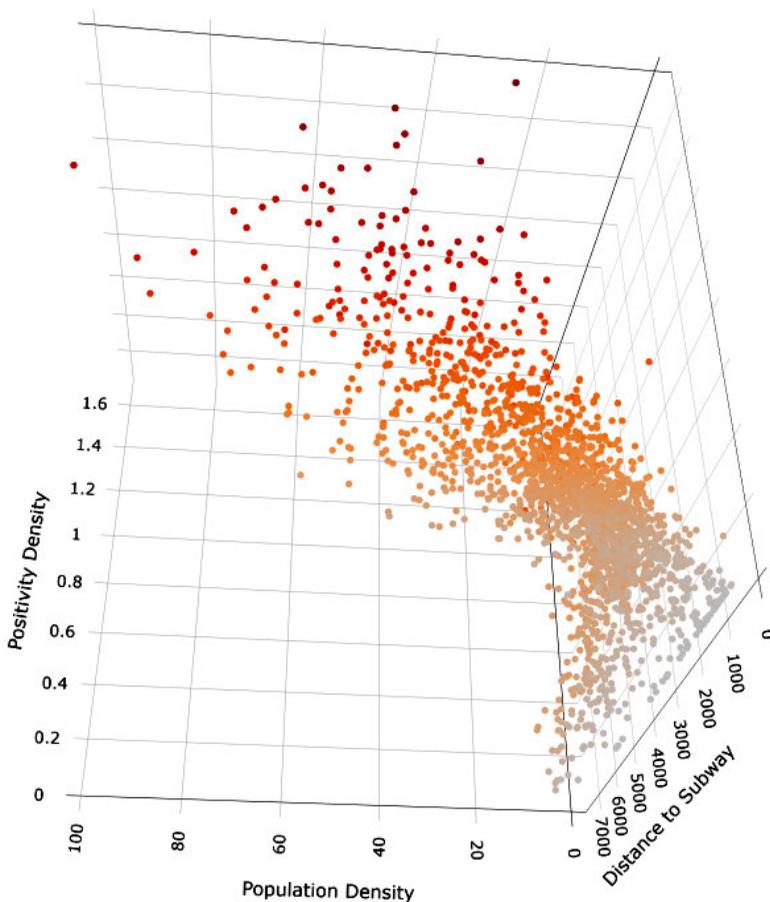
Regression Coefficients Between Distance to Subway, Positive Case Density, and Population Density

Variable	Estimate	Std. Error	t-Value	Pr(> t)
<i>intercept</i>	0.0524	0.0081	6.429	0.0000 ***
Distance to Subway	-1.2E-06	3.2E-06	-0.371	0.7100
Population Density	0.0124	0.0003	46.295	0.0000 ***

Exhibit 4, a 3D scatter plot, exemplifies the regression relationship between near distance to subway (x), population density (y), and positive estimates (z). The pattern in the data cloud reveals a higher correlation between the positive COVID-19 estimates and population density than with distance to the subway. The relationship trend in exhibit 4 shows that the positive estimate density rises steeply at very close distances to subway stations but is pulled away and spread widely on the population density axis.

Exhibit 4

Correlations between Distance to Subway, Positive Case Density, and Population Density



This pattern indicates that positive COVID-19 densities increase with population density, and population density increases as distance to the subway stations decreases. With the color gradient showing changes in positive estimate density, the pattern shows that the highest positive density estimates correspond with the highest population densities near the subway stops.

Correspondingly, the pattern revealed in the data cloud in exhibit 4 corresponds with the regression results in exhibit 3. That is, the positive COVID-19 estimates are more associated with higher population density than being close to subway stations.

Our analysis aligns with other research that suggests COVID-19 clusters may be related to something other than public transportation such as places where people spend a more significant amount of time (Bromage, 2020; Kay, 2020). With COVID-19 primarily requiring longer periods of exposure than typical subway rides, it is not yet proven that public transportation is the culprit for spreading the virus. More so, the virus seems to be associated with higher population densities, which is in line with the nature of a communicable outbreak (Yigit, 2020).

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The Changing Geography of Spatial Mismatch

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Abstract

Using data from Snagajob, we analyze spatial mismatch for low-wage workers in Detroit, Michigan, and Seattle, Washington. In Detroit, more low-wage job seekers than jobs exist in the central city, while the suburbs have a larger number of low-wage jobs than workers seeking those jobs. In Seattle, there is an overabundance of low-wage job seekers in the suburbs and an overconcentration of low-wage jobs in the central city.

In many cities in the United States, low-wage workers live far from available jobs (Stacy et al., 2019). This phenomenon, called spatial mismatch, causes high unemployment rates and longer spells of joblessness among lower-paid workers (Andersson, Klaesson, and Larsson, 2014; Bruekner and Zenou, 2003), particularly Black residents, women, and older workers (Andersson et al., 2018). Although spatial mismatch theory was initially developed through the lens of racial discrimination, the mechanisms are also relevant to households with low incomes.

