Moving to Work Retrospective

A Picture of Moving to Work Agencies' Housing Assistance

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The Impact of the Moving to Work Demonstration on the Per Household Costs of Federal Housing Assistance

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

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Housing Choice and Self-Sufficiency Outcomes at Moving to Work Agencies

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Foreword

The Moving to Work (MTW) demonstration, launched in 1996, gives participating public housing agencies (PHAs) the flexibility to design and test new ways of providing housing assistance if the new policies are intended to achieve one or more of the following statutory objectives: (1) to reduce cost and achieve greater cost effectiveness in federal expenditures; (2) to give incentives to families with children where the head of household is working, seeking work, or preparing for work; and (3) to increase housing choices for low-income families. This study, one of six reports produced by HUD's retrospective evaluation of MTW, investigates the impact of MTW on housing choice and self-sufficiency outcomes.

The same flexibilities that make MTW potentially attractive to PHAs also make interventions tougher to evaluate. This evaluation assesses the impact of MTW on outcomes related to the demonstration's statutory objectives through the use of an innovative Comparative Interrupted Time Series (CITS) approach that sums up the impacts of diverse policies implemented by agencies to see if these efforts produced similar outcomes. This study represents the most exhaustive effort yet to examine the aggregate effects of MTW on housing choice and self-sufficiency.[1]

The study finds suggestive evidence of positive impacts from MTW on three self-sufficiency measures: (1) the share of MTW-assisted households with income gains after entry into assisted housing (albeit from a lower baseline); (2) the share of work-able households reaching minimal Housing Assistance Payment (HAP) standards; and (3) the share of those households who subsequently leave assistance. Though promising, the impacts observed were moderate and deserve further study.

HUD is currently expanding the MTW demonstration to add 100 new agencies, as directed by the Consolidated Appropriations Act of 2016. This expansion provides the opportunity to implement and test strategies that will inform the design of future rental assistance initiatives and support HUD's efforts to enable MTW and traditional agencies to serve a greater number of eligible families.

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[1] The data in this report reference MTW agencies that were designated as of December 15, 2015.

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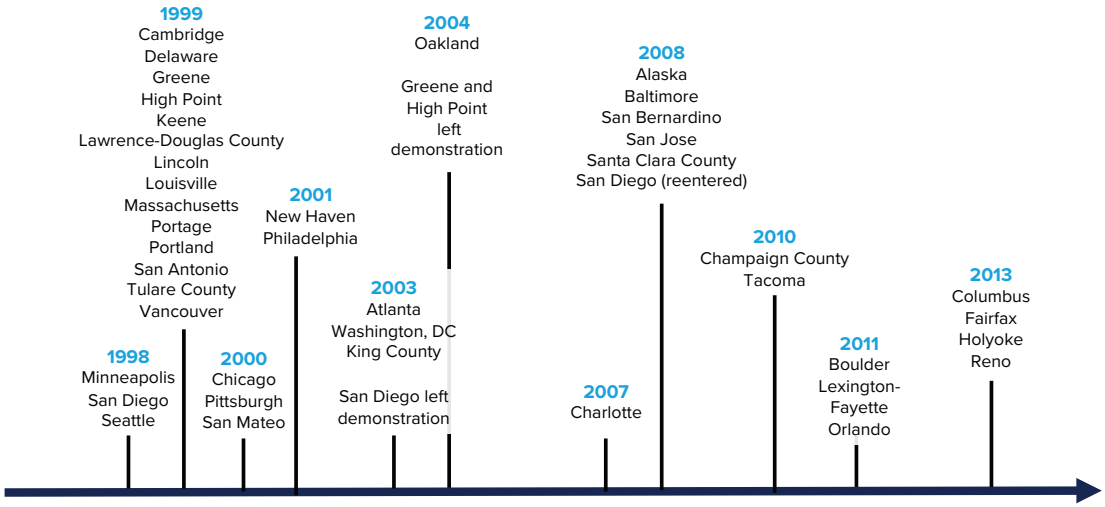
Introduction

The Moving to Work (MTW) demonstration gives a small set of public housing agencies (PHAs) funding and policy flexibility not available to traditional PHAs. PHAs who join MTW may combine operating, capital, and tenant-based assistance funds into a single agencywide funding source and, through a planning and approval process with HUD, can be exempted from a number of public housing and Housing Choice Voucher (HCV) program regulations and restrictions.[2] The original MTW demonstration launched in 1996, and as of 2018 there were 39 active MTW agencies (appendix A).[3] HUD executed MTW agreements at 11 different points between 1998 and 2013 (see exhibit 1).

Exhibit 1: Timeline of Moving to Work Agreements



Note: Year shown is the year Moving to Work contracts were executed.

Source: Documents retrieved from HUD's MTW portal https://www.hud.gov/mtw

MTW agencies can use flexibilities to implement activities that further the demonstration's three statutory objectives, which are to (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, and (3) increase housing choices for low-income families. These objectives are referred to as cost effectiveness, self-sufficiency, and housing choice.[4]

This study focuses on MTW agencies' success meeting the statutory objectives to increase housing choice and encourage self-sufficiency. It is one of six studies included in the HUD-sponsored MTW Retrospective Evaluation (exhibit 2). A separate study (Stacy et al., 2020) focuses on the statutory objective of cost effectiveness.

[2] Throughout this report, we refer to housing agencies with MTW designation as MTW agencies and housing agencies without MTW designation as traditional PHAs.

[3] The 2016 Consolidated Appropriations Act authorized HUD to grant MTW designation to an additional 100 agencies by approximately 2022. For more information on the MTW demonstration, as well as the MTW Expansion, see https://www.hud.gov/mtw.

[4] 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 housing meets quality standards determined by HUD.

A goal of this study is to explore methodologies that allow us to examine household-level housing choice and self-sufficiency outcomes for MTW agencies *as a group*. A persistent question for researchers and policymakers is whether MTW leads to improved individual- or household-level outcomes related to the program's statutory objectives. Evaluating aggregate effects of MTW is challenging, however, because of the complex nature of the demonstration. For example, MTW designation does not suggest a single required or discrete intervention (also called "treatment") designed to affect a particular individual- or household-level outcome. Instead, designation is intended to encourage agencies to innovate with strategies tailored to their local conditions. Each MTW agency can use its MTW flexibilities to pursue activities that may have different outcome goals and are executed at different scales. The statutory objectives are not explicitly defined by HUD, and agencies may identify their own definitions—which may vary even within the same agency for different programs or activities. Agencies are expected to experiment with policy reforms or housing assistance models that respond to local contexts and needs. Finally, the MTW agencies themselves 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.

As a result of these challenges, little research measures aggregate effects of MTW designation on the statutory objectives. The current study seeks to expand the sparse literature on aggregate MTW effects by introducing an approach that is more rigorous and comprehensive than has been applied previously, using a combination of longitudinal HUD administrative data and a unique database of publicly available MTW Annual Plans.

We use Comparative Interrupted Time Series (CITS) analysis to compare MTW agencies and traditional PHAs in terms of three housing choice outcomes and four self-sufficiency outcomes. The housing choice measures include (1) newly admitted households as the share of all households, (2) the share of tenant-based or Housing Choice Voucher (HCV) households in low-poverty census tracts, and (3) a measure of the quality of public housing units at a given PHA. The self-sufficiency outcomes include (1) the share of existing work-able households with rising income, (2) the percent of work-able households with an escrow account, (3) the share of existing work-able households with housing assistance payment (HAP) below $50, and (4) the share of existing work-able households leaving assistance in the year after attaining minimal HAP. These measures are drawn from the literature and from information available in the agencies' MTW annual reports describing their activities and goals. (See exhibits 5 and 6 for details.)

For analysis, we created different groups of MTW agencies to capture two different possible mechanisms of MTW's impact on housing choice and self-sufficiency. The group of agencies selected because they received MTW designation is referred to as the "MTW-status" group of agencies. The groups of agencies selected because they enacted activities with a broad scope that promote housing choice and/or self-sufficiency are referred to as "MTW activity-specific" groups.

- The "MTW-status" group includes agencies that joined MTW between 2008 and 2011, regardless of the types of MTW activities they have engaged in; this group represents the impact of simply receiving MTW designation.

- The "MTW activity-specific" groups include agencies that had significant activities directly related to one or more of the seven housing choice and/or self-sufficiency measures in this study; these groups represent the impact of using MTW flexibilities to implement activities expected to increase housing choice or encourage self-sufficiency.

The first group tests whether receiving MTW designation may trigger policy or programmatic changes that, while diverse, all similarly influence housing choice and self-sufficiency outcomes. In this scenario, MTW designation in itself is the intervention to be evaluated. Since MTW agencies are not required to pursue all the objectives and may approach each objective differently, however, it may be more appropriate to define a treatment group as the MTW agencies that explicitly pursue activities related to the statutory objectives. In this alternative approach, the fact of receiving MTW designation is less important than the type and scope of activities an agency has implemented.

The CITS analysis measures post-treatment (i.e., after receiving MTW designation) levels and trends in the seven outcomes for the MTW agencies versus comparison groups of traditional PHAs to identify statistically significant differences. Groups of comparison traditional PHAs were selected based on having pre-treatment levels and trends for a given measure that are similar to levels and trends in the Moving to Work groups. If MTW has measurable effects, the MTW groups' outcomes would be expected to diverge from those of the comparison groups.

Preview of Results

The CITS results suggest that MTW status is positively associated with one measure of housing choice—increasing new admissions into assisted housing—and may be positively associated with another—improved quality of public housing. It may also improve self-sufficiency—defined as income increasing at all and income increasing to a level that results in minimal or zero housing subsidy for work-able households. None of the CITS results show a negative impact of MTW status on housing choice or self-sufficiency outcomes.

We sort findings of the CITS analyses into three categories and consider both statistical significance and substantive significance. Statistical significance indicates that differences observed between MTW agencies and traditional PHAs is probably not due to chance; substantive significance refers to the meaningfulness of the differences for understanding policy implications. In other words, a difference may be statistically significant but too small, of too short a duration, or too unclear to provide insights for policy. The three categories are—

1. **Notable results** where there is a clear and statistically significant distinction between an MTW group and its comparison group.
2. **Moderate results** where the divergence between the MTW group and the comparison group is statistically significant, but there is little substantive difference compared to the traditional PHAs.
3. **Null/Neutral results,** where findings are either not statistically significant or too unclear to interpret.

We find **notable** evidence for one of the housing choice measures: the share of new households served. MTW agencies increased their share of new households relative to comparison agencies. This was true for both the MTW-status group and the MTW activity-specific group composed of agencies engaged in activities intended to increase housing choice.

We find **moderate** evidence of promising trends for three self-sufficiency measures. The share of households with income gains increased more at MTW agencies than at traditional agencies. Also, among MTW agencies with broad initiatives intended to increase self-sufficiency, the share of households with minimal rental subsidies increased more than at traditional agencies, and so did the share of households receiving minimal subsidies who subsequently exited the HCV program. These findings, however, are not statistically robust. Despite increases in the share of households with income gains at MTW agencies, the total share of such households remained greater at traditional agencies. The percentage of households that earn enough to receive minimal rental assistance is very small, so while statistically significant, the substantive significance of this finding is unclear.

We find no substantive evidence of differences between MTW and traditional PHAs in the poverty rate of tenant-based voucher households' locations, public housing quality, or share of households with Family Self-Sufficiency program escrow accounts.

No CITS results indicate a negative impact of MTW status on housing choice or self-sufficiency outcomes.

Considered together, the CITS results suggest positive impacts of MTW on the number of new households served and some promising but inconclusive findings related to improved self-sufficiency outcomes.

Structure of This Report

The next section of this report reviews the literature related to the MTW housing choice and self-sufficiency statutory objectives. This is followed by methods, results, discussion, and conclusions sections. The report includes five appendices. Appendix A lists the MTW agencies, their year of entry (and exit, if applicable), and a few notes on specifics of their MTW agreements. Appendix B provides the count of ongoing activities related to housing choice and self-sufficiency for all MTW agencies. Appendix C presents information on activities undertaken by MTW agencies. Appendix D is a detailed methodological discussion of our analytic approach. Finally, appendix E presents individual MTW agency results for the housing choice and self-sufficiency variables used in this report. These agency snapshots are provided as points of reference, useful for viewing agency-level outcomes within the context of the larger MTW groups. The agency snapshots are not definitive evaluations of each agency's progress toward meeting the MTW statutory objectives.

Exhibit 2: The Moving to Work Retrospective Evaluation

The HUD-sponsored Moving to Work (MTW) Retrospective Evaluation includes six reports and an online data feature that examine different aspects of the MTW program and MTW agencies' activities and performance under the program's three statutory objectives.

A Picture of Moving to Work Agencies' Housing Assistance describes MTW agencies, the assistance they provided, and the characteristics of the households they served in 2008 and 2016. A related online data feature provides access to MTW agency-level data.

Moving to Work Agencies' Use of Funding Flexibility examines how agencies have used MTW funding flexibility, alone and with regulatory waivers, and categorizes funding flexibility activities by their primary objectives—cost effectiveness, self-sufficiency of assisted households, or increased housing choice for low-income families. The study includes an in-depth examination of funding shifts for a subgroup of eight agencies.

Housing Choice and Self-Sufficiency Outcomes at Moving to Work Agencies examines the extent to which MTW agencies meet two of the program's three statutory objectives, increasing housing choice and promoting self-sufficiency for assisted households.

The Impact of the Moving to Work Demonstration on the Per Household Costs of Federal Housing Assistance examines how MTW status affects the costs, to HUD, of providing housing assistance to households in the public housing and Housing Choice Voucher (HCV) programs.

Evaluating the Effects of Santa Clara County Housing Authority's Rent Reform examines the impacts on work, earnings, and housing subsidies among assisted households of Santa Clara's unique rent reform, which increased the proportion of income that households must pay toward rent.

Moving to Work Agencies' Use of Project-Based Voucher Assistance examines multiple aspects of MTW agencies' use of project-based voucher (PBV) assistance, including the share of assistance and HCV budget authority devoted to PBVs, the relationships between PBVs and the Low-Income Housing Tax Credit and Rental Assistance Demonstration programs, the locations of PBV-assisted units, and case studies of three agencies' MTW goals and activities.

Literature Review

Of interest to this study is research that describes how individual agencies define the housing choice and self-sufficiency objectives, as well as research that measures individual- or household-level impacts of MTW agency efforts. HUD does not define what constitutes increasing housing choice or promoting self-sufficiency in the context of the MTW demonstration (GAO, 2012; 2018), although the self-sufficiency objective language in the MTW statute discusses employment goals.

We identified seven relevant published studies, in addition to the relevant studies forthcoming through HUD's MTW Retrospective Evaluation. The studies reviewed here mostly document how MTW agencies define housing choice or self-sufficiency and the activities implemented to achieve these objectives. There is very little research comparing MTW agencies with traditional PHAs in terms of impacts on housing choice and self-sufficiency.

Housing Choice

With one exception, studies of MTW and housing choice are primarily descriptive. These studies show that most MTW agencies have pursued the housing choice objective, but that there is 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). The exception to purely descriptive studies is Buron et al. (2017). This study quantitatively assessed the impact of MTW status on several measures of affordable housing quality and quantity at one point in time.

Defining the Housing Choice Objective

Oppenheimer, Haberle, and Tegeler (2013) considered the extent to which 13 MTW agencies located in highly segregated areas promoted housing choice through mobility efforts, and the extent to which they were working to prevent residential racial segregation. Using staff interviews and MTW reports, they found that some PHAs defined activities as related to neighborhood mobility that were not necessarily tied to neighborhood mobility or fair housing goals. Such activities included self-sufficiency efforts that could indirectly affect movement to new neighborhoods through economic mobility—and redevelopment of assisted housing in high-poverty areas that may reinforce existing residential segregation.

Khadduri et al. (2014) surveyed and interviewed MTW agency staff and conducted document review to identify MTW innovations related to the statutory objectives. They 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 perform better than comparable traditional agencies on some performance measures related to housing choice and worse on others, and that 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 (see exhibit 4 for a description of local, non-traditional assistance).

Webb, Frescoln, and Rohe (2015) categorized MTW activities as they related to each of the statutory objectives by scanning MTW

annual reports and then soliciting MTW agency staff feedback on their categorization. They included activities that required MTW policy flexibilities as well as activities that the agencies could have implemented without MTW flexibility. They found similarly diverse categories of MTW agencies' efforts 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, landlord outreach, and promoting homeownership programs.

Galvez, Simington, and Treskon (2017) examined all 39 MTW agencies' 2015 annual plans. They identified a total of 187 ongoing activities from 37 MTW agencies that indicated increasing housing choice as an objective—with 45 of these activities (from 24 agencies) related to neighborhood mobility. These included activities that restricted moves (by limiting households' ability to move to a different PHA jurisdiction) and some activities intended to encourage moves to low-poverty areas.