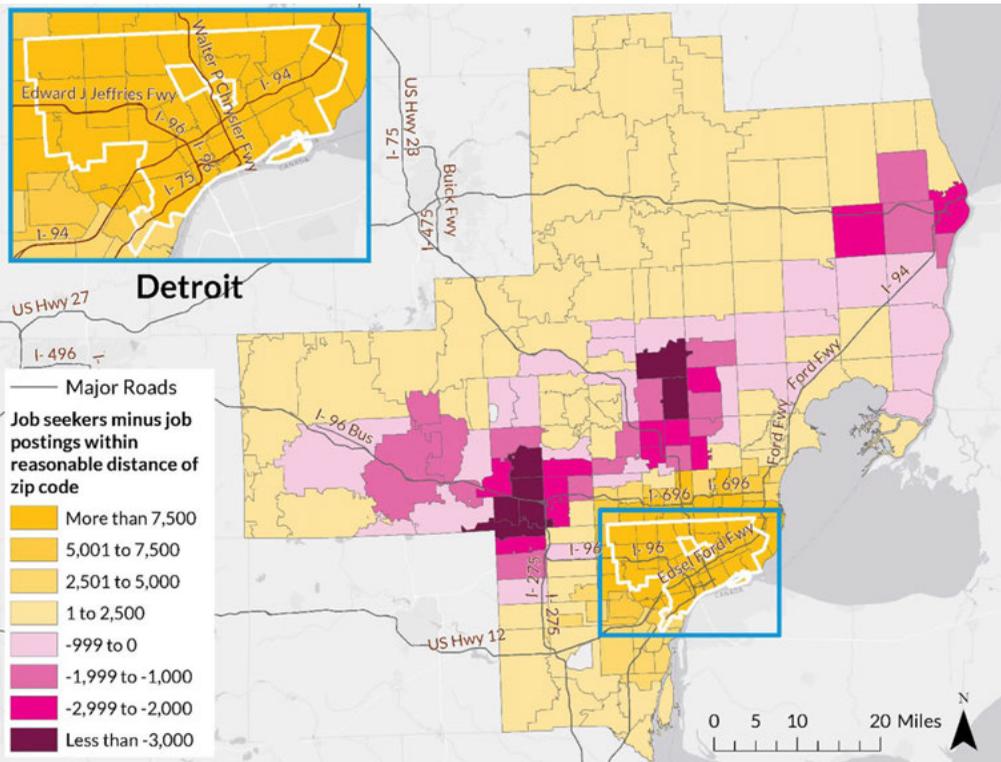
To measure spatial mismatch, we use data from Snagajob, the largest online marketplace for hourly jobs. We use Snagajob applicant and posting data from 2015 to calculate a measure of spatial mismatch—specifically, the number of job seekers minus the number of job postings within a reasonable commuting distance of each ZIP Code.¹ We define the reasonable commuting distance to be a 6.3-mile radius around the population-weighted center of each ZIP Code because that is the average distance (after removing outliers) in the Snagajob data between job seekers' home ZIP Codes and the ZIP Codes in which they apply to jobs. We calculate spatial mismatch for the 16 metropolitan statistical areas (MSAs), which were selected to create a diverse group of places based on geography, population growth, and labor market conditions.

¹ In accordance with the data-sharing agreement with Snagajob, we were provided data aggregated to the ZIP Code, as the smallest level of geography they were comfortable releasing.

When this phenomenon was first studied in the 1960s, 1970s, and 1980s, the type of mismatch that was most prevalent followed a pattern in which low-income workers lived in central cities and jobs predominantly existed in the suburbs (Ellwood, 1986; Holzer, 1991; Kain, 1968; Wilson, 1987). This kind of spatial mismatch pattern is still visible today in some cities, such as Detroit (exhibit 1). In Detroit, more low-wage job seekers than jobs exist in the central city, while the suburbs have a larger number of low-wage jobs than workers seeking those jobs.

Exhibit 1

Spatial Mismatch in the Detroit, Michigan Area, 2015



Note: "Reasonable distance" is 6.3 miles from the population-weighted centroid of each ZIP Code, the average distance between job seekers and jobs for each application in our dataset.
 Sources: Urban Institute analysis of 2015 Snagajob data; map layers from Esri, HERE, Garmin, OpenStreetMap contributors, and the GIS user community