Measuring MTW Housing Choice Outcomes

Buron et al. (2017) developed performance measures to assess agency-level outcomes for MTW agencies in 2014, compared against a subset of traditional PHAs. They created five measures of 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. Looking at data for one point in time, 2014, they found mixed results, with MTW agencies performing better than the traditional PHAs on some measures and comparably or worse on others.

Specifically, in relation to comparison PHAs, Buron et al. (2017) found that MTW agencies had lower average voucher utilization rates but comparable public housing occupancy rates, higher average physical inspection scores, a higher average number of units with unmet capital needs but a statistically significant smaller share of total public housing units with unmet capital needs, and a higher average number of units preserved, defined as transactions to refinance, recapitalize, or strengthen the financing of units or to improve housing development conditions. 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.

As part of HUD's MTW retrospective evaluation, Galvez, Gourevitch, and Docter (forthcoming) and Galvez et al. (forthcoming) also examined the total number of households served by MTW and traditional agencies and the locations of MTW-assisted households. Galvez et al. (forthcoming) focused specifically on PBV-assisted units. Both studies compared MTW agencies to comparably sized traditional PHAs. These studies found that location patterns for MTW-assisted households resemble 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), PBV, and public housing programs.[5] Galvez et al. (forthcoming) compared PBV location outcomes using measures that adjust for regional differences and find that, relative to the average neighborhood in their jurisdictions (approximated as primary county), MTW-assisted PBV units are in neighborhoods with a greater concentration of poverty than either PBV units at traditional PHAs or TBV units at MTW agencies.

Finally, Galvez, Gourevitch, and Docter (forthcoming) found that MTW agencies added relatively more households between 2008 and 2016 compared to traditional comparison agencies, whose assistance remained fairly flat over the same time period.

Self-Sufficiency

Five published studies explored MTW efforts to encourage self-sufficiency (Buron et al., 2017; Khadduri et al., 2014; McClure, 2017; Castells, 2020; Rohe, Webb, and Frescoln, 2015; and Webb, Frescoln, and Rohe, 2015). Three of these studies assessed MTW agencies as a group, while Rohe, Webb, and Frescoln (2015) and Castells (2020) evaluated the impacts of self-sufficiency-related efforts at individual MTW agencies. The studies tend to measure self-sufficiency primarily in terms of MTW agency efforts to increase employment and income over time and to transition households off of housing assistance. They consider a variety of outcome measures, including change in earnings, share of tenants employed, housing assistance subsidy amounts, length of stay in assisted housing, and move-outs.

Defining the Self-Sufficiency Objective

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, Buron et al.'s (2017) analyses built off Khadduri's (2014) assessment to develop performance measures for agencywide outcomes related to self-sufficiency for MTW agencies in 2014. They identified three measures of increasing self-sufficiency: earnings growth among nonelderly/nondisabled households, the share of households without reported earnings, and length of stay in assisted housing.

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.

Measuring MTW Self-Sufficiency Outcomes

Rohe, Webb, and Frescoln (2015) evaluated the impact on employment and evictions of a mandatory work requirement policy at one Moving to Work agency (Charlotte Housing Authority) across five public housing developments. They created several outcome measures: percentage of tenants at minimum rent, percentage of tenants employed, the number and rate of positive

[5] An abundance of literature documents the locations of PHA-assisted units—particularly in relation to the Housing Choice Voucher program—but these 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).

and negative move-outs, and the share of residents identifying the work requirement as fair in a survey. Using data from 2011 to 2014, they found the work requirements to be associated with statistically significant increases in employment when coupled with case management and services, as well as with an increased rate of positive move-outs. Case management alone, when not coupled with work requirements, did not have any statistically significant impacts on employment.

Buron et al. (2017) matched each MTW agency with three to five traditional agencies based on several characteristics, including number of housing choice vouchers and number of public housing units, the county poverty rate and unemployment rate, the county median income of renters, and each public housing agency's two-bedroom fair market rent. Across performance measures, they calculated averages for the MTW agencies and the comparison traditional agencies. They found that household earnings at MTW agencies were more likely to increase than household earnings at comparable agencies, and that MTW agencies had a smaller share of households with no earnings. 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. They recommended examining the share of households with positive exits as an additional performance measure but acknowledged that many PHAs do not currently track data on the nature of exits from assistance.

McClure (2017) examined the length of time that cohorts of assisted households stay in assisted housing across several categories separately: HCV households (excluding households in MTW), public housing households (excluding households in MTW), households at MTW agencies, and households served by several project-based programs, including the Section 8 project-based program, Section 202/8, Section 202/811 Project Rental Assistance Contracts and Section 202/162 Project Assistance Contracts. He calculated household length of stay using household date of admission and date of exit, and for each of the programs, reported the average length of stay for households by year of exit. He found that the average length of stay had increased over time for all programs, including for HCV-assisted households at MTW agencies. He then calculated the average and median length of stay across the years available for each program. Compared with the other categories of assisted households he explored, McClure 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 both HCV-assisted and public housing households at traditional agencies. However, data were available across the entire 1995–2015 period for the HCV and public housing programs, and only over the 2006–2015 period for HCV-assisted households at MTW agencies. The fewer years of data for the MTW agencies may make comparisons of average and median lengths of stay across years misleading.

The studies suggest a diversity of outcome measures, and some preliminary findings of positive impacts of MTW related to the self-sufficiency objective (income and employment gains). Evidence is mixed on length of stay in assisted housing and on differences for MTW agencies compared with traditional PHAs for outcomes related to increasing housing choice. Only one study, Buron et al. (2017), has attempted to assess the impact of the MTW demonstration on housing choice and self-sufficiency outcomes using a comparison group of matched traditional PHAs. The study, however, was limited to assessing outcomes in 2014.

Context and Goals of the Present Study

This study asks: are MTW agencies, because of their participation in MTW, more effective at increasing housing choice and self-sufficiency than comparable traditional PHAs? Considered together, the existing literature finds substantial diversity in how MTW agencies interpret and approach the statutory objectives and identifies a wide range of measures to capture housing choice and self-sufficiency impacts. This diversity presents a major methodological challenge: how to measure the impact of MTW when each MTW agency interprets the statutory objectives in its own way and implements unique activities to pursue the objectives. There is no reason to assume that all MTW agencies would impact housing choice and self-sufficiency in the same ways or that their efforts would result in similarly measurable outcomes. Further, even if agencies pursue the same type of outcome—for example, increasing employment and earnings of HCV-assisted households—they may do so using a wide variety of activities.

We address this challenge by selecting the MTW groups for analysis in two different ways. First, we argue that receiving the MTW designation could trigger policy changes that are diverse yet similarly influence housing choice and self-sufficiency outcomes. To reflect this notion, we select one group of MTW agencies based on when they received the MTW designation. Second, we acknowledge that having an impact on statutory objectives may require more explicit efforts through specific MTW activities. To reflect this possibility, we identify groups of MTW agencies based on 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 outcomes measures.

This study's design incorporates the diversity of MTW implementation while focusing on the effects of MTW as a whole. It does not attempt to address whether a single initiative or single agency has had success in increasing housing choice or self-sufficiency, but whether MTW overall is having an aggregate effect across MTW agencies. Using two groupings of MTW agencies to analyze multiple research questions and outcome measures and to examine trends over time, it is the most comprehensive and systematic effort to date to examine MTW's overall effects on housing choice and self-sufficiency outcomes.

Methods

Research Questions

We answer three research questions for housing choice and four research questions for self-sufficiency. These questions address the different ways that MTW agencies may define and approach the housing choice and self-sufficiency objectives. The research questions are listed below.

1. Do MTW agencies promote housing choice?
    a. Do MTW agencies create more housing opportunities relative to traditional agencies?
    b. To what extent are households served by MTW agencies reaching lower-poverty, higher-opportunity neighborhoods than households served by traditional agencies?
    c. To what extent are households served by MTW housing agencies living in higher quality public housing dwellings relative to households in traditional agencies?
2. Do MTW agencies promote self-sufficiency?
    a. How do incomes of existing work-able households served by MTW agencies compare with those served by traditional agencies?
    b. How does the use of escrow accounts as a tool for promoting self-sufficiency differ between MTW and traditional agencies?
    c. Are existing work-able households in MTW agencies moving to minimal housing subsidy at greater rates than households at traditional agencies?
    d. Are existing work-able households in MTW agencies making positive exits from housing assistance at greater rates than households at traditional agencies?

Comparative Interrupted Time Series (CITS) Analysis

CITS analysis compares changes over time in an outcome measure for a group that experienced a treatment to changes for a matched comparison group that did not get the treatment. If a treatment has an effect, the outcomes for the treatment group would be expected to diverge from those of the comparison group in the time period after the treatment.[6] The CITS comparative model is a type of multivariate regression: it 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). In this study, the outcome measures are indicators of housing choice and self-sufficiency. The treatment is defined in two ways: (1) receiving MTW designation or (2) receiving MTW designation and implementing significant activities to promote housing choice and/or self-sufficiency. As noted above, the group of agencies selected because they received MTW designation is referred to as the "MTW-status" group of agencies. The groups of agencies selected because they enacted activities with a broad scope that promote housing choice and/or self-sufficiency are referred to as "MTW activity-specific" groups.

CITS analyses rely on multiple years of pre- and post-treatment data. Pre-treatment data create a baseline for analysis and are used to identify a comparison group of traditional PHAs. Levels and trends of housing choice and self-sufficiency indicators at the

[6] See Bloom (2001), Bloom et al. (2005), Somers et al. (2013), St. Clair, Cook, and Hallberg (2014), and Linden (2015) for examples of CITS analysis and methodological discussion.

comparison traditional PHAs should be similar to levels and trends at MTW agencies during the pre-treatment time period.[7]

After identifying the comparison group of traditional PHAs, the impact of MTW on housing choice and self-sufficiency indicators is examined by considering whether post-treatment outcomes at the MTW agency groups diverge in a statistically significant manner from those of the matched comparison groups of traditional agencies, either in terms of immediate divergence in the level or changes in the slope (or trend) of the indicator in question.

It is important to examine both levels and trends because it is possible for a policy to have an immediate effect on the level of an indicator (say, hypothetically, a policy mandating immediate enrollment in an escrow program for all households). Policies implemented over time, however—for example, a policy to encourage voucher moves to lower-poverty neighborhoods implemented for new admissions and movers only—may not create a significant immediate divergence between the MTW group and the comparison group but may lead to divergent trends over time. Additionally, regular year-over-year variation in indicator levels may be unrelated to a policy change. This variability may result in a misleading statistically significant finding with a small group of treatment agencies in which individual-agency variations can be influential (such as in this study). For these reasons, assessing how trends diverge over multiple years is important because it accounts for changes that may only show up incrementally over time, and because a multiple-year trendline smooths out single-year variations or irregularities.

Finally, an outlier sensitivity analysis, discussed in more detail in the sampling section later, identifies cases where a single MTW agency drives statistically significant results. In these cases, we drop the outlier agency from our analysis and conduct a secondary sensitivity analysis to ensure there are no other outlier agencies.

Analysis Time Periods

The MTW-status group includes the nine MTW agencies that signed an MTW agreement between 2008 and 2011 (see exhibit 1). The MTW activity-specific groups include agencies that implemented activities related to improving housing choice (15 agencies, five of which are also in the MTW-status group) or self-sufficiency (18 agencies, 6 of which are also in the MTW-status group) between 2009 and 2012. Together, the three groups represent 24 unique MTW agencies. To account for the time required to start implementing MTW initiatives, the analysis is broken up into three periods: the time up to 2009 is the pre-treatment period, 2010–2012 is an initial post-treatment period, and 2013–2016 is a second post-treatment period. Sampling is discussed in detail in the sampling section below.

In general, the pre-treatment period for the MTW-status group is 2001–2009—roughly 7 to 10 years prior to the agencies' MTW designation—since reliable data are available in the Public and Indian Housing Information Center (PIC) for these agencies for this time period. The MTW activity-specific groups' pre-treatment period is 2007–2009—roughly 1 to 3 years prior to the implementation of specific activities. The shorter pre-treatment time period is due to data limitations for the agencies in the MTW activity-specific group that received MTW designation prior to 2008 when MTW agency administrative data in PIC tend to be unreliable. See Galvez, Gourevitch,

[7] For individual MTW agency-level analyses, we use propensity score matching to identify comparison traditional PHAs as opposed to matching on pre-intervention levels and trends for outcomes of interest. See appendix E for detailed output.

and Docter (forthcoming) for a discussion of data quality and reporting issues.[8]

We have two post-treatment periods intended to capture two possible timelines for when impacts of MTW on our outcomes of interest may be measurable:

- **Post-Treatment Period 1** is 2010–2012 and reflects an initial post-treatment period when impacts may begin to emerge following when MTW-status group agencies first joined the program (between 2008 to 2011) or the MTW activity-specific groups first enacted relevant activities (between 2009 to 2012). In the CITS analysis, we measure changes and differences in outcome levels and trends. The level difference compares the change from 2009 (the last pre-treatment 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 to that of the comparison group.
- **Post-Treatment Period 2** is 2013–2016 and reflects the period where MTW-status group agencies have had MTW status for at least 1 year, and activities started by agencies in the MTW activity-specific groups have 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.

Data

Exhibit 3 identifies the five data sources used in this study and time periods of availability.

Exhibit 3: Data Sources

Source	Years	Data Unit of Availability	Description
HUD PIC Data	2001–2016; 2007–2016 for MTW Agencies	Household, PHA	Public and Indian Housing (PIH) Information Center (PIC) characteristics of assisted housing units and residents, with household, PHA and census tract identifiers
PHA Performance Measures	2001–2016	PHA	Public housing Physical Assessment Subsystem (PASS) scores
Supplemental HUD Assisted Unit Counts	2009–2016	PHA	Counts of local, non-traditional households (MTW agencies only)
Decennial Census and American Community Survey (ACS)	2001–2015	Census tract, Census region	Demographic data
MTW Retrospective Evaluation Database of MTW Annual Plans and Reports	2015	PHA	Documents describing MTW planned and implemented activities through 2015

MTW = Moving to Work. PASS = Physical Assessment Subsystem. PHA = Public housing agency. PIC = Public and Indian Housing Information Center. PIH = Public and Indian Housing.

Source: American Community Survey and Decennial Census data obtained from IPUMS database (Manson et al. 2018)

[8] Although MTW agency data is generally limited prior to 2008 (when reporting requirements changed for MTW agencies) we assessed PIC data coverage and quality for 2007 for the agencies in our MTW activity-specific group and found them to be reliable for that year.

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 HUD's Form 50058 and HUD-Form 50058 MTW.[9] We use household-level PIC data for MTW 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 (see exhibit 4 for a description of housing assistance programs). Unique household identifiers allow us to track movement across assistance programs, exits from assistance over time, and movement across census tracts over time. PIC data for PHAs nationally were provided by HUD for the retrospective MTW evaluation for 1995 through 2016. Data for MTW agencies are not available prior to 2008, however.[10]

Exhibit 4: Assisted Rental Housing Programs

Public housing. Originating in 1937, public housing is the nation's oldest housing subsidy program. Today, there are approximately 1.1 million public housing units. 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 for public housing, but PHAs are required to target at least 40 percent of new admissions to families at or below the Extremely Low-Income Limit.[11] Additionally, housing authorities often give preference to households that are homeless, elderly and/or disabled, or that are working families. Most families in public housing 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 HCV program includes tenant- and project-based voucher assistance. For both types of voucher assistance, households typically pay 30 percent of their income or a minimum rent of up to $50 per month.

- ***Tenant-Based Vouchers* (TBVs):** TBVs are provided to individuals or households to enable them to rent privately owned housing. Once a household receives a voucher from their local PHA, they have 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 a portion of the gross rent. 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. Like with a TBV, the tenant pays a portion of the rent and the PHA pays a portion of the rent. In some cases, PHAs own the PBV properties. Contracts between the PHA and property owners may be for up to 20 years for PBV-assisted units.

Local, non-traditional programs. MTW agencies can implement local, non-traditional activities that fall outside of the traditional HCV and public housing programs. Local, non-traditional programs include programs that use MTW funds to provide a rental subsidy to a third-party entity (that is, other than a landlord or tenant) that manages intake and administration of the subsidy program (known as sponsor-basing). Local non-traditional programs also include programs in which a PHA uses MTW funds to act as a mortgager; to acquire, renovate, and/or build units that are not public housing or HCV units (for example tax credit partnerships); and to provide services not otherwise permitted or that are provided to nonresidents.

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 a PHA's public housing stock and are determined by an inspection satisfying HUD's 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.

[9] The Form 50058 for traditional agencies can be found here: https://www.hud.gov/sites/documents/50058.PDF. The HUD-50058 Form MTW can be found here: https://www.hud.gov/sites/documents/DOC_10236.PDF.

[10] MTW agencies did not consistently report household information into HUD's PIC system prior to 2008, resulting in significant gaps in the administrative data available for agencies that received MTW designation in the first 10 years of the demonstration.

[11] The Extremely Low-Income (ELI) Limit was set at 30 percent of Area Median Income until 2014, when the definition was changed so that ELI limit is 30 percent of AMI or the poverty threshold established by the U.S. Department of Health and Human Services, whichever is greater.

Supplemental HUD-Assisted Unit Counts

HUD's Moving to Work office provided data on the number of households assisted through MTW local, non-traditional housing assistance programs. These units are not included in PIC data and are added to each MTW agency's total household counts.

Decennial Census and American Community Survey (ACS)

We use publicly available tract-level census data (Manson et al., 2018) to assign poverty rates to each household's census tract location, to identify the number and percent of assisted households living in lower-poverty neighborhoods. We use 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 MTW annual plans and reports. The 2015 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 this information to identify significant housing choice and self-sufficiency activities implemented between 2009 and 2012.

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 impact selected indicators of housing choice and self-sufficiency. The first group of agencies, the MTW-status group, tests whether MTW status triggers changes that are diverse yet nevertheless tend to increase housing choice and self-sufficiency. The MTW activity-specific groups, as detailed later, are composed of agencies engaged in activities expected to affect a particular indicator.

MTW-Status Group Selection

The MTW-status group includes the nine MTW agencies that signed an MTW agreement between 2008 and 2011 (see exhibit 1).[12] Restricting our MTW-status sample to the nine agencies that signed MTW agreements for the first time between 2008 and 2011 ensures there are multiple years of PIC data for both pre- and post-MTW designation periods. It also coincides with the implementation of MTW Standard Agreements in 2008, which standardized terms of MTW participation, reporting, and MTW flexibilities across agencies. Agencies that joined MTW in 2013 were excluded from this analysis, as they had at most only 3 years of data available to measure post-MTW outcomes. Given the realities of the initiative approval process and implementation timeframe, it was not reasonable to expect measurable effects by 2016.

MTW Activity-Specific Groups

To measure the effects of MTW activities (rather than MTW designation) on outcomes of interest we identified MTW agencies that engaged in activities with the potential to have measurable effects on outcomes during the analysis period. To identify these agencies and activities we used the database and taxonomy of MTW activities constructed for the MTW evaluation and identified agencies that, between 2009 and 2012, implemented MTW activities related to improving housing choice or self-sufficiency, regardless of when

[12] We exclude one agency (Baltimore) from the MTW Status Group due to data quality issues and due to its early participation in MTW as part of the Jobs Plus program.

they joined MTW. We focused on activities implemented between 2009 and 2012 because this window allowed for at least 3 years of pre-treatment data (2007, 2008, and 2009), even for agencies without complete PIC data prior to 2007, and allowed for 4 years of post-treatment data (2013, 2014, 2015, and 2016) to reliably identify any divergence in trends over time.

Database review identified 143 activities related to either housing choice or self-sufficiency active as of 2015 (the final year of reports we reviewed) and that were implemented between 2009 and 2012. We further reviewed MTW plans and reports to restrict this sample of activities to those that were agencywide and were substantially implemented during the 2009-and-2012 period. Specifically, we eliminated activities that were pilots or narrowly targeted to specific properties or populations; we retained initiatives that were likely to impact assisted households agencywide and across housing programs (affecting at least 25 percent of all assisted households).

We identified 42 activities likely to affect outcomes related to housing choice and self-sufficiency at the agency level (appendix C lists these activities by agency). Agencies engaged in these activities were selected into the MTW activity-specific groups. These include—

- Fifteen MTW agencies that undertook significant housing choice activities.
- Eighteen MTW agencies that undertook significant self-sufficiency activities.

For each outcome measure analyzed, the number of agencies in the MTW activity-specific group includes only agencies implementing activities specifically relevant to that measure (see exhibit 7).

Overlap Across MTW Agency Groups

Some of the nine agencies in the MTW-status group also implemented activities related to housing choice and self-sufficiency between 2009 and 2012 and are included in one or both MTW activity-specific groups. For example, Charlotte, San Bernardino, Santa Clara/San Jose, and Tacoma are in all three groups, as all joined between 2008 and 2011 and undertook activities related to both housing choice and self-sufficiency between 2009 and 2012. As these two analyses reflect different approaches to measuring the effects of MTW, we believe using inclusive, if overlapping, categories is the best analytic approach.

Comparison Group Selection

Comparative Interrupted Time Series analyses typically assess levels and trends for the comparison and treatment groups in a pre-treatment period for selected indicators to ensure comparison groups are similar and appropriate. We limit our comparison traditional PHAs to those with more than 500 households to exclude small PHAs.[13] We select agencies that closely resemble average MTW group pre-treatment levels and trends for each outcome measure of interest. We use a Stata protocol that selects a matched comparison group based on pre-treatment levels and trends, discussed in more detail in appendix D.

Outlier Sensitivity Analysis

Testing for outliers—agencies with extreme values that could be causing significant results but not representing the group very well—was conducted using a "leave-one-out" cross validation test, running the CITS analysis repeatedly for each outcome measure, dropping one MTW agency from the sample for each run. Significant results

[13] 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.

for any given outcome or group were not generally affected when any one MTW agency was dropped from a sample, which increases confidence in the robustness of the findings. When a single agency did drive statistically significant findings, we dropped the agency from the analysis and note this fact in our detailed results. In these cases, we conducted a secondary outlier analysis using the same "leave-one-out" approach for the smaller MTW group (with the outlier agency removed). These secondary analyses returned no additional outliers and suggest our results are robust.

Outcome Measures

Measures that capture housing choice and self-sufficiency outcomes were selected from an initial set of 20 indicators identified in the literature and from our scan of MTW activities reported in agency annual plans. In collaboration with HUD and expert advisors the list was narrowed to the seven most appropriate, measurable, and distinct measures. Exhibits 3 and 4 list the outcome measures for each housing choice and self-sufficiency research question.

Housing Choice Outcome Measures

Housing choice measures in this study include (1) the share of all households assisted that are newly admitted to the PHA in each year, (2) the share of tenant-based HCV holders that live in low-poverty neighborhoods each year, and (3) the average PASS scores in each year.

These measures reflect three common ways MTW agencies approach and interpret the housing choice objective. PHAs may view expanding housing availability and the number of low-income households served as expanding housing choice. Or, housing choice may be interpreted as expanding the range of neighborhood locations accessible to low-income households—particularly low-poverty neighborhoods. Finally, agencies may define expanding choice as improving the quality of public housing units.

1. The share of all households assisted that are newly admitted to the PHA in each year.

We identify newly admitted households as the share of all households served by an MTW agency that had an action code in PIC data (HUD Form 50058 field 2a) associated with a new admission.[14] We focus on new admissions as an indicator of agencies' ability 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.

2. The share of tenant-based voucher holders that live in low-poverty neighborhoods each year.

We define low-poverty neighborhoods as census tracts with poverty rates below 10 percent. This 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, 2010).

3. Average PASS scores in each year.

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

[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 households) a historical readjustment (action code 14). In cases where the household's first appearance in the dataset does not have an action code associated with an entry, we consider that household to be newly assisted in that year.

good repair. PASS scores use a 40-point scale. Inspections are conducted in accordance with HUD's Uniform Physical Condition Standards, or UPCS, on a sample of units within a given development; scores are rolled up into a composite PHA-level score.

Exhibit 5: Do Moving to Work Agencies Encourage Housing Choice?

Research Questions	Data Source	Outcome Variable	Outcome Definition
a. Do MTW agencies create more housing opportunities relative to traditional agencies?	PIC: all program types	Newly admitted households as a share of all households	Share of households with 50058 field 2c action codes 1, 4, or 14.
b. To what extent are households served by MTW agencies reaching lower-poverty, higher-opportunity neighborhoods than households served by traditional agencies?	PIC: tenant-based vouchers; ACS / Decennial Census	Share of tenant-based voucher households in low- poverty census tracts	Percent of tenant-based voucher households in census tracts with poverty rates no higher than 10 percent
c. To what extent are households served by MTW agencies living in higher quality public housing dwellings relative to households in traditional agencies?	PIC/ REAC: public housing and multifamily assisted housing	Physical Assessment Subsystem (PASS)scores	Average PASS score per agency per year

ACS = American Community Survey. MTW = Moving to Work. PASS = Physical Assessment Subsystem. PIC= Public and Indian Housing Information Center. REAC = Real Estate Assessment Center.

Source: ACS and Decennial Census data obtained from IPUMS database (Manson et al. 2018)

Self-Sufficiency Outcome Measures

We examine four self-sufficiency outcome measures (exhibit 6). These include (1) the share of work-able households in a PHA with incomes higher than they had in their first year of housing assistance (their year of entry), (2) percent of existing work-able households reported to have a Family Self-Sufficiency (FSS) program escrow account, (3) share of existing work-able households whose housing assistance payment declines over time to below $50, and (4) share of these existing work-able households with low HAP subsidies who leave PHA assistance in the year after attaining minimal HAP.

Existing households are those that were already receiving assistance from a PHA in a given year and exclude newly admitted households. New households were excluded from the analysis to control for the possibility that MTW agencies could change admission approaches, potentially leading to a shift in new household characteristics and a less appropriate match with the traditional agency comparison group.

These measures reflect common MTW agency goals. PHAs may, for example, encourage self-sufficiency by promoting work and through increases in wage income. They may also, for instance, promote household savings and incentivize employment and prepare households for independence through FSS programs. 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 payment 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. Finally, various efforts to encourage work and income gains may be reflected in the share

of households that reach sufficient income to receive minimal rent subsidies from the PHA and ultimately exit assistance.

1. The share of existing work-able households with total annual incomes higher in a post-treatment period than in their year of entry.

We measure whether households work more after agencies join MTW by identifying the share of work-able (non-elderly and without a disability) households that have total annual incomes higher than they did in their first year of housing assistance (their year of admission recorded in PIC). Since it is possible that MTW status could be associated with changes in the overall composition of newly admitted households, we only include existing households in this analysis.

2. The share of existing work-able households with FSS program escrow accounts.

We measure FSS participation as the share of existing work-able households that have an escrow account with a positive escrow account balance. We use the escrow account measure to indicate the extent to which MTW agencies are engaging in the FSS program differently than traditional PHAs.

3. The share of existing work-able households whose HAPs declined over time to below $50.

We measure whether households approach the income limit for their MTW agency or PHA (and may no longer be eligible for subsidies) as the share of existing work-able households that reach zero or minimal housing subsidy payments (i.e., HAP). We define "minimal" as a HAP of less than $50, based on our analysis of HAP amounts for assisted households as reported in HUD PIC data provided for the MTW evaluation.

4. The share of existing work-able households with minimal HAP subsidies who leave PHA assistance in the year after attaining minimal HAP.

The final and related measure is the extent to which these households that reach minimal HAP subsequently exit assisted housing. We measure this as the share of households who attained a minimal HAP and then leave subsidized housing in the following year.

We calculate exits in two ways. First, we use PIC action codes that signify an end of participation or portability move-out. Second, we identify exits as cases where there is no recertification record for at least 1 year after attaining minimal HAP. That is, 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 for our purposes.[15]

[15] Some MTW agencies may use their MTW flexibilities to switch to 2- or 3-year recertifications—typically for elderly or disabled households with fixed incomes. There is no comprehensive accounting of MTW agency recertification schedules, and it was not possible to refine our exit measure to account for possible 2- or 3-year recertifications for subgroups of MTW agencies or households. We focus on work-able households, which generally are recertified more frequently. But it is nevertheless possible that we incorrectly assign exits to a small number of work-able households who do not appear in administrative data for 1 to 2 years because of 3-year recertifications. If so, we would be slightly overestimating positive exits for these MTW agencies.

Exhibit 6: Do Moving to Work Agencies Promote Self-Sufficiency?

Research Question	Data Source	Outcome Variable	Outcome Definition
a. How do incomes of existing work-able households served by MTW agencies compare to those served by traditional agencies?	PIC	Share of existing work-able households with rising income over time (annualized rate of change)	Percent 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 the PHA's MTW designation.
b. How does the use of escrow accounts as a tool for promoting self-sufficiency differ between MTW and traditional agencies?	PIC	Percent of work-able households reported to have an escrow account	Percent of existing work-able households with a non-zero FSS program escrow account balance. Includes only households assisted at the point of the PHA's MTW designation.
c. Are existing work-able households in MTW agencies moving to minimal housing subsidy at greater rates than households at traditional agencies?	PIC	Share of existing work-able households with housing assistance payment (HAP) below $50	Percent of existing work-able households with a HAP below $50. Includes only households assisted at the point of the PHA's MTW designation.
d. Are existing work-able households in MTW agencies making positive exits from housing assistance at greater rates than households at traditional agencies?	PIC	Share of existing work-able households leaving PHA in year after attaining minimal HAP	Percent of work-able households who reach a HAP below $50 and that 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 the PHA's MTW designation.

FSS = Family Self Sufficiency. HAP = Housing Assistance Payment. MTW = Moving to Work. PHA = Public housing agency. PIC = Public and Indian Housing Information Center.

Note: "Existing" households are households that are not new entrants to housing assistance in a given year.

Exhibit 7: Moving to Work Agencies by Analysis Group

			MTW Activity-Specific: Housing Choice			MTW Activity-Specific: Self-Sufficiency		
Name		MTW Status	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					✓		✓
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.

Notes: Although it was initially selected in 1999, we include Charlotte as part of the MTW Status Group because it signed an MTW agreement in December 2007 and has been active in MTW for a similar length of time as others in this group. Names in the table are shorthand labels indicating the location of the MTW agency. Most MTW agencies have the name of their city, county, or state in their full name, but not all. Portland's housing authority, for example, is named Home Forward.

Source: Activities related to statutory objectives identified through MTW agency Annual Plans

Results

In this section, we provide an overview of our main findings for each outcome measure and Moving to Work agency group, by housing choice and self-sufficiency objective. The clearest finding is that, over the study period, MTW agencies increased the share of their households that were newly admitted more than did traditional agencies. This measure is an indicator of an agency's capacity to serve more households over time, either through growth or increased turnover. This finding is statistically significant for the MTW-status group and for the MTW activity-specific group composed of agencies engaged in activities expected to increase households served. There is also some evidence that assisted households' incomes were more likely to increase at MTW agencies than at traditional agencies. Finally, MTW-assisted households were more likely to exit assistance after obtaining a low level of subsidy—but this finding is weak, and there is no difference between MTW agencies and comparison agencies in the share of households that reach minimal housing subsidy. There is no difference between MTW and traditional agencies in the likelihood that housing choice voucher recipients live in low-poverty neighborhoods or public housing quality. Households at MTW agencies and traditional PHAs are also equally likely to have positive balances in their FSS escrow accounts.

Notable Findings:

- *The share of new households served:* Both the MTW-status group and the MTW activity-specific group had statistically significant increasing shares of new households served, relative to comparison groups, during the 2013–2016 period. By 2016, the share of new households served in both MTW groups exceeded that of their comparison groups.

Moderate Findings:

- *The share of work-able households with incomes higher than at entry:* Both the MTW-status group and the MTW activity-specific group had a statistically significant and increasing share of households with income gains over the 2013–2016 period, relative to their comparison groups. This came after a decline relative to comparison groups between 2010 and 2012 (the decline was statistically significant for the MTW-status group). However, in 2016 the share of households with increasing incomes was roughly similar for the MTW and comparison groups. Additional years of analysis would help determine if, after 2016, agencies in the MTW groups have continued to outpace the comparison groups, reverted to a matched trend, or experienced a relative decline.
- *Positive exits and reduction in HAP for households:* 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). This means that the measure of those with minimal HAP who leave assistance is based on relatively few households.

Null/Neutral Findings:

- *Share of TBV households in low-poverty tracts:* Neither MTW group saw significant divergence from its respective comparison group during the analysis period.
- *Average PASS score:* The MTW-status group did have a statistically significant increase in average PASS scores compared to the comparison group between 2012 and 2013. This seems to reflect the end of a lagging pattern in which average scores for the comparison group increased earlier than they did for the MTW group, however. There were not enough MTW agencies undertaking initiatives clearly related to public housing quality to complete an MTW activity-specific group analysis.
- *Share of work-able households with escrow accounts:* Between 2009 and 2010, the share of work-able households with escrow accounts remained steady for MTW-status group but increased for the comparison group, resulting in a statistically significant relative decrease. Subsequently, the share of work-able households with escrow accounts increased for both the MTW and the comparison group but did not diverge in a statistically significant way. There were not enough MTW agencies undertaking initiatives clearly related to escrow accounts to conduct an MTW activity-specific group analysis.