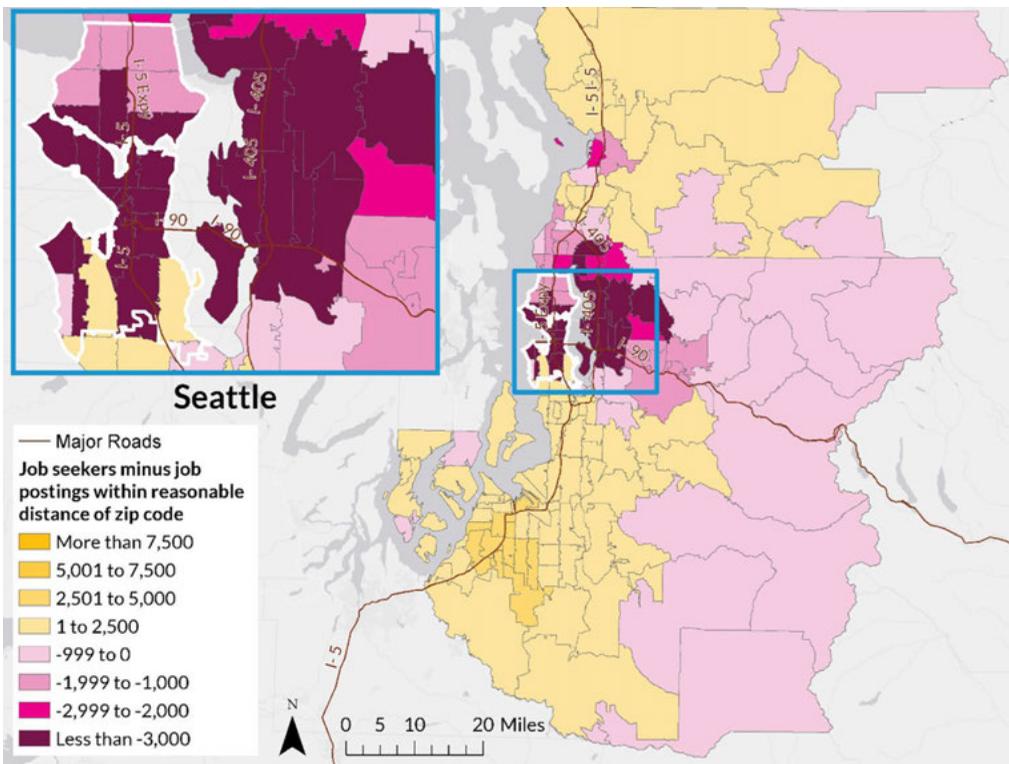
Since the early 2000s, however, many cities have begun to face a new type of spatial mismatch, with lower-wage workers overconcentrated in the suburbs and job opportunities located in the urban core. This pattern is at least partially due to a residential and employment resurgence, where younger and higher-skilled individuals have increasingly chosen to live closer to downtown areas (Baum-Snow and Hartley, 2017; Couture and Handbury, 2017; Edlund, Machado, and Sviatschi, 2015). This influx of relatively high-income earners has led to the gentrification of many historically low-income neighborhoods, putting pressure on incumbent residents, especially low-income renters, to move elsewhere in search of affordable housing (Brummet and Reed, 2018).

In some cities, this increased density of higher-income residents in the urban core has led to the displacement of lower-income residents into the suburbs.

This form of spatial mismatch is visible in Seattle (exhibit 2), where there is an overabundance of low-wage job seekers in the suburbs, and an overconcentration of low-wage jobs in the central city. This mismatch could be due to the high cost of rental housing in Seattle, forcing lower-wage workers to seek housing farther outside of the city. In 2017, Seattle had the 4th highest gross rent of any city in the country at \$1,555.²

Exhibit 2

Spatial Mismatch in the Seattle, Washington Area, 2015



Note: "Reasonable distance" is 6.3 miles from the population-weighted centroid of each ZIP Code, the average distance between job seekers and jobs for each application in our dataset.

Sources: Urban Institute analysis of 2015 Shajob data; map layers from Esri, HERE, Garmin, OpenStreetMap contributors, and the GIS user community

To address spatial mismatch, cities should use data to better understand their own mismatch patterns and design policy and practice solutions to link people to jobs. Investments in affordable housing and increasing urban density (Durst, 2020), transit connections between areas of opportunity and pockets of poverty (Ong and Miller, 2005), and advancements in career pathways

² Balk, Gene. 2019. "Seattle now most expensive city for renters outside California, census data shows." *The Seattle Times*. July 30. <https://www.seattletimes.com/seattle-news/data/seattle-now-most-expensive-city-for-renters-outside-california-census-data-shows>.

and wages for low-wage workers may be ways to reduce the negative impacts of spatial mismatch. Special consideration should also be given to those living in public housing and federally subsidized housing who have experienced increased levels of spatial mismatch compared with similar populations of unassisted households (Stacy et al., 2020). More research is needed to understand the specific patterns of mismatch in different cities and to identify solutions that work to reduce the negative impacts of mismatch.

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Urban Greenery and Public Housing

Brian Stromberg

Department of Housing and Urban Development

The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. Government.

Abstract

Urban greenspace has demonstrably beneficial impacts on mental and physical health. Greenspace and tree canopy also play a role in reducing local temperatures, which reduces heat-related mortalities. This is particularly important in cities that act as “urban heat islands.” This short article reviews the research on these two topics and provides a simple analysis of the location of public housing buildings in Washington, D.C. in relation to tree canopy and greenspace.