Below, we present the results in detail. This includes a short narrative discussion of each analysis, a line graph showing trends over time for each of the MTW agency groups and their comparison group, and a regression table presenting results from the CITS analysis. The line graphs include vertical markers indicating the two post-treatment start years: 2010 and 2013. The regression tables present results for two outcome measures (post-treatment trend difference and post-treatment level difference) for each of the post-treatment outcome periods, with statistically significant results marked with asterisks. Specifically, the tables present the coefficient, standard error, t-statistic, and indicator of statistical significance for the CITS output, which includes the following estimates:

- **Initial MTW group level:** the initial analysis-year level for the MTW group.
- **Baseline MTW group trend:** the pre-treatment trend for the MTW group.
- **Initial level difference:** the initial analysis-year level difference between the MTW group and the comparison group.
- **Pre-treatment trend difference:** trend through 2009, the last pre-treatment year.
- **Post-treatment period 1 level difference:** the 2009 to 2010 1-year change.
- **Post-treatment period 1 trend difference:** the 2010–2012 trend.
- **Post-treatment period 2 level difference:** the 2012 to 2013 1-year change.
- **Post-treatment period 2 trend difference:** the 2013–2016 trend.

Detailed Findings: Housing Choice Outcomes

Our housing choice analyses include:

- For the MTW-status group:
  - » Nine MTW agencies that executed MTW agreements between 2008 and 2011.
- For the MTW activity-specific groups:
  - » Twelve MTW agencies engaged in activities expected to increase the share of new households served; and
  - » Six MTW agencies engaged in activities expected to increase the share of tenant-based voucher holders in low-poverty census tracts.

Because only three MTW agencies engaged in activities related to increasing housing

quality, we do not measure outcomes for an MTW activity-specific group defined by engagement in efforts to improve housing quality.

Do MTW Agencies Create More Housing Opportunities Relative to Traditional Agencies?

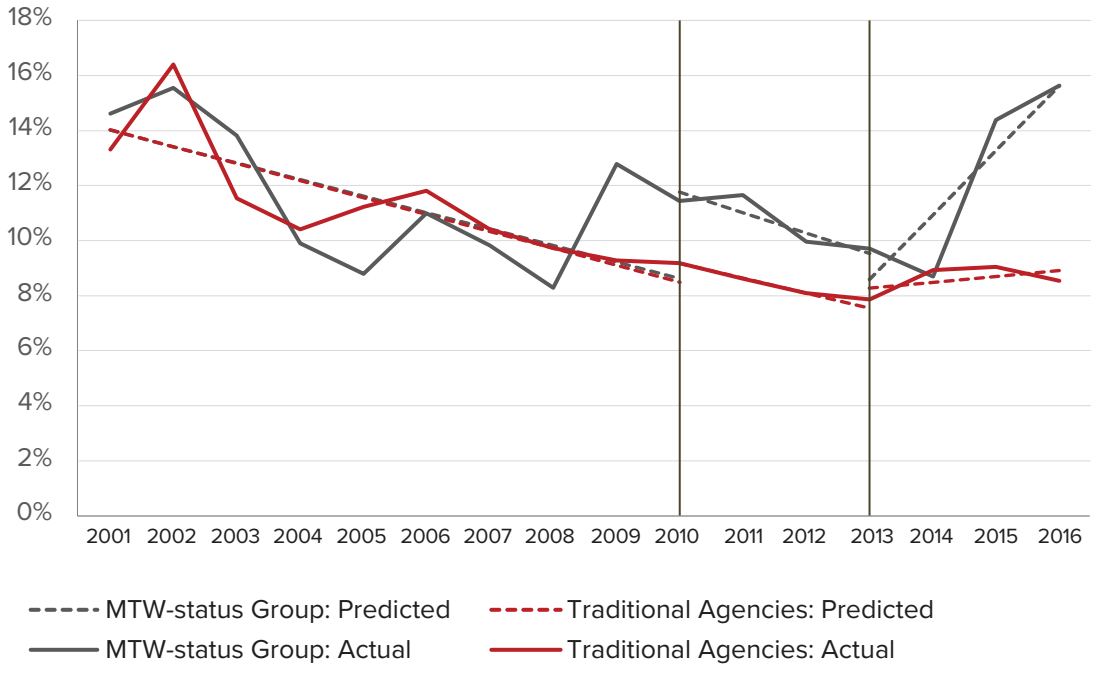
- **Outcome measure:** the share of MTW agency assisted households that are new admissions into an assisted housing program.

This measure is an indicator of an agency's capacity to serve more households over time, either through growth or increased turnover. Rather than count the new households served, to control for the size of a PHA we examine the share of households that are new admissions each year.

MTW-Status Group (N=9)

The share of households that were new admissions averaged between 8 percent and 17 percent annually between 2001 and 2013, for both MTW status and comparison PHAs (exhibit 8). During the pre-treatment period and the initial 2010–2012 post-treatment period, differences between the MTW group and the comparison group were not statistically significant. During the 2013–2016 post-treatment period, however, the share of new households in MTW agencies increased sharply from 10 percent to over 15 percent (with most of the increase between 2014 and 2015), while the comparison group share did not increase. This divergence was statistically significant (exhibit 9).

Exhibit 8: 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

Exhibit 9: Share of Households That Are New: Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.140	0.006	24.39
Baseline MTW group trend	-0.006	0.001	-6.12
Initial level difference	-0.0001	0.013	-0.01
Pre-treatment trend difference	0.0002	0.003	0.06
Post-treatment period 1 level difference	0.025	0.019	1.31
Post-treatment period 1 trend difference	-0.002	0.005	-0.43
Post-treatment period 2 level difference	-0.017	0.015	-1.14
Post-treatment period 2 trend difference	0.023***	0.006	3.62
Agency count	9 MTW: 18 traditional		

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

MTW Activity-Specific Group—New Households (N=13)

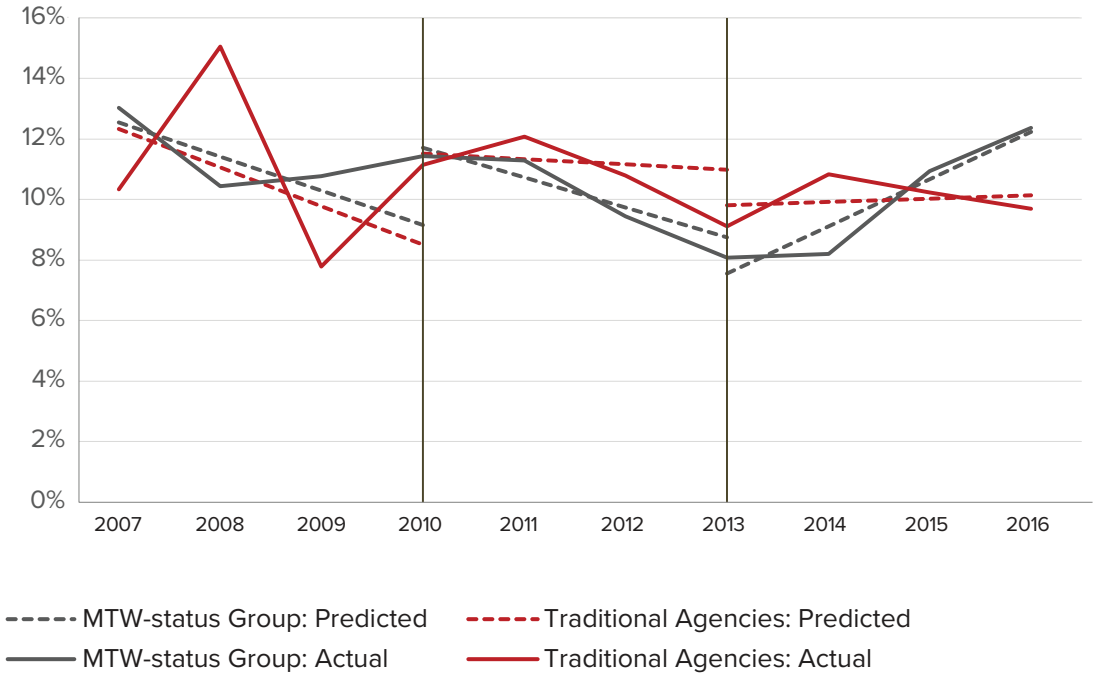
We identified 13 MTW agencies undertaking activities with the potential to affect the number of new households and analyzed 12.[16] The first year of analysis for this indicator is 2007.

Although the initial and final numbers for the MTW group and the comparison group were similar, the pathways the two groups took varied significantly (exhibit 10). During the 2010–2012 post-treatment period, the share of households that were new dropped more for the MTW group than for the comparison group, although this was not a statistically significant difference (exhibit 11). During the 2013–2016 period, however, the share of households that were new in the MTW group increased relative to the comparison group. This finding was statistically significant. By 2016, the MTW group had a higher share of new households than the comparison group.

As of 2016, the share of households that were new was nearly identical for both the MTW group and the comparison group (12 percent), but with the MTW group more clearly trending upward.

[16] After conducting the outlier sensitivity analysis, we removed Vancouver, Washington from the analysis, which drove the 2008–2012 period results, even as the 2013–2016 results remained similar. Vancouver's effect was largely the result of a likely data irregularity, as 74 percent of households were indicated as being "new" in 2010 (versus 8 percent in 2009 and 14 percent in 2011).

Exhibit 10: Share of Households That Are New: MTW Housing Choice Activity-Specific Group and Comparison Group



MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 11: Share of Households That Are New: Comparative Interrupted Time Series Output, MTW Activity-Specific Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.123	0.008	15.30
Baseline MTW group trend	-0.013	0.007	-1.78
Initial level difference	0.002	0.009	0.24
Pre-treatment trend difference	0.001	0.180	0.86
Post-treatment period 1 level difference	-0.005	0.022	-0.21
Post-treatment period 1 trend difference	-0.010	0.012	-0.82
Post-treatment period 2 level difference	-0.0002	0.009	-0.01
Post-treatment period 2 trend difference	0.023**	0.009	2.39
Agency count	12 MTW: 14 traditional		

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

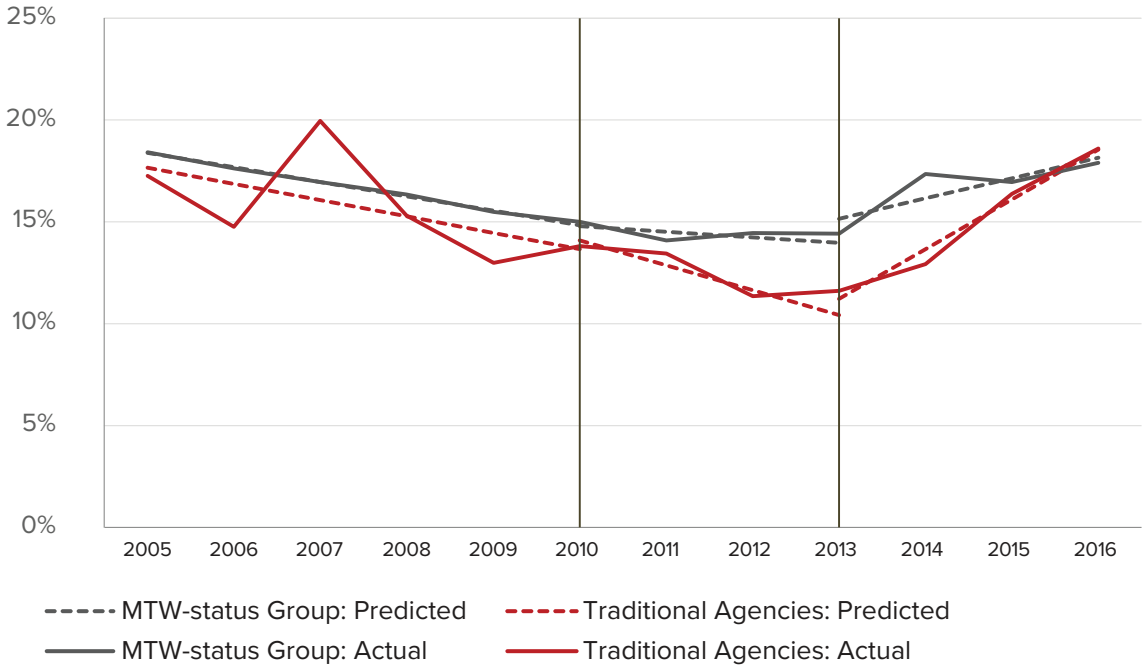
To What Extent are Households Served by MTW Agencies Reaching Lower-Poverty, Higher Opportunity Neighborhoods Than Households Served by Traditional Agencies?

- **Outcome measure:** the share of tenant-based voucher households in low-poverty census tracts.

MTW-Status Group (N=9)

For the MTW-status group, the share of households in low-poverty census tracts dipped somewhat between 2005 and 2011 before increasing again through 2016 (exhibit 12). 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. These differences were not statistically significant (exhibit 13).[17]

Exhibit 12: 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

[17] Results of the 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 13: Share of Tenant-Based Voucher Holders in Low-Poverty Tracts: Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.177	0.014	12.86
Baseline MTW group trend	-0.008	0.005	-1.49
Initial level difference	0.007	0.014	0.53
Pre-treatment trend difference	0.001	0.005	0.16
Post-treatment period 1 level difference	-0.005	0.019	-0.25
Post-treatment period 1 trend difference	0.009	0.013	0.66
Post-treatment period 2 level difference	0.004	0.028	0.14
Post-treatment period 2 trend difference	-0.024	0.017	-1.40
Agency count	8 MTW: 6 traditional		

* p<0.10 ** p<0.05 *** p<0.01

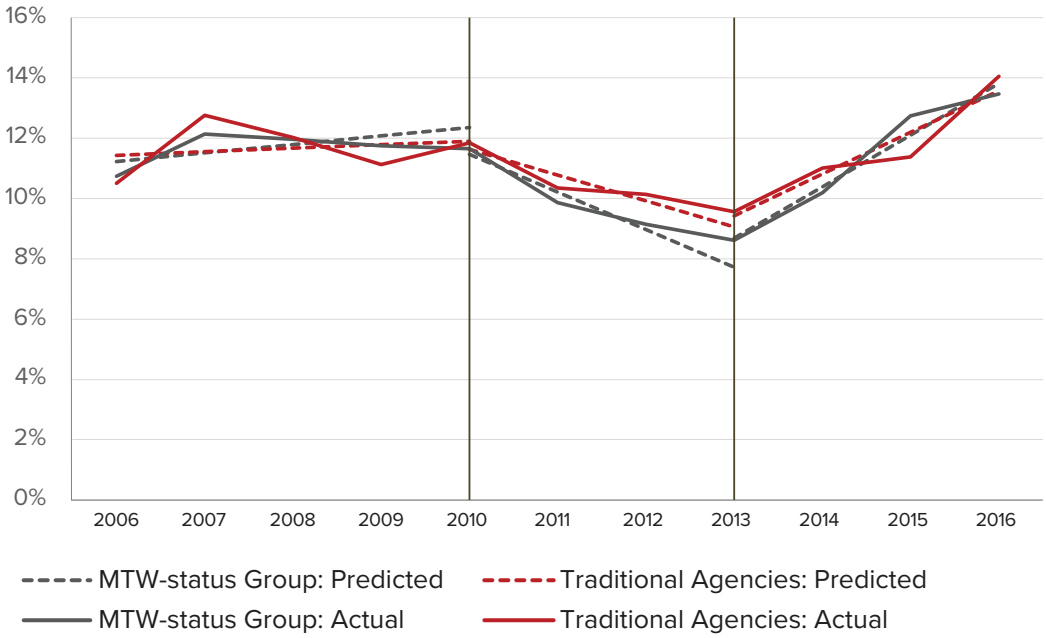
MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

MTW Activity-Specific Group—Low-Poverty Neighborhoods (N=6)

The share of households in low-poverty tracts was nearly identical for the MTW activity-specific group and the comparison agencies across the 2006–2016 analysis period (exhibit 14). During the pre-treatment period, the share was relatively stable at about 15 percent, then dropped between 2010 and 2013, and then increased between 2013 and 2016. There were no statistically significant differences between the MTW group and the comparison group (exhibit 15).

Exhibit 14: 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

Exhibit 15: Share of Tenant-Based Voucher Holders in Low-Poverty Tracts: Comparative Interrupted Time Series Output, MTW Activity-Specific Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.114	0.006	18.85
Baseline MTW group trend	0.001	0.002	0.55
Initial level difference	-0.002	0.007	-0.30
Pre-treatment trend difference	0.002	0.003	0.62
Post-treatment period 1 level difference	-0.006	0.010	-0.63
Post-treatment period 1 trend difference	-0.006	0.007	-0.79
Post-treatment period 2 level difference	0.006	0.017	0.36
Post-treatment period 2 trend difference	0.007	0.010	0.70
Agency count	5 MTW; 16 traditional		

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

To What Extent are Households Served by MTW Agencies Living in Higher Quality Public Housing Dwellings Relative to Households in Traditional Agencies?

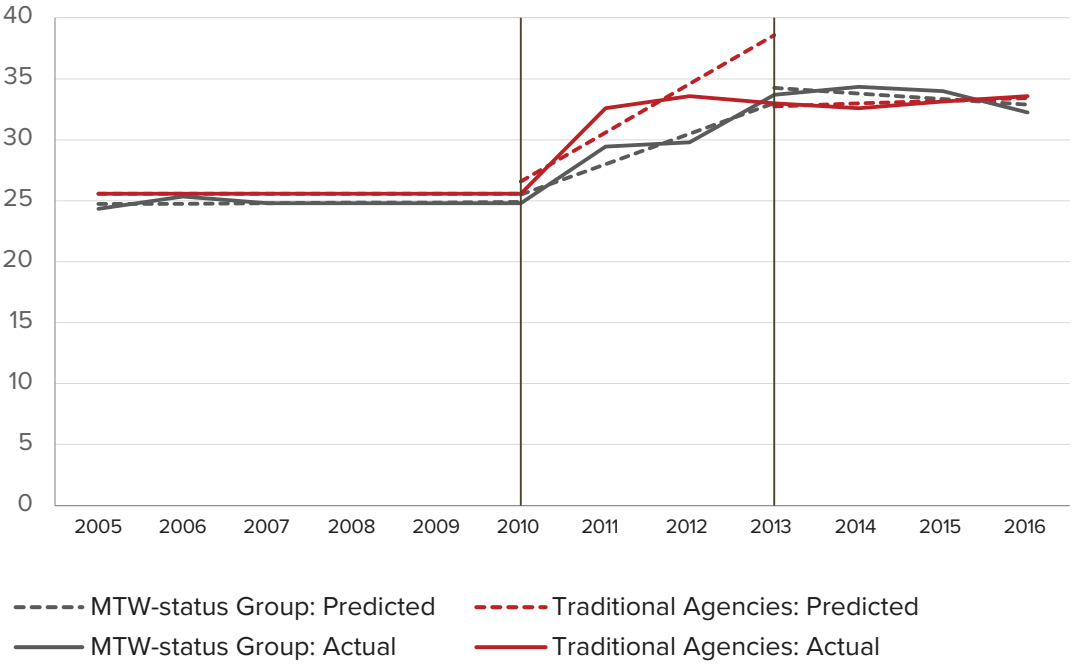
- **Outcome measure:** public housing physical assessment subsystem (PASS) scores.

We present the grouped CITS analysis for PASS scores for the MTW-status group only because there are too few (only three) agencies to build an activity-specific group that had started activities potentially affecting PASS scores during the 2009–2012 period.

MTW-Status Group (N=9)

PASS scores for the MTW-status group and the comparison group remained steady between 2001 and 2010. During the 2010–2012 post-treatment period, scores for both groups increased before decreasing again between 2013 and 2016 (exhibit 16). Between 2012 and 2013, the average PASS score for the MTW group increased from about 30 to 34, a statistically significant increase relative to the comparison group (exhibit 17). The comparison group, however, had already reached an average score of 34 prior to 2012, so the substantive significance of this result is minimal.

Exhibit 16: PASS Score (Housing Quality): MTW-Status Group and Comparison Group



MTW = Moving to Work. PASS = Physical Assessment Subsystem.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 17: PASS Score (Housing Quality): Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	25.571	0.923	27.70
Baseline MTW group trend	-4.600 E-15	0.360	0.00
Initial level difference	-0.838	0.956	-0.88
Pre-treatment trend difference	0.033	0.369	0.09
Post-treatment period 1 level difference	-0.400	1.508	-0.27
Post-treatment period 1 trend difference	-1.533	1.215	-1.26
Post-treatment period 2 level difference	7.093**	2.766	2.56
Post-treatment period 2 trend difference	0.813	1.517	0.54
Agency count	9 MTW; 7 traditional		

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work. PASS = Physical Assessment Subsystem.

Source: Analysis of HUD Public and Indian Housing Information Center data

Summary of Housing Choice Outcomes

Considered together, the impacts of MTW on housing choice outcomes were generally null, but there were statistically significant positive effects in the second post-treatment period on increasing the share of new households served (for MTW-status and MTW activity-specific groups) and increasing PASS scores (MTW-status group). Exhibits 18 and 19 summarizes these results.

MTW-Status Group. MTW status was associated with a statistically significant increase in the share of new households served during the 2013–2016 post-treatment period, relative to the comparison group. MTW status was also associated with a statistically significant increase in the average PASS score, a measure of housing quality, between 2012 and 2013, relative to the comparison group. There was no statistically significant divergence between the MTW-status group and the comparison group regarding the share of households in low-poverty census tracts (exhibit 18).

Exhibit 18: Comparative Interrupted Time Series Analysis: Summary of Housing Choice Outcomes, MTW-Status Group

	Group size		Post-Treatment Period 1 (2010–2012)		Post-Treatment Period 2 (2013–2016)	
	MTW Group	Comparison Group	Level	Trend	Level	Trend
Share of households that are new	9	18	+	-	-	+***
Share of tenant-based voucher households in low-poverty tracts	9	6	-	+	+	-
Average PASS score	9	7	-	-	+**	+

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work. PASS = Physical Assessment Subsystem.

Note: Signs indicate where the level and trend at the MTW agencies are in relation to the trend at the comparison group agencies. For the post-treatment level, "-" indicates that the MTW group outcome at the time measured was lower, and "+" indicates that it was higher. For the post-treatment trend, "-" indicates that the trend at the MTW agencies increased less (or decreased more), and "+" indicates that the trend at the MTW agencies increased more (or decreased less). If the level or the trend is not statistically significant, then we conclude that outcome measures were the same at MTW and comparison group agencies.

Source: Analysis of HUD Public and Indian Housing Information Center data

MTW Activity-Specific Group. Being in the MTW activity-specific group is associated with a statistically significant increase in the share of new households served during the 2013–2016 post-treatment period, relative to the comparison group. There was no statistically significant divergence between the MTW-status group and the comparison group regarding the share of households in low-poverty census tracts (exhibit 19). We do not analyze PASS outcomes for the MTW activity-specific group because only three MTW agencies undertook activities during the 2009–2012 period that could have had a measurable effect on PASS scores.

Exhibit 19: Comparative Interrupted Time Series Analysis: Summary of Housing Choice Outcomes, MTW Activity-Specific Group

	Group size		Post-treatment Period 1 (2010–2012)		Post-treatment Period 2 (2013–2016)	
	MTW Group	Comparison Group	Level	Trend	Level	Trend
Share of households that are new	12	14	-	-	-	+**
Share of tenant-based voucher households in low-poverty tracts	6	16	-	-	+	+
Average PASS score	3	NA	NA	NA	NA	NA

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work. NA = data not available. PASS = Physical Assessment Subsystem. TBV = tenant-based voucher.

Note: Signs indicate where the level and trend at the MTW agencies are in relation to the trend at the comparison group agencies. For the post-treatment level, "-" indicates that the MTW group outcome at the time measured was lower, and "+" indicates that it was higher. For the post-treatment trend, "-" indicates that the trend at the MTW agencies increased less (or decreased more), and "+" indicates that the trend at the MTW agencies increased more (or decreased less). If the level or the trend is not statistically significant, then we conclude that outcome measures were the same at MTW agencies and comparison group agencies.

Source: Analysis of HUD Public and Indian Housing Information Center data

Detailed Findings: Self-Sufficiency Outcomes

The MTW agencies in our self-sufficiency outcome analyses include:

- MTW-status Group:
  - » Nine MTW agencies that executed MTW agreements between 2008 and 2011 for measures of escrow account use, reaching minimal Housing Assistance Payment (HAP), and exiting after reaching minimal HAP.
  - » Seven MTW agencies from this MTW-status group for the measure of income gains by work-able households, as we exclude two agencies based on data limitations and sensitivity analysis results.
- MTW Activity-Specific Groups:
  - » Thirteen MTW agencies engaged in activities expected to encourage increasing income.
  - » Eighteen MTW agencies engaged in activities expected to result in positive exits from assistance (measured as reaching minimal HAP and exiting after reaching minimal HAP).

As with PASS scores, we do not include an agency-specific analysis of escrow accounts because only three MTW agencies implemented activities related to this activity during the analysis period.

How do Incomes of Work-Able Households Served by MTW Agencies Compare to Those Served by Traditional Agencies?

- **Outcome measure:** the share of assisted existing work-able households that have total annual incomes higher than at housing assistance entry.

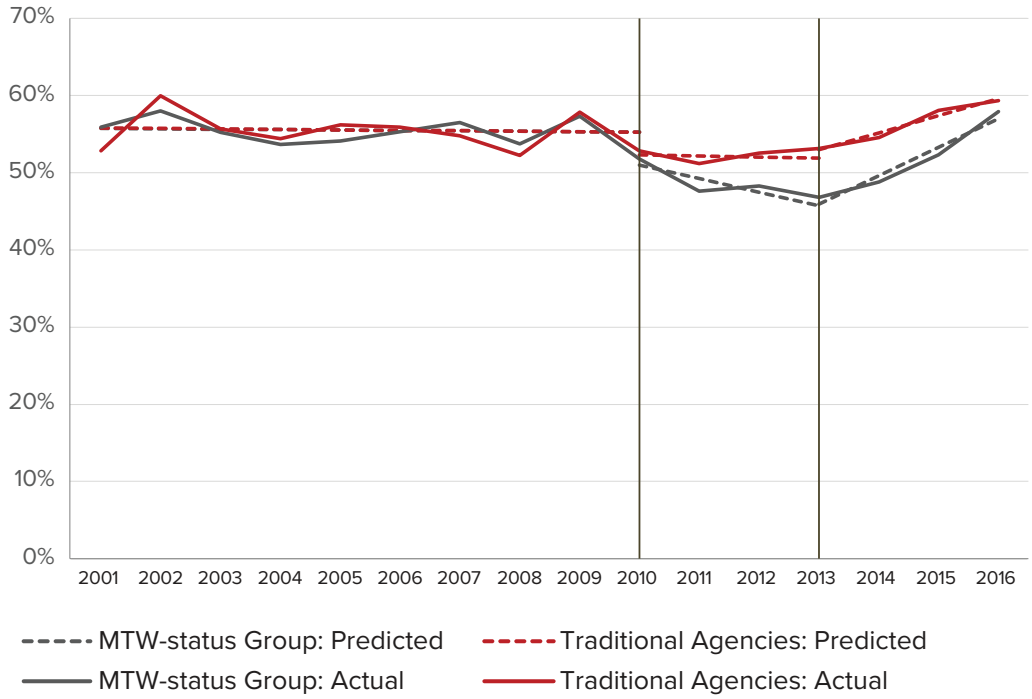
MTW-Status Group (N=7)

We drop two agencies from our MTW-status group: one agency because of missing

income data and the other because our sensitivity analyses suggested that including it biased our grouped results.[18] Of the seven MTW agencies analyzed here, the share of households with income greater than at housing assistance entry remained between 50 and 60 percent during the 2001–2009 pre-treatment 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 this measure between 2010 and 2011, but the drop was more pronounced and statistically significant for the MTW group (exhibit 20).

After 2013, the share of households with incomes higher than their baseline year increased for both groups. This increase for the MTW group was comparatively larger than it was for the comparison group, and this difference was statistically significant (exhibit 21). This 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 authorities (PHAs) by 2016.

Exhibit 20: 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

[18] We removed Champaign because of missing income data for some of the analysis period years. We removed Charlotte based on the results of the outlier sensitivity analysis, as it influenced the statistical significance of both the 2009–2010 level change and the 2010–2012 trend change. See appendix E.

Exhibit 21: Share of Existing Work-Able Households With Total Annual Incomes Higher Than at Housing Assistance Entry: Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.558***	0.007	80.80
Baseline MTW group trend	-0.001	0.001	-0.45
Initial level difference	-0.0003	0.011	-0.03
Pre-treatment trend difference	0.0001	0.002	0.03
Post-treatment period 1 level difference	-0.013	0.013	-1.04
Post-treatment period 1 trend difference	-0.016*	0.010	-1.69
Post-treatment period 2 level difference	-0.009	0.020	-0.44
Post-treatment period 2 trend difference	0.031**	0.012	2.57
Agency count	7 MTW; 21 traditional		

* p<0.10 ** p<0.05 *** p<0.01

MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

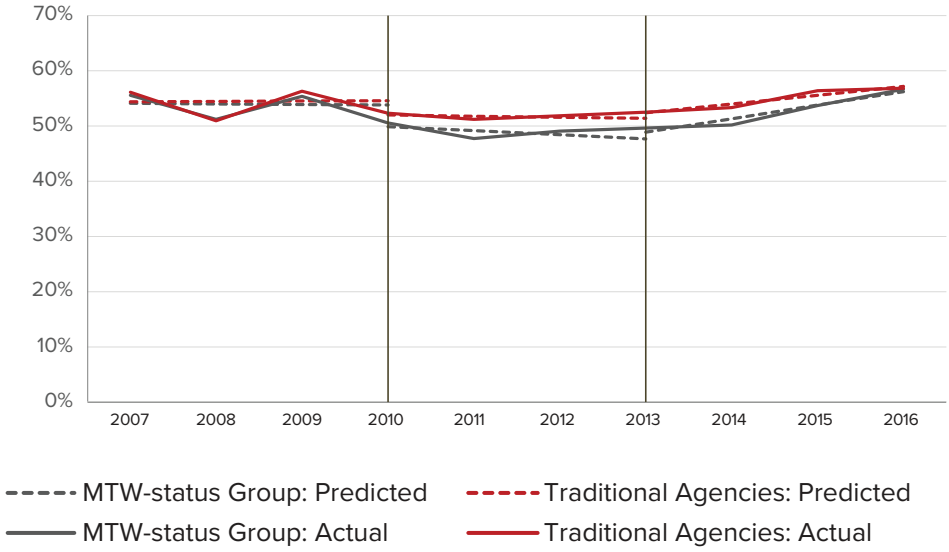
MTW Activity-Specific Group—Increase Income (N=13)

We analyzed 13 MTW agencies involved in activities with the potential to have an effect on household incomes. The share of households with income higher than their first year of assistance dropped for both the MTW and the comparison group between 2009 and 2011 (exhibit 22); this drop, coinciding with the great recession, was somewhat more pronounced for the MTW group than for the comparison group, although the difference was small and not statistically significant (exhibit 23).

During the 2013–2016 period, the share of households with income higher than their first year of assistance increased for both groups; the increase for the MTW group was larger and statistically significant when compared with the comparison group.[19] As with the MTW-status group analysis, the MTW activity-specific group agencies caught up to the traditional agency group in 2016.

[19] We exclude Chicago from this analysis, as the outlier sensitivity analysis results found it to have a significant effect on the grouped results: with Chicago included, the 2013–2016 trend findings were not significant. Excluding Chicago, a secondary sensitivity analysis (sequentially removing each of the PHAs remaining in the group) produced consistently significant and positive results.

Exhibit 22: Share of Existing Work-Able Households With Total Annual Incomes Higher Than at Housing Assistance Entry, MTW Activity-Specific Group and Comparison Group



MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 23: Share of Existing Work-Able Households With Total Annual Incomes Higher Than at Housing Assistance Entry: Comparative Interrupted Time Series Output, MTW Activity-Specific Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.544***	0.003	208.72
Baseline MTW group trend	0.001	0.002	0.26
Initial level difference	-0.003	0.012	-0.22
Pre-treatment trend difference	-0.002	0.010	-0.16
Post-treatment period 1 level difference	-0.014	0.020	-0.67
Post-treatment period 1 trend difference	-0.004	0.013	-0.28
Post-treatment period 2 level difference	0.002	0.014	0.16
Post-treatment period 2 trend difference	0.014*	0.008	1.71
Agency count	14 MTW; 77 traditional		

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. 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?