Urban greenery in its various forms (urban forestry, city parks, urban agriculture, greenspace, and so on) has been shown to provide a wide range of physical and mental health benefits to urban populations (Beyer et al., 2014; Thompson et al., 2012). This evidence ranges from improved recovery of hospital residents with view of trees outside their windows (Ulrich, 1984) to stress reduction prompted by the Japanese practice of Shinrin-yoku (Park et al., 2007).

Research on the mental and physical well-being of HUD-assisted residents suggests they would benefit from increased access to greenspace. Helms, Sperling, and Steffen (2017) compared the physical and mental health of HUD-assisted adults to unassisted low-income adults and the general adult population. The results of this research indicate that HUD-assisted households tend to have poorer health than other households in the country. Almost 36 percent of adults in HUD-assisted housing reported their health as fair or poor, compared with 24 percent for unassisted low-income renters and 14 percent for the general adult population (Helms, Sperling, and Steffen, 2017). This self-reporting was supported by the fact that HUD-assisted adults suffered from higher rates of various physical health conditions such as diabetes, asthma, heart disease, and obesity. The mental health of HUD-assisted adults was also markedly worse than the two comparison groups; 12 percent of HUD-assisted adults experienced serious psychological distress, compared with 9 and 4 percent for unassisted low-income renters and the general population.

These increased rates of physical and mental stress in HUD-assisted adults could be reduced by expanded access to greenspace, according to the research that has been done. One of the earliest contemporary experimental analyses of the health impact of green space was Maas et al. (2006). The authors looked at the connection between health outcomes and the percentage of green space in individuals' immediate environment. More recently, Beyer et al. (2014) looked at the population of Wisconsin and found, quite simply, that "higher levels of green space correspond to better mental health outcomes" (p. 3466). This positive impact is comparable to the difference between individuals with and without private health insurance. The authors also suggested that the greening of neighborhoods could help offset the stress of high unemployment rates and residential segregation.

Simple access to green space was shown in Miami to reduce the incidence of chronic medical conditions in Medicare recipients (Brown et al., 2016; 2018). Those medical conditions included both physical and mental conditions such as diabetes, hypertension, obesity, Alzheimer's disease, and depression. A study in California found that the presence of tree canopy resulted in better self-reported health; a lower prevalence of obesity; stronger neighborhood cohesion; and lower rates of diabetes, high blood pressure, and asthma (Ulmer et al., 2016). Additional studies abound in the literature that connect greenspace to positive mental and physical health outcomes.

The presence of tree canopy can also help mitigate the health impacts of extreme heat events, which are in turn amplified by the urban heat island (UHI) effect that causes significantly higher temperatures in developed areas that lack vegetation (Mallen et al., 2020). For example, a 2017 analysis of temperature and vegetative land cover in Washington, DC, connects neighborhood-level variations in temperature with the presence of green land cover (McCo, 2018; see also Smith, 2017).

Extreme heat exacerbates existing health issues and can increase mortality (Bowler et al., 2010; Buchin et al., 2016). These temperature variations can have particularly significant consequences for low-income and minority communities, who tend to have higher mortality rates and higher healthcare costs during extreme heat events (Schmeltz, Petkova, and Gamble, 2016; Schwartz, 2005; Smith, 2017; Wondmagegn et al., 2019). HUD-assisted households can generally be described as part of these more vulnerable populations.

The maps included in this article show the relationship between urban greenspace and tree canopy and public housing buildings in Washington, DC. The land cover data comes from the Chesapeake Conservancy, and provides 1-meter resolution coverage for the entirety of the Chesapeake Bay's watershed (Chesapeake Conservancy, 2020). This raster data was used to produce a series of maps that compare the distribution of public housing to tree canopy coverage.