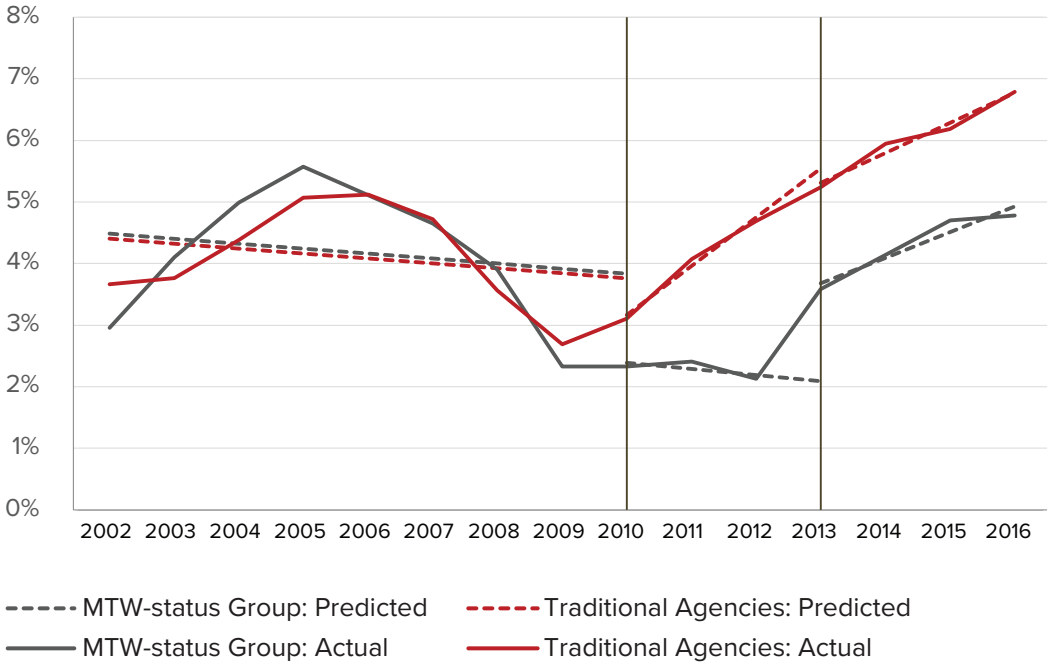
- **Outcome measure:** the share of existing work-able households with Family Self-Sufficiency program escrow accounts (a proxy for FSS program participation).

We present the grouped CITS analysis for escrow accounts only for the MTW-status group, because only three MTW agencies reported activities with the potential to influence escrow use during our study period, and a group of three is too small for analysis.

MTW-Status Group (N=9)

We find no evidence that MTW agencies are more likely to have work-able families with 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 MTW-status group but increased for the comparison group. This 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 but did not diverge in a statistically significant way. Findings were robust to sensitivity analyses. In general, the share of households with escrow accounts is small: for the MTW-status group it has remained between roughly 2 and 5 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 (exhibits 24 and 25).

Exhibit 24: Share of Existing Work-Able Households With Escrow: MTW-Status Group and Comparison Group



MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 25: Share of Existing Work-Able Households With Escrow: Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.044***	0.003	15.84
Baseline MTW group trend	-0.001	0.001	-1.18
Initial level difference	0.001	0.009	0.09
Pre-treatment trend difference	-6.21e-06	0.002	-0.00
Post-treatment period 1 level difference	-0.009	0.011	-0.79

(continued)

Exhibit 25: Share of Existing Work-Able Households With Escrow: Comparative Interrupted Time Series Output, MTW-Status Group (Continued)

	Coefficient	Standard Error	T-stat
Post-treatment period 1 trend difference	-0.009*	0.005	-1.79
Post-treatment period 2 level difference	0.018	0.013	1.36
Post-treatment period 2 trend difference	0.008	0.008	1.00
Agency count	9 MTW: 9 traditional		

* p<0.10 ** p<0.05 *** p<0.01

CITS = Comparative Interrupted Time Series. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Are Existing Work-Able Households in MTW Agencies Moving to Minimal Housing Subsidy at Greater Rates Than Households at Traditional Agencies?

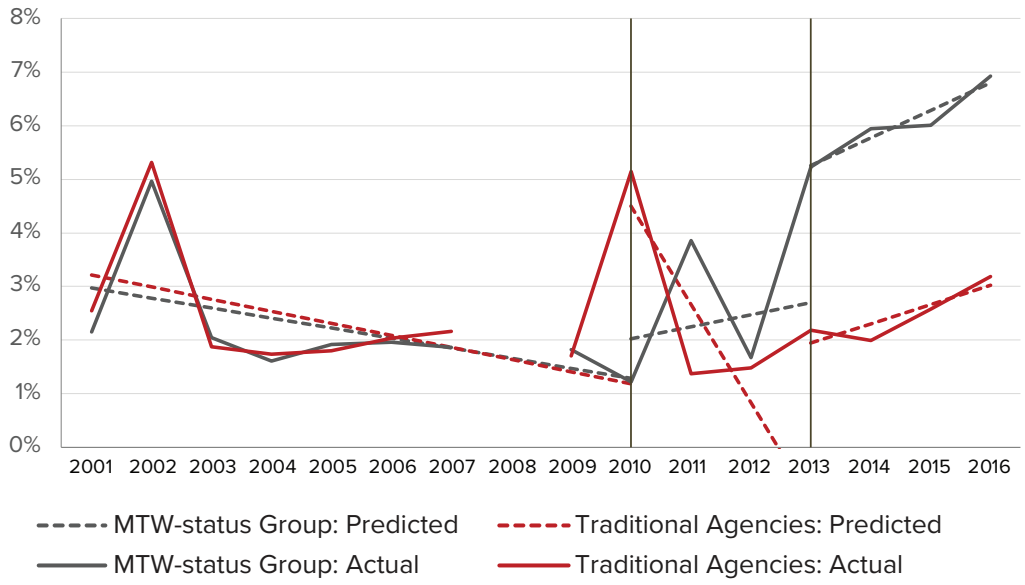
We measure positive exits in two ways: this section examines the share of work-able households who did not start assistance with minimal HAP but subsequently reach minimal HAP. The subsequent section examines whether the households that reach minimal HAP then leave assistance.

- **Outcome measure:** the share of existing work-able households who approach minimal HAP (less than $50).

MTW-Status Group (N=9)

The share of households at minimal HAP was small: generally remaining under 2 percent prior to 2010 for both the MTW-status group and the comparison group (exhibit 26). Between 2010 and 2016, the share increased to close to 7 percent for the MTW-status group and close to 3 percent for the comparison group. The difference, however, was not statistically significant (exhibit 27). This finding was robust to sensitivity analyses.

Exhibit 26: Share of Existing Work-Able Households With Minimal HAP: MTW-Status Group and Comparison Group



HAP = Housing Assistance Payment. MTW = Moving to Work.

Note: 2008 was omitted from the analysis due to data irregularities.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 27: Share of Existing Work-Able Households with Minimal HAP: Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.032***	0.004	8.32
Baseline MTW group trend	-0.002***	0.001	-3.23
Initial level difference	-0.002	0.007	-0.34
Pre-treatment trend difference	-0.0004	0.001	0.31
Post-treatment period 1 level difference	-0.026	0.035	-0.74
Post-treatment period 1 trend difference	0.020	0.021	0.98
Post-treatment period 2 level difference	-0.004	0.029	-0.13
Post-treatment period 2 trend difference	-0.019	0.021	-0.92
Agency count	9 MTW: 9 traditional		

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

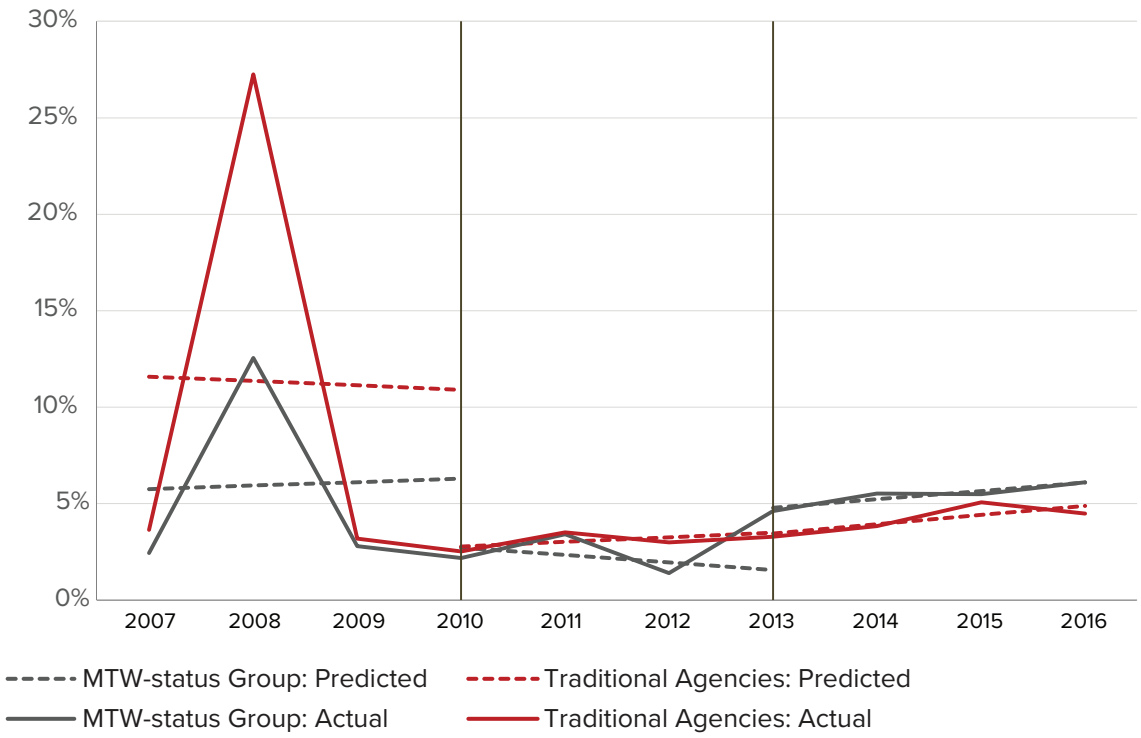
MTW Activity-Specific Group—Minimal Hap (N=17)

For the Moving to Work activity-specific group, the share of households with minimal HAP also remained relatively small during the analysis period, exceeding 6 percent during 2008 and in 2016 (exhibit 28). Many MTW agencies and traditional PHAs reported a 1-year spike of families with minimal HAP in 2008, which may reflect a data reporting or quality issue for that year.

In the MTW group, the share of households with minimal HAP increased between 2012 and 2013 while staying stable for the comparison group; this difference was statistically significant (exhibit 29). This result should be treated with caution for several reasons. First, the difference between the MTW group agencies and comparison PHAs was quite small (less than 2 percentage points in 2016). In addition, for both the MTW agencies and comparison traditional PHAs, the total number of households included in this measure tends to be very small.

Finally, outlier sensitivity analysis indicated that one agency (Chicago) affected the significance of results. A secondary outlier sensitivity analysis (excluding Chicago) retained consistent results, so we omit Chicago from the analysis here.

Exhibit 28: Share of Existing Work-Able Households with Minimal HAP: MTW Activity-Specific Group and Comparison Group



HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 29: Share of Existing Work-Able Households With Minimal HAP: Comparative Interrupted Times Series Output, MTW Activity-Specific Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.116***	0.031	3.75
Baseline MTW group trend	-0.002	0.022	-0.10
Initial level difference	-0.058	0.043	-1.35
Pre-treatment trend difference	0.004	0.034	0.12
Post-treatment period 1 level difference	0.045	0.070	0.65
Post-treatment period 1 trend difference	-0.010	0.035	-0.30
Post-treatment period 2 level difference	0.033**	0.015	2.16
Post-treatment period 2 trend difference	0.006	0.008	0.73
Agency count	17 MTW; 8 traditional		

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

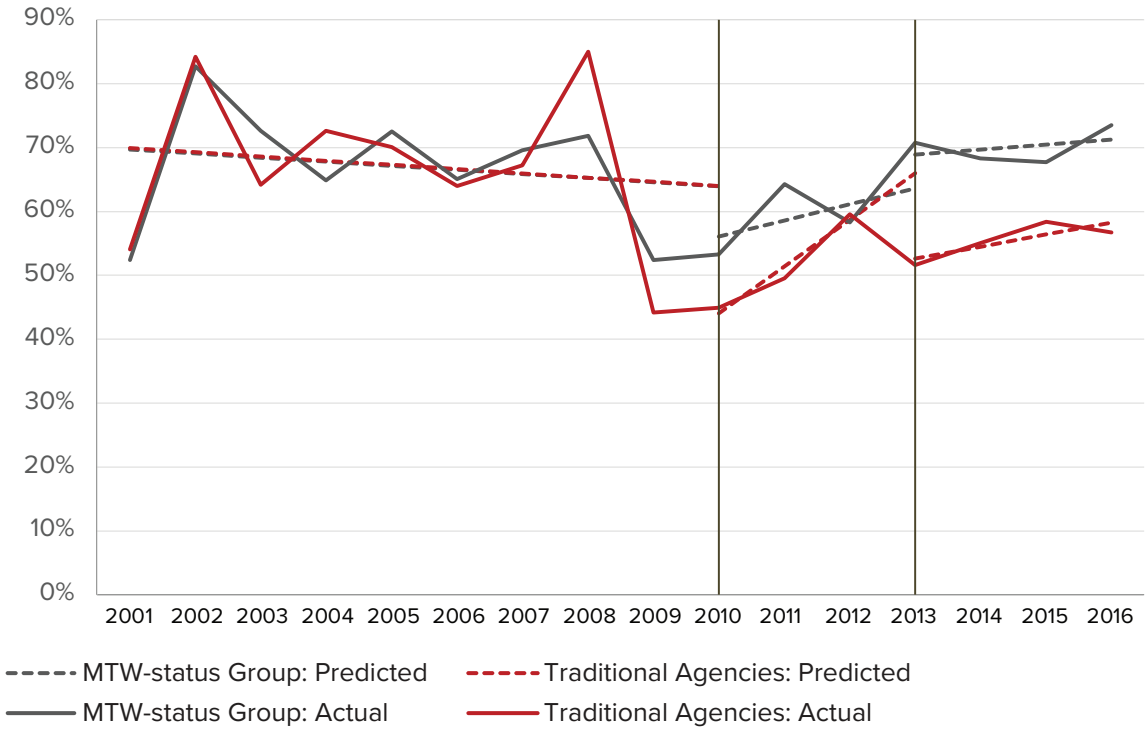
Are Existing Work-Able Households in MTW Agencies Making Positive Exits From Housing Assistance at Greater Rates Than Households at Traditional Agencies?

- **Outcome measure:** The share of work-able households who leave assisted housing in the year after reaching minimal HAP.

MTW-Status Group

The share of households in the MTW group with minimal HAP who left assisted housing increased relative to those in the comparison group both between 2009 and 2010 and again between 2012 and 2013, resulting in a 17-percentage-point difference between the two groups by 2016 (exhibit 30); both of these relative increases were statistically significant (exhibit 31). As noted earlier, households reaching minimal HAP are a small share of all households, so these percentages reflect a small subset of all households served. For instance, in 2016, about 74 percent of all work-able households in the MTW group with minimal HAP left assistance, but only 6 percent had reached minimal HAP in the first place.

Exhibit 30: Share of Minimal-HAP Households Who Leave: MTW-Status Group and Comparison Group



HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 31: Share of Minimal-HAP Households Who Leave: Comparative Interrupted Time Series Output, MTW-Status Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.699***	0.021	33.17
Baseline MTW group trend	-0.007	0.005	-1.40
Initial level difference	-0.002	0.069	-0.03
Pre-intervention trend difference	0.0002	0.014	0.02
Post-intervention period 1 level difference	0.121*	0.069	1.7
Post-intervention period 1 trend difference	-0.048	0.038	-1.28
Post-intervention period 2 level difference	0.187**	0.083	2.24
Post-intervention period 2 trend difference	0.037	0.036	1.04
Agency count	9 MTW; 21 traditional		

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

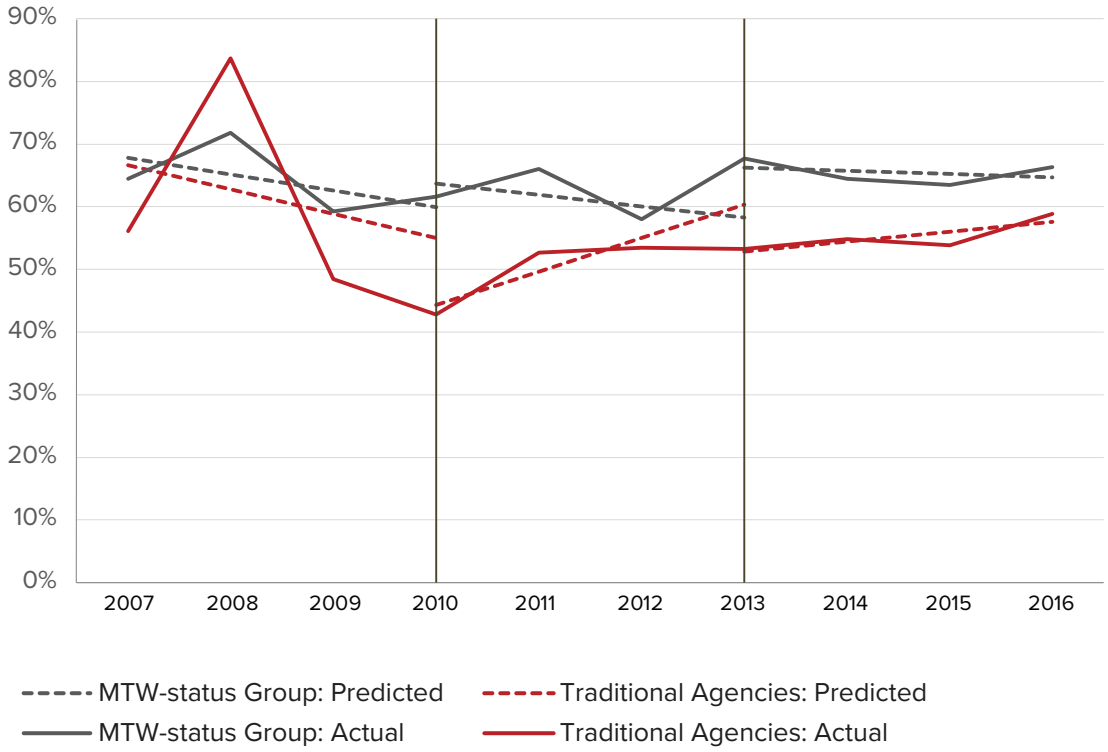
MTW Activity-Specific Group—Exit Assistance With Minimal HAP (N=17)

For the 17 agencies analyzed in the MTW activity-specific group, the share of existing work-able households reaching minimal HAP and subsequently leaving assistance has remained relatively steady between 2007 and 2016—and as of 2009 has remained consistently higher than the share for the comparison group of traditional public housing authorities (exhibit 32).