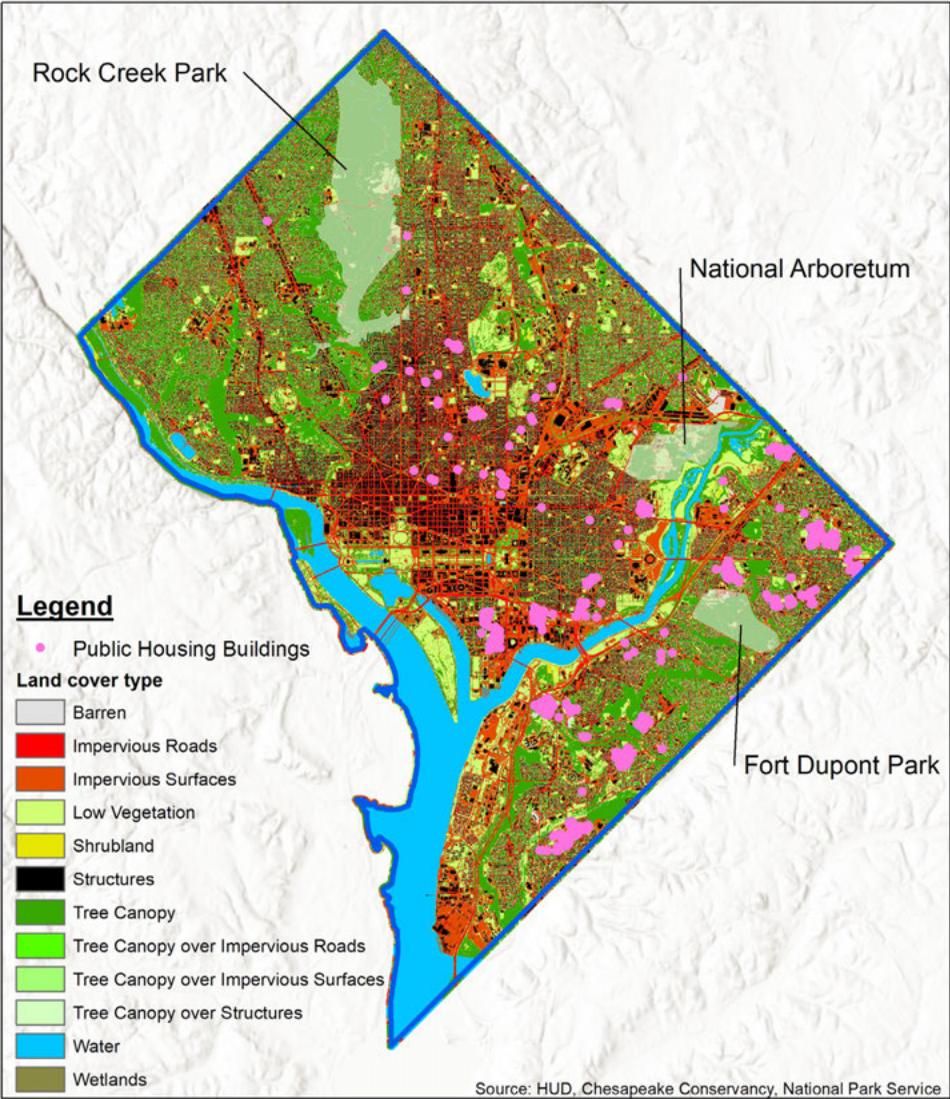
Exhibit 1 shows public housing building locations and the land cover raster data for DC classified according to specific types.¹ Exhibit 2 generalizes the raster according to whether the cells are classified as any type of tree canopy or some other type. Exhibit 3 further generalizes the raster data into hexagonal cells, shaded according to the total amount of tree canopy cells in each hexagon.

¹ A live, colorized version of the same data can be found on the Chesapeake Conservancy's website here: <https://chescon.maps.arcgis.com/apps/webappviewer/index.html?id=9453e9af0c774a02909cb2d3dda83431>

Exhibit 1

Urban Greenery and Public Housing, Washington, DC

Classified land cover raster overlaid with public housing buildings and significant National Park areas.