We dropped one MTW agency (Tulare) from this analysis based on our outlier sensitivity analysis, which indicated that Tulare influenced the significance outcomes; a secondary outlier sensitivity analysis omitting Tulare resulted in consistent statistically significant effects. Compared with the group of traditional agencies, four post-treatment level and trend differences for the MTW group were statistically significant (exhibit 33):

1. The share of households with minimal HAP who left assisted housing increased for the MTW group between 2009 and 2010, while dropping for the comparison group.
2. Between 2010 and 2012, the share of households with minimal HAP who left housing assistance remained relatively steady for the MTW group and increased for the comparison group; this trend toward a shrinking gap with (that is, a relative decrease in relation to) the traditional PHAs was statistically significant.
3. Between 2012 and 2013, the share of households in the MTW group with minimal HAP who left assisted housing increased, while the share of these households in the comparison group who left remained relatively steady; this divergence was statistically significant.
4. Between 2013 and 2016, the share of households with minimal HAP who left housing assistance increased for both groups, but the increase for the MTW group relative to the comparison group was larger and statistically significant.

Exhibit 32: Share of Minimal-HAP Households Who Leave: MTW Activity-Specific Group and Comparison Group



HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Exhibit 33: Share of Minimal-HAP Households Who Leave: Comparative Interrupted Time Series Output, MTW Activity-Specific Group

	Coefficient	Standard Error	T-stat
Initial MTW group level	0.666***	0.012	54.33
Baseline MTW group trend	-0.039***	0.011	-3.60
Initial level difference	0.012	0.031	0.38
Pre-treatment trend difference	0.012	0.026	0.48
Post-treatment period 1 level difference	0.144***	0.053	2.73
Post-treatment period 1 trend difference	-0.084**	0.036	-2.34
Post-treatment period 2 level difference	0.155***	0.050	3.12
Post-treatment period 2 trend difference	0.050**	0.021	2.39
Agency count	17 MTW: 81 traditional		

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. MTW = Moving to Work.

Source: Analysis of HUD Public and Indian Housing Information Center data

Summary of Self-Sufficiency Outcomes

Findings for self-sufficiency outcomes were generally either null or indicated some positive effect from MTW status. Two statistically significant results aligned for both MTW groups: the share of work-able households with total incomes higher than at entry for the 2013–2016 period and the share of households with minimal HAP who exited housing assistance.

MTW-status Group. For the MTW-status group, we find no significant divergence from the comparison groups regarding the share of work-able households attaining minimal HAP (exhibit 34):

- MTW status is associated with a statistically significant relative decrease in the share of work-able households with total income higher than at entry for the period between 2009 and 2010. This was followed by a statistically significant increasing trend during the subsequent 2013–2016 period. By 2016, the MTW group level had caught up to the level of the comparison group.
- MTW status is associated with a statistically significant relative decrease in the share of work-able households with escrow accounts during the 2010–2012 period.
- MTW status is associated with a statistically significant relative increase in the share of work-able households with minimal HAP who then left assistance between both 2009 and 2010 and between 2012 and 2013.

Exhibit 34: Comparative Interrupted Time Series Analysis: Summary of Self-Sufficiency Outcomes for MTW-Status Group

	Group size		Post-treatment Period 1 (2010–2012)		Post-treatment Period 2 (2013–2016)	
	MTW Group	Comparison Group	Level	Trend	Level	Trend
Share of work-able households with total annual incomes higher than at entry	8	14	-	-*	-	+**
Share of work-able households with escrow account	9	3	-	-*	+	+
Share of households attaining minimal HAP	9	11	-	+	-	-
Share of households with minimal HAP who exit	9	15	+*	-	+**	+

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. MTW = Moving to Work.

Note: Signs indicate where the level and trend at the MTW agencies are in relation to the trend at the comparison group agencies. For the post-treatment level, "-" indicates that the MTW group outcome at the time measured was lower, and "+" indicates that it was higher. For the post-treatment trend, "-" indicates that the trend at the MTW agencies increased less (or decreased more), and "+" indicates that the trend at the MTW agencies increased more (or decreased less). If the level or the trend is not statistically significant, then we conclude that outcome measures were the same at MTW agencies and comparison group agencies.

Source: Analysis of HUD Public and Indian Housing Information Center data

MTW Activity-Specific Group. For the MTW activity-specific group, we find multiple statistically significant findings (exhibit 35):

- For the share of work-able households with total income higher than at entry, the MTW activity-specific group is associated with a statistically significant increasing trend during the 2013–2016 period.
- Being in the MTW activity-specific group is associated with an increase between 2012 and 2013 in the share of existing work-able households attaining minimal HAP. The share remains small: as of 2016, it was 6.1 percent for the MTW activity-specific group versus 4.5 percent for its comparison group.
- The share of existing work-able households who left housing assistance after attaining minimal HAP diverged in multiple ways from such households in the comparison group. This included statistically significant relative increases in the share of work-able households with minimal HAP who then left assistance between both 2009 and 2010 and between 2012 and 2013, a relative decrease between 2010 and 2012, and a relative increase between 2013 and 2016.

Exhibit 35: Comparative Interrupted Time Series Analysis: Summary of Self-Sufficiency Outcomes for MTW Activity-Specific Group

	Group size		Post-treatment Period 1 (2010–2012)		Post-treatment Period 2 (2013–2016)	
	MTW Group	Comparison Group	Level	Trend	Level	Trend
Share of work-able households with total annual incomes higher than at entry	13	83	-	-	+	+*
Share of work-able households with escrow account	3	NA	NA	NA	NA	NA
Share of households attaining minimal HAP	17	8	+	-	+**	+
Share of households with minimal HAP who exit	17	74	+***	-**	+***	+**

* p<0.10 ** p<0.05 *** p<0.01

HAP = Housing Assistance Payment. MTW = Moving to Work. NA = data not available.

Note: Signs indicate where the level and trend at the MTW agencies are in relation to the trend at the comparison group agencies. For the post-treatment level, "-" indicates that the MTW group outcome at the time measured was lower, and "+" indicates that it was higher. For the post-treatment trend, "-" indicates that the trend at the MTW agencies increased less (or decreased more), and "+" indicates that the trend at the MTW agencies increased more (or decreased less). If the level or the trend is not statistically significant, then we conclude that outcome measures were the same at MTW agencies and comparison group agencies.

Source: Analysis of HUD Public and Indian Housing Information Center data

Discussion and Conclusions

Overall, results from this study indicate that there are some signs of a positive relationship between MTW and several housing choice and self-sufficiency related outcomes. Between 2013 and 2016, newly assisted households represented a larger share of the MTW agencies' assisted households compared with traditional PHAs. This outcome had the most consistent and substantive effects in our analyses across both MTW agency treatment groups. Results are also consistent with Galvez, Gourevitch, and Docter's (forthcoming) descriptive findings that the 39 MTW agencies added more new households to their assisted housing portfolios between 2008 and 2016 while the number added by traditional PHAs remained flat.

Results for three additional 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. 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 this parity with traditional PHAs may itself be a positive outcome. Updating the current analyses with additional years of HUD administrative data will help assess whether the promising trend has continued and MTW agencies have begun to outpace the comparison group, whether they have remained in parity, or if they have again fallen behind.

For results related to reaching minimal HAP and subsequent exits from assistance, the outcome measures must be treated cautiously because they reflect relatively small numbers of households and can be sensitive to small changes—which means the substantive value of differences between groups may be limited even when they are statistically significant. Additional tracking over a longer time period can help clarify if 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.

Finally, results were null for the MTW status and activity-specific groups for our remaining three outcome measures. These include the share of tenant-based voucher households in low-poverty tracts, average Physical Assessment Subsystem (PASS) scores, and the share of work-able households with escrow accounts. There were no statistically significant results for the poverty share. The share of work-able households with escrow accounts increased after 2009 for the comparison group but only after 2012 for the MTW group; this resulted in a statistically significant divergence during the initial post-treatment period, but given subsequent trends and the relatively small difference between groups it is more a lagging indicator than one of continuing significance. For PASS scores, which increased over time for both the MTW-status group and the comparison group, the one statistically significant divergence appears to be more of a lagging trend than an MTW-specific effect: the increase was similar over time for both groups, but happened later for the MTW-status group. It may also be the case that 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—removed the most distressed public housing units from some of the MTW agencies' portfolios. If so, this could have resulted in an apparent improvement in the PASS score 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.

Implications for Research

This study is the most exhaustive effort to date to examine the aggregate effects of MTW 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 appear relevant to a wide range of MTW agencies and selecting two treatment group 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. This approach provides a novel and useful framework for future research interested in capturing aggregate effects of MTW status or activities for current and future cohorts of MTW agencies.

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 a common MTW agency objectives, and changes may be triggered through a variety of MTW agency efforts. Our status group included just 9 of the 39 agencies that received MTW designation as of 2018 because of missing administrative data for agencies that received MTW designation prior to 2008. Future research using the status group approach, however, could include the four agencies that received designation in 2013 and the 100 agencies that are expected to be designated through the MTW expansion.

Second, this work provides a useful starting point for additional research focused on our selected MTW agencies that explores or refines the findings documented in this report. For example, qualitative work with the MTW agencies that increase their assisted household portfolio over time can help identify whether they attribute the growth to specific flexibilities, policy reforms, or initiatives that allow them to maximize the number of households served. 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. In addition, as noted, ongoing quantitative analysis of the measures found to have promising results can help shed light on whether the positive trends continue. For this study, we had access to data through 2016. By 2020, data will be available to assess an additional outcomes period for the agencies already included in our analyses and for 7 post-period years for the four agencies that received designation in 2013. Similarly, our assessment of MTW agency activities presented in appendix E 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, it is clear from this study and others 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 the MTW agencies are engaged in. 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 MTW program's housing choice or self-sufficiency goals. Examples of such research include the study of the Santa Clara Housing Authority conducted through the retrospective MTW evaluation (Castells, 2020); Webb, Frescoln, and Rohe's (2015) study of work requirements at the Charlotte Housing Authority; and the randomized control trial study currently in progress at the Seattle and King County, Washington's neighborhood mobility program.[20] 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 both existing agencies and new agencies included in the MTW expansion.

[20] For information on the Creating Moves to Opportunity program and research, see: http://creatingmoves.org/research/.

Appendix A: MTW Agencies

Exhibit A: MTW Agency Program Entries and Exits

Agency	Year Selected	Year Signed	Exit	Notes
Birmingham	1996		1999	Never signed agreement
Cambridge	1996	1999	-	
Chattanooga	1996		2003	Jobs-Plus demonstration only
Cherokee Nation	1996		1999	Never signed agreement
Cuyahoga	1996		2003	Jobs-Plus demonstration only
Dayton	1996		2003	Jobs-Plus demonstration only
Delaware	1996	1999	-	
Greene	1996		2004	
High Point	1996		2004	
Keene	1996	1999	-	
Lawrence-Douglas County	1996	1999	-	
Lincoln	1996	1999	-	
Los Angeles	1996		2003	Jobs-Plus demonstration only
Los Angeles County	1996		1999	Never signed agreement
Louisville	1996	1999	-	
Massachusetts	1996	1999	-	
Minneapolis	1996	1998	-	
Portage	1996	1999	-	
Portland	1996	1999	-	
San Antonio	1996	1999	-	Original agreement was a small demonstration
San Diego	1996	1998/2009	2003 (rejoined in 2009)	Originally signed MTW agreement in 1996; terminated in 2003 but rejoined in 2009.
San Mateo	1996	2000	-	
Seattle	1996	1998	-	
Stevens Point	1996		1999	Never signed agreement
Tampa	1996		1999	Never signed agreement
Tulare County	1996	1999	-	
Utah Consortium	1996		1999	Never signed agreement
Vancouver	1996	1999	-	
Charlotte	1999	2006	-	Interim agreement first signed in December 2006; original agreement signed in December 2007
Pittsburgh	1999	2000	-	
Atlanta	2000	2003	-	
District of Columbia	2000	2003	-	
King County	2000	2003	-	
New Haven	2000	2001	-	
Oakland	2000	2004	-	

(continued)

Exhibit A: MTW Agency Program Entries and Exits *(continued)*

Agency	Year Selected	Year Signed	Exit	Notes
Philadelphia	2000	2002	-	
Chicago	2000	2000	-	
Baltimore	2008	2008 (see note)	-	Joined 1996 as Jobs-Plus; participation ended in 2003 and re-joined 2008
Alaska	2008	2008	-	
San Bernardino	2008	2008	-	
San Jose	2008	2008	-	
Santa Clara	2008	2008	-	
Orlando	2009	2011	-	
Tacoma	2009	2010	-	
Champaign County	2009	2010	-	
Boulder	2010	2011	-	
Lexington	2010	2011	-	
Columbus	2012	2013	-	Agreement executed in July 2013
Fairfax	2012	2013	-	Agreement executed in November 2013
Holyoke	2012	2013	-	Agreement executed in November 2013
Reno	2012	2013	-	Agreement executed in June 2013

MTW = Moving to Work.

Appendix B: Ongoing Initiatives Related to Statutory Objectives

Appendix exhibits B1 and B2 present the count of ongoing activities that MTW agencies specified in their annual reports as related to either housing choice or self-sufficiency initiatives. This list reflects a systematic review of MTW agency plans, done as a part of the larger Urban MTW evaluation, up to FY2015, and categorizes activities by statutory objective, activity type, activity status, and authorization category. Counts are for all MTW agencies, not only those analyzed for this report.

Exhibit B1: Ongoing Housing Choice Initiatives

Activity type	Count
Local, non-traditional program (rental subsidy)	28
Local, non-traditional program (housing development)	20
Comprehensive PBV activities that incorporate multiple flexibilities	19
Local, non-traditional program (service provision)	9
Acquisition of public housing without prior HUD approval	8
Increase in household mobility	8
Local payment standards	7
Waitlist policies	7
Affordability at lease-up cap increase	6
Eligibility requirement alterations	5
Elimination of 25-percent development cap	4
Local homeownership program (voucher)	4
Time limit on housing assistance or occupancy	4
Alternate competitive process	3
Creation of local contracts/forms (for PBV program)	3
Elimination of 20-percent portfolio cap	3
Establishment of partnerships	3
Local, non-traditional program (homeownership)	3
Other resident services initiative	3
Preference alterations	3

HUD = U.S. Department of Housing and Urban Development. PBV = Project-Based Voucher.

Source: Counts of ongoing activities as described in agency MTW plans (active as of 2015) using the database created in the retrospective MTW evaluation, not including activities where activity type could not be identified. This table shows only activities appearing *three or more times*. Total number of active activities, including those occurring once or twice, is 186.

Exhibit B2: Ongoing Self-Sufficiency Initiatives

Activity type	Count
Local, non-traditional program (service provision)	26
Alternate policy on the inclusion/exclusion of income to calculate rent	12
Alternate FSS program	11
Local, non-traditional program (rental subsidy)	11
Increase of minimum rent for work-able households	7
Work requirement	7
Establishment of partnerships	6
Mandatory FSS policy	6
Time limit on housing assistance or occupancy	5
Comprehensive rent reform activities	4
Earned Income Disregard (EID) alternative	4
Alternate recertification schedule for work-able households	3
EID elimination	3
Flat rent by $ or %	3

FSS = Family Self Sufficiency.