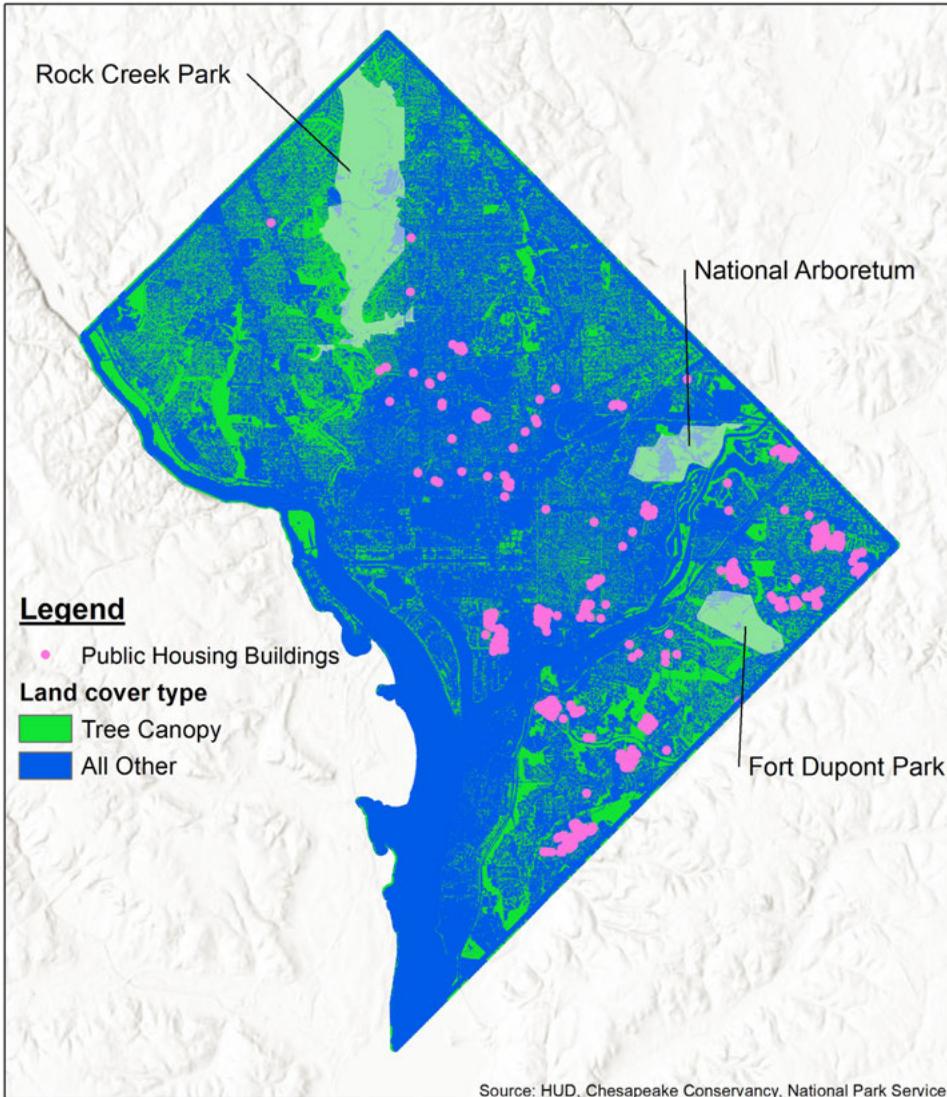


Sources: HUD, Chesapeake Conservancy, National Park Service

Exhibit 2

Urban Greenery and Public Housing, Washington, DC

Tree canopy land cover raster overlaid with public housing buildings and significant National Park areas.

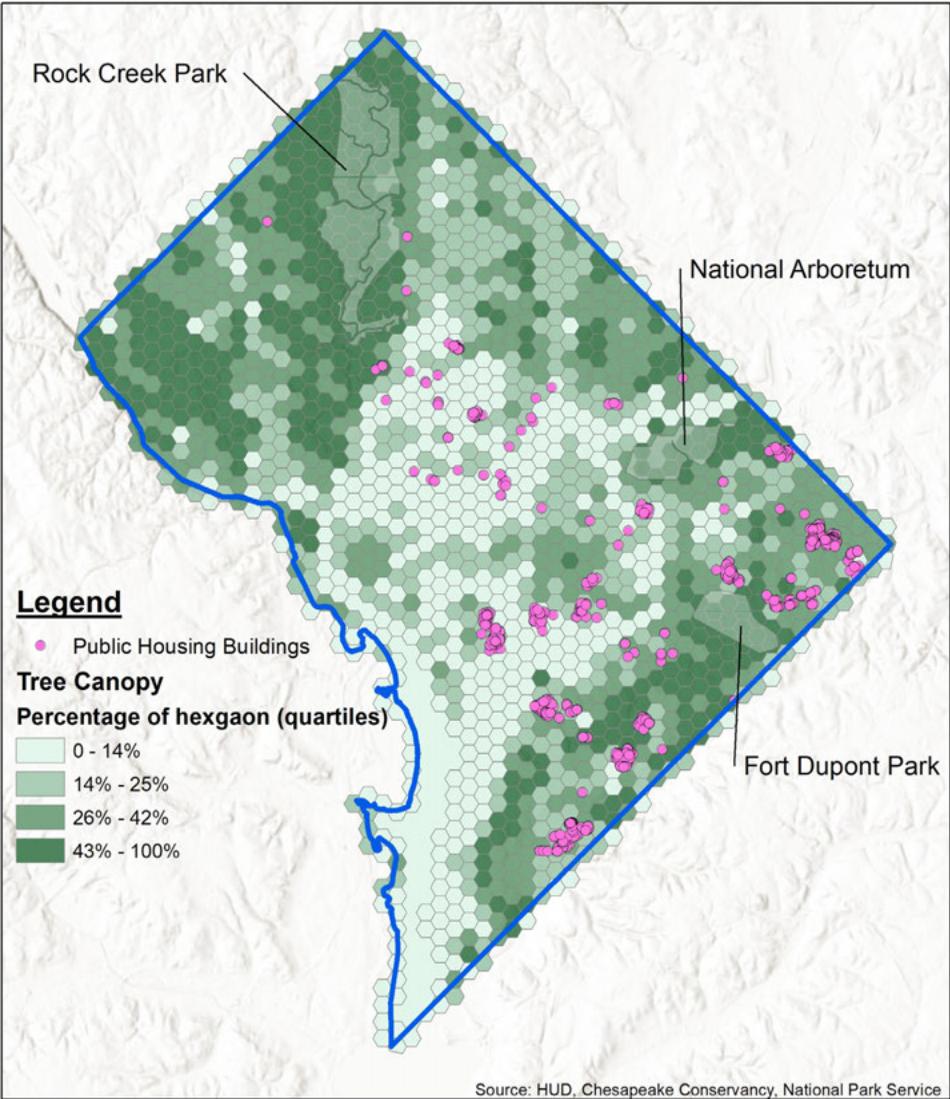


Sources: HUD, Chesapeake Conservancy, National Park Service

Exhibit 3

Urban Greenery and Public Housing, Washington, DC

Tree canopy summarized to hexagons, overlaid with public housing buildings and significant National Park areas.



Sources: HUD, Chesapeake Conservancy, National Park Service

A simple summary of land cover types suggests that public housing buildings have less tree canopy and more impervious surfaces in their immediate area than the District has as a whole. Exhibit 4 compares the percentage of land cover types across DC to the percentage of land cover in a quarter-mile radius around public housing buildings. The area around public housing also has a much higher percentage of low vegetation and barren land cover.

Exhibit 4

Percentage of Land Cover Types Across DC and Within a Quarter-Mile of Public Housing		
Land Cover Type	Districtwide Percentage (%)	Public Housing Percentage (%)
Tree canopy	30.36	23.49
Impervious surfaces	16.71	21.60
Low vegetation	16.43	17.87
Structures	15.42	21.27
Impervious roads	10.68	14.72
Water	10.00	0.51
Barren	0.24	0.39
Shrubland	0.14	0.13
Wetlands	0.03	0.00

Source: Author's calculations using Chesapeake Conservancy data

This analysis is basic and could be significantly improved in several ways. Potential improvements include dimensions of population density and other socioeconomic characteristics and the distribution of impervious surfaces throughout the neighborhoods would give a better sense of where tree canopy is found across the city. Spatial regression analysis would also provide a more detailed sense of how tree canopy is distributed. These more advanced methods may be pursued in future research.

This article focuses on tree canopy, but greenspace in general is the main focus of a large part of the literature on the benefits of urban greenery. A broader analysis of greenspace is complicated by questions of access. A project that includes remote sensing imagery with on-the-ground data collection would provide a better sense of where greenspace is located and how accessible it may be.

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Industrial Revolution

Every home that is built is a representation of compromises made between different and often competing goals: comfort, convenience, durability, energy consumption, maintenance, construction costs, appearance, strength, community acceptance, and resale value. Consumers and developers tend to make tradeoffs among these goals with incomplete information which increases risks and slows the process of innovation in the housing industry. The slowing of innovation, in turn, negatively affects productivity, quality, performance, and value. This department piece features a few promising improvements to the U.S. housing stock, illustrating how advancements in housing technologies can play a vital role in transforming the industry in important ways.

Reviving Rammed Earth as a Sustainable Construction Technique

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The views expressed in this article are those of the authors and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. Government.

Abstract

The status quo for single-family home construction has been wood frame construction, commonly called “stick framing” because of the dominant use of 2” x 4” dimensional lumber. Wood frame construction has served the homebuilding community well; however, alternative building approaches are beginning to catch on. The alternative discussed in this article—rammed earth—is actually a historical construction technique that practitioners are reviving.

Introduction

Rammed earth is a construction technique in which subsoil¹ is compressed within a vertical formwork to form the walls (generally, exterior) of a building. The subsoil is added layer by layer, rather than all at once. These layers are called “lifts” (see exhibit 1). Compacting each lift ensures even compression across the entire wall section. In modern use, rammed earth is typically stabilized with a stabilizing agent—Portland cement being the most common. This technique is called stabilized rammed earth.

Exhibit 1

Corner of wall with lifts clearly shown.



Source: West Virginia University

¹ Subsoil is the layer of soil under the topsoil. Subsoil is typically composed of a mixture of sand, silt, and clay.

Over the past quarter century, rammed earth construction has received renewed attention due to its desirable, green characteristics. The North American Rammed Earth Building Association (NAREBA) and other green advocates have led the movement for increased attention. This interest led to a standardization effort for the use of rammed earth and other earthen wall construction techniques the civil engineering community uses. In 2010, the American Society for Testing and Materials International (ASTM) created the *Standard Guide for Design of Earthen Wall Building Systems*, which “provides guidance for earthen building systems, also called earthen construction, and addresses both technical requirements and considerations for sustainable development.”

History of Rammed Earth

The basic construction techniques involved in rammed earth construction have been used for centuries. In China, rammed earth structures built 500–1,000 years ago remain standing and in use today (Liang et al., 2013). Several hundred years ago, the indigenous inhabitants of the southwest region of the United States were adept at using local materials (primarily earth/clay mixtures) to build durable structures that provided relative comfort against both the heat of summer and bitter cold of winter (Hardin, Merry, and Fritz, 2003).

The U.S. Department of Agriculture published one of the earliest modern technical documents for rammed earth construction in May 1937. The report noted that “no permanent building material is cheaper, and when spare-time farm labor is employed, very little cash outlay is required to erect durable structures” (Betts and Miller, 1937).

No single event started the modern era of rammed earth construction. Some practitioners never stopped employing it because of the low cost and low technology of the technique. The 2003 report by Maniatidis and Walker gives an excellent overview of the literature on rammed earth (Maniatidis and Walker, 2003).

Benefits

Rammed earth is a sustainable and natural construction material providing many environmental benefits. Possible benefits of rammed earth over wood framing include:

- Durability of the technique, which is demonstrated by historical buildings that were constructed using the same technique and are still standing to this day.
- The construction skills required to build a rammed earth wall can be easily acquired without formal training, which is especially beneficial in rural areas with unskilled labor availability.
- High thermal mass coupled with modern insulation materials of the rammed earth walls allows for the modulation of indoor temperatures. This feature makes the home more comfortable during the spring and fall.
- Low material and transportation costs due to the nearly universal availability of suitable subsoil.

Drawbacks

- One major limitation of rammed earth construction is its labor intensiveness.
- Another limitation, related to the high thermal mass of the rammed earth walls, is the slow temperature adjustment of the living space. This characteristic may happen in the winter or summer if the home's heating or cooling equipment is turned off or reduced and then turned back on. Indoor comfort can also be impacted if the heating or cooling capacity of the equipment is not able to quickly overcome the thermal mass of the wall system.

A Rammed Earth Home in Alaska

In 2016, HUD supported the construction of a stabilized rammed earth home by the Aleutian Housing Authority (AHA) in Butte, Alaska (see exhibit 2). AHA was interested in demonstrating a stabilized rammed earth (SRE) affordable home because of their desire to produce the most energy-efficient and healthiest homes possible at the lowest possible cost.

Exhibit 2

Roof assembly being constructed on the Aleutian Housing Authority stabilized rammed earth home.



Source: West Virginia University

Because the AHA home was built in a cold climate region, builders sandwiched a layer of insulation between two stabilized rammed earth layers to provide a highly insulative wall assembly; this method is suitable for residential or commercial building types (Windstorm and Schmidt, 2013). One major benefit of insulated stabilized rammed earth construction (sometimes called SIRE, for Stabilized Insulated Rammed Earth) is high R-values² (Windstorm and Schmidt, 2013).

² R-value is the measure of resistance to thermal conduction from one side of the material to the other; in this case, it is the temperature difference between the inside and outside walls.

Furthermore, the home was designed to have maximum passive solar heating. Energy modeling suggested that passive solar heating will satisfy 20 percent of the annual space heating requirements in the home. An innovative natural gas-fired heating system will provide for the portion of the space heating demand not met by passive solar heating. The heart of the heating system is a condensing storage tank-type water heater that provides both domestic hot water for bathing and washing and heat for in-floor radiant heating. This heating system was selected for a variety of reasons. First, because annual space heating loads and heating demand for the home are roughly 75 percent lower than average homes in the surrounding area (a function of the high levels of insulation and air-tightness provided by the building envelope), the heating system needs to provide only minimal levels of heat output to maintain comfortable conditions inside the home. Hot water heating demand, by contrast, is more a function of occupant behavior (shower length, laundering practices, and so on) and thus does not vary significantly between more and less energy-efficient homes.

Performance Validation of Aleutian Housing Authority Home

West Virginia University (WVU) has been evaluating the performance of the AHA SIRE home since its construction. The evaluation includes testing of the wall system for its structural properties in a mechanical properties laboratory at WVU and monitoring its energy use, thermal performance, living comfort, and durability at the Butte, Alaska site.

Researchers evaluated SRE from 75 specimens consisting of cylinders, beams (reinforced and unreinforced), and blocks for its compressive and flexural strengths, fatigue, freeze-thaw durability, and thermal performance. For example, researchers evaluated three 8" x 14" x 123" reinforced SRE beams designed to simulate the load carrying capacity of window lintels in Alaska in a three-point bending-shear test after two of the beams were exposed to fatigue and creep conditions that would be present in the field (see exhibit 3). Researchers also tested the SRE wall sections with several simulated earthquake loads. The result shows that walls displayed minimal deformation under earthquake load types and were deemed adequate for the specific service loads evaluated.

Researchers cycled samples for a number of freeze and thaw cycles and then evaluated them under compression to determine the loss in strength when compared with uncycled control specimens. The addition of fibers in the mix design was found to enhance the flexural capacity of the beam and its freeze-thaw durability, whereas the freeze-thaw evaluations demonstrated very promising long-term freeze-thaw durability for the building in Alaska. Thermal performance studies of the wall assembly concluded that an R-value of 40 could be achieved with two sections of SRE measuring 8 inches each with, 8-inch interstitial foam as insulation.

Exhibit 3

A stabilized rammed earth (SRE) beam being tested at WVU.



Source: West Virginia University

The mechanical property testing concluded that SRE is nearly as strong as low-strength (~2500 psi) concrete but has a near-zero impact on our environment. Highly energy-efficient rammed earth wall construction can be durable and earthquake-resistant.

Ongoing performance monitoring of the AHA SIRE has demonstrated the comfortable living environment of the home, including stable temperature and humidity and good indoor air quality. As noted earlier in the drawbacks, however, the large thermal mass of the rammed earth walls can tax the heating system of the home under certain conditions.

The AHA SIRE home has demonstrated that rammed earth construction can be adapted for Alaska. A safe and energy-efficient housing unit can be built using local materials and local unskilled labor.

Further Reading

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