Source: Counts of ongoing activities as described in agency MTW plans (active as of 2015) using the database created in the retrospective MTW evaluation, not including activities where activity type could not be identified. This table shows only activities appearing *three or more times*. Total number of active activities, including those occurring once or twice, is 142.

Appendix C: MTW Agencies by Activity-Specific Groups

Exhibit C: Activities Used to Select MTW Activity-Specific Group Agencies

PHA	Initiative Name	Start year	Activity	Self-sufficiency	Housing choice
Alaska Housing Finance Corporation	Simplification of Utility Allowance Schedules	2011	Alternate utility calculation (simplification/right-size)		Y
	Raise HCV Maximum Family Contribution at Lease-Up to 50 Percent	2012	Affordability at lease-up cap increase		Y
Charlotte Housing Authority	2009-7 Increase Acquisition and Rehabilitation of Existing Multi-Family Properties	2009	Acquisition of public housing without prior HUD approval		Y
	2009-8 Land Acquisition for Future Use	2009	Acquisition of public housing without prior HUD approval		Y
	2009-4 Community Based Rental Assistance	2009	Local, non-traditional program (rental subsidy)		Y
	2010-1 Rent Reform and Work Requirement	2010	Alternate income verification policy and work requirement	Y	
Chicago Housing Authority	2009-2: Public Housing Work Requirement	2009	Work requirement	Y	
Housing Authority of Champaign County	Mandatory Local Family Self-Sufficiency Program	2011	Mandatory FSS policy	Y	
	Tiered Flat Rents and Minimum Rents by Bedroom Size	2011	Flat rent by $ or %	Y	
Home Forward (Portland, OR)	Measures to improve the rate of voucher holders who successfully lease-up	2010	Alternate lease		Y
Housing Authority of the City of Pittsburgh	Modified Rent Policy for the Section 8 Housing Choice Voucher Program	2011	Mandatory FSS policy	Y	
Housing Authority of the County of San Bernardino	Minimum Rent	2010	Increase of minimum rent for work-able households	Y	
	Five-Year Lease Assistance Program (formerly Term Limits)	2012	Time limit on housing assistance or occupancy	Y	
	Local PBV Program	2010	Comprehensive PBV activities that incorporate multiple flexibilities		Y
	Local Payment Standards	2012	Local payment standards		Y

(continued)

Exhibit C: Activities Used to Select MTW Activity-Specific Group Agencies *(continued)*

PHA	Initiative Name	Start year	Activity	Self-sufficiency	Housing choice
Housing Authority of the County of San Mateo	Change Automatic Termination of HAP Contact from 180 to 90 Days	2012	Creation of local contracts/ forms (other)	Y	
	Commitment of MTW Funds for Leveraging in the Creation of Additional Affordable Housing in San Mateo County	2012	Local, non-traditional program (housing development)		Y
Santa Clara County Housing Authority / Housing Authority of the City of San Jose	2012-5: Expand Tenant Services at HACSC- or Affiliate-Owned Affordable Housing Properties	2012	Local, non-traditional program (service provision)	Y	
	2012-3 Create Affordable Housing Acquisition and Development Fund	2012	Agency conducted inspections		Y
	2012-4: Create Affordable Housing Preservation Fund for HACSC and Affiliate Owned Properties	2012	Streamlining of development		Y
King County Housing Authority	Community Choice Program	2012	Increase in household mobility	Y	Y
Lexington-Fayette Urban County Housing Authority	HCV Tenant-Based Special Partners Programs	2012	Time limit on housing assistance or occupancy		Y
Lincoln Housing Authority	RentWise Tenant Education	2012	Local, non-traditional program (service provision)		Y
Louisville Metropolitan Housing Authority	Mandatory Case Management	2010	Mandatory FSS policy	Y	
Massachusetts Department of Housing and Community Development	Rent Simplification	2012	EID alternative	Y	
Minneapolis Public Housing Authority	2010-1: Public Housing Works Family Incentive	2011	Alternate policy on the inclusion/exclusion of income to calculate rent	Y	
	2009-6: Section 8 HCV Mobility Voucher Program	2010	Increase in household mobility		Y

(continued)

Exhibit C: Activities Used to Select MTW Activity-Specific Group Agencies *(continued)*

PHA	Initiative Name	Start year	Activity	Self-sufficiency	Housing choice
Oakland Housing Authority	Program Extension for Households Receiving $0 HAP	2010	Increase time a household may remain in unit at the ceiling rent/zero HAP	Y	
	Eliminate Caps on PBV Allocations	2012	Elimination of 20% portfolio cap		Y
Orlando Housing Authority	$225 Rent Floor for Non-elderly and Nondisabled Households	2012	Increase of minimum rent for work-able households	Y	
Portage Metropolitan Housing Authority	Maximum Rent	2009	Set maximum rent	Y	Y
San Antonio Housing Authority	Preservation and Expansion of Affordable Housing	2011	RHF related activity		Y
San Diego Housing Commission	Adopt a local interim certification policy	2011	Alternate income verification policy	Y	
	Acquisition of additional affordable units	2010	Acquisition of public housing without prior HUD approval		Y
	Development of public housing units using a combination of funds	2010	Acquisition of public housing without prior HUD approval		Y
	Choice Communities Component	2010	Comprehensive rent reform activities		Y
Tacoma Housing Authority	Local Policies for Work-Able Households	2012	Comprehensive rent reform activities	Y	
	Creation and Preservation of Affordable Housing:	2012	Local, non-traditional program (housing development)		Y
Tulare County Housing Authority	Encourage Self Sufficiency and Transition of Pre-1999 Families to the MTW Program	2009	Mandatory FSS policy	Y	
	Development of Additional Affordable Housing	2009	Acquisition of public housing without prior HUD approval		Y
Vancouver Housing Authority	Renter Education Required for Applicants	2009	Eligibility requirement alterations	Y	Y
	Simplified utility allowance schedule in HCV program FY	2009	Alternate utility calculation (simplification/right-size)	Y	Y

EID = Earned Income Disregard. FSS = Family Self Sufficiency. HACSC = Housing Authority of the County of Santa Clara. HAP = Housing Assistance Payment. HCV = Housing Choice Voucher. MTW = Moving to Work. PBV = Project-Based Voucher. PHA = Public housing agency. RHF=Replacement Housing Factor Fund Grants.

Appendix D: Methodology

Comparative Interrupted Time Series analysis involves observing and analyzing an outcome variable over multiple periods before and after the introduction of an intervention expected to interrupt that variable's level or trend. If an intervention has an effect, the post-treatment series will have a different level or slope than the pre-treatment series. CITS analyses rely on multiple years of pre- and post-treatment data to measure both levels and trends of the indicators of interest. More years of data help uncover cyclical patterns and control for potential outlier years. Pre-treatment data points are especially important because they create a baseline set of levels and trends for analysis and are also used to identify a comparison group.

To be valid, CITS requires three conditions:

1. The policy intervention (also called "treatment" in this report) must be consequential.
2. It must be implemented at one time.
3. The selected comparison group needs to be in a similar context.

We account for consequentiality by analyzing the effects of MTW in two ways. The first, measuring the effects of MTW status, is designed to ask this exact question. The second, measuring the effect of MTW activities, is limited to agencies that not only implemented activities related to housing choice or self-sufficiency but is also further limited to activities that could plausibly affect a given outcome of interest through an intended effect on a sizeable share of the agency's households. This selection process is discussed in more detail in this report's methodology chapter above.

Second, we address the timing-related condition by dividing the post-treatment years into two distinct periods: an initial implementation period from 2009 to 2012, and a subsequent mature implementation period from 2013 to 2016. The initial implementation period includes every year where MTW agencies in our sample either joined MTW or implemented an activity related to housing choice or self-sufficiency. During this period, not every agency in the grouped analysis would have already joined MTW or implemented a new activity, so we expect MTW-related results from this initial period of analysis to be relatively weaker. By the later 2013–2016 period, all agencies in our grouped samples would have already joined MTW or would have implemented potentially significant policies. It is in this period where we would expect any MTW-related effects to be more robust. Third, our grouped analysis compares the MTW groups of agencies with a group of traditional agencies with similar pre-treatment levels and trends for the indicators of interest. **This comparison group varies by indicator.** The pre-treatment levels and trends for a given indicator of the averaged MTW group are used to match with traditional public housing agencies that have similar pre-treatment levels and trends. We discuss the procedure in more detail below. This matching process does not generally include other agency characteristics.[21] The diversity of MTW agencies in a given group (such as their relative size, household characteristics, housing mix, and geographic contexts) means that any matching indicators beyond the indicators of interest would be based on composite averages. This would result in a comparison group of traditional agencies less closely matched on pre-treatment levels and trends of the indicator of interest, but more

[21] We include percent of households in public housing as a control variable for the housing quality indicator and share of households that are work-able as a control variable for the share of work-able households with minimal Housing Assistance Payment. We do this to improve the matching process for those indicators.

closely matched on the composite averages of other indicators.[22] Our CITS model takes the following form:[23]

$$Y_t = \beta_0 + \beta_1 T_t + \beta_2 X_t + \beta_3 X_t T_t + \beta_4 Z + \beta_5 ZT_t + \beta_6 ZX_t + \beta_7 ZX_t T_t + e_t$$

Where:

X_t = a dummy variable measuring treatment (0=pre-treatment; 1=post-treatment)

Y_t = the value of the outcome variable in year t ,

T_t = the number of years since the start of treatment,

Z = a dummy variable for treatment assignment (treatment = 1; control = 0),

β_0 = the level (intercept) for the control group,

β_1 = the slope of the baseline trend for the control group,

β_2 = the change in the level of the outcome that occurs in the period immediately following the introduction of the treatment,

β_3 = the difference between pre-treatment and post-treatment slopes of the outcome,

β_4 = the difference in the level of the outcome variable between treatment and controls prior to the intervention,

β_5 = the difference in the slope of the outcome variable between treatment and controls prior to the intervention,

β_6 = the difference between treatment and control groups in the level of the outcome variable immediately post-treatment,

β_7 = the difference between treatment and control groups in the slope/trend of the outcome variable post-treatment compared to pre-treatment, and

e_t = a random error term.

The differences in the level (β_4) and the slope (β_5) between the Moving to Work group and the comparison group of matched agencies represent the outcomes of the matching analysis, designed to result in a matched group with no statistically significant differences in either the level or the trend.

The matched group of traditional agencies identified for a given indicator was identified through a Stata protocol (itsamatch) designed to identify a comparison group based on balanced pre-treatment levels (β_4) and trends (β_5), with balance defined by a minimum significance value (p-value). Our baseline indicator of significance was a p-value greater than 0.10. For indicators with relatively little variation across agencies, initial matching produced too many matches to result in a successful analysis, so in those cases we increased the minimum p-value stepwise using an iterative process.

The outcome indicators analyzed in this report represent a subset of all those considered for the analysis. Our selection of a final set of indicators was based on an effort to remove redundancy and select indicators that could be measured rigorously with available data. In addition, other studies included in the retrospective MTW evaluation are assessing the total number of households served by MTW agencies. The list of indicators considered but excluded from our final analyses are—

- Housing choice—
  - » *Measuring whether MTW agencies are serving more households (selected indicator: share of households that are new):* number of total households

[22] Our agency-by-agency analyses, presented in appendix E, however, do use propensity score matching techniques based on agency characteristics to further refine comparison groups. For these analyses, because the comparison group is being matched to a single MTW agency, introducing other characteristics to refine matching is appropriate.

[23] This largely follows Linden (2015).

served, annual change in the number of total households, number of new households.

  - » *Measuring whether households in MTW agencies are reaching lower-poverty neighborhoods (selected indicator: share of tenant-based vouchers in low-poverty census tracts):* average census tract poverty rate of assisted households (all voucher households), share of households in low-poverty census tracts (all households; all voucher households).

- Self-sufficiency—
  - » *Measuring MTW's effect on household income (selected indicator: share of existing work-able households with total household income higher than year of entry, controlling for inflation):* share of work-able households (new and existing) with any wage income, share of work-able households with wage income higher than year of entry, average work-able household income (new and existing), share of work-able households with decreasing income.
  - » *Measuring MTW's effect on self-sufficiency programming uptake (selected indicator: share of existing work-able households with escrow account):* of households with an escrow account, the average dollar amount in escrow account.

Appendix E: Individual MTW Agency Analyses

We present individual-level analyses for all MTW agencies included in this study. The list of activities used to select MTW agencies for the MTW activity-specific groups is in exhibit C.

For the individual-level analyses, we use propensity score matching to create a pool of comparison traditional PHAs for each MTW agency. Specifically, we generate 25 traditional PHA matches (again only including traditional PHAs with more than 500 households) using the 2008 values for the share of housing assistance that was tenant-based, total households, and the Fair Market Rent (FMR). For each outcome measure, we then apply propensity score matching, selecting traditional agencies from the 25 that most closely match the pre-treatment levels and trends of the MTW agency. In some cases, this matching process resulted in a comparison group with significantly different pre-treatment levels and/or trends for an outcome measure, suggesting a poor match. For these cases, we broadened the comparison group by selecting a pool of 100 traditional comparison PHAs using propensity score matching based only on the 2008 share of housing assistance that was tenant-based. This gave us a larger pool of potential matches, so that we could choose comparison agencies that were closer to the MTW agency on pre-treatment measures.

The comparison group for each agency is different for each indicator (because they are matched on levels and trends of the selected indicator) and range in size from as little as 1 to more than 25 (see the row "Matches" in the exhibits). The comparison groups are also different depending on whether the analysis year (i.e., the year that the treatment begins) is the year after the agency joined MTW or the year after the agency implemented specific activities. The column heading in the table indicates which definition of treatment is being used: "MTW-status" shows data based on the year after the agency joined the MTW demonstration and "MTW activity-specific" shows data based on the year after the agency implemented specific activities intended to promote housing choice or self-sufficiency.

Note that the analysis could not be run for all indicators because of missing or unreliable data. Baltimore appears in Appendix E, but it was not included in any of the grouped analyses in this study because the data needed for selected indicators was deemed unreliable.

Here is a key to the row labels:

Category	Category of activity (housing choice or self-sufficiency) and group type (MTW-status or MTW activity-specific)
Indicator	The selected indicator of housing choice or self-sufficiency

Summary

2012	Values for selected indicators for the agency in 2012
2016	Values for selected indicators for the agency in 2016
First Year	The first year for which we have PIC data for the analysis
Starting Value	The value of the indicator in the First Year

Linear Trend

Pre	The MTW agency's trend on the indicator before the analysis year
Post	The MTW agency's trend on the indicator after the analysis year

CITS Output

Pre Trend	Estimate of difference between MTW and comparison trend before analysis year
Post Trend	Estimate of difference between MTW and comparison trend after analysis year
Pre Level	Estimate of difference between MTW and comparison level before analysis year
Post Level	Estimate of difference between MTW and comparison level after analysis year
Post Trend Sig	p-value for difference between MTW and comparison trend after analysis year (analogous to a difference of differences)
Post Level Sig	p-value for difference between MTW and comparison level after analysis year
Analysis Year	The year of the treatment (i.e., year after joining MTW or year after activities were first implemented)
CITS p-value	Indicates if the overall model has a statistically significant relationship with the dependent variable
Matches	The number of traditional PHAs in the comparison group

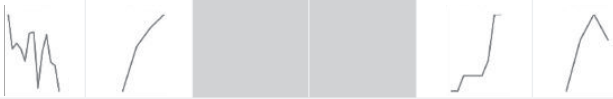
These individual agency results are provided as a point of reference and are useful for identifying agencies where outcomes differ from the larger MTW agency group. The agency-level information are snapshots of agency-level activity and are not intended to be definitive evaluations of agency progress towards the statutory objectives or activities.

Alaska Housing Finance Corporation

Housing Choice

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	6,680	910	21.6%	76.2%	$1,053	$23,131	$27,247
	2016	7,343	1,415	19.7%	76.5%	$1,292	$25,277	$34,025

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new*	Share of TBV households in low-poverty census tracts	Housing quality (PASS)*	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	13.9%		30				
	2016	20.2%		34				
	First Year	2001		2005				
	Starting Value	24.1%		25				
Linear Trend	Pre	-0.01		0.62				
	Post	0.04		1.40				
CITS Output	Constant	-0.01		0.86				
	Pre Trend	0.003		-0.32				
	Post Trend	0.02		3.55				
	Pre Level	0.02		0.26				
	Post Level	-0.04		2.61				
	Post Trend Sig.	0.000		0.104				
	Post Level Sig.	0.041		0.559				
	Analysis Year	2013		2013				
	CITS p-value	0.1		0.3				
	Matches	33		9				
Trend Lines		Pre	Post	Pre	Post			



Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Alaska Housing Finance Corporation

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	6,680	910	21.6%	76.2%	$1,053	$23,131	$27,247
	2016	7,343	1,415	19.7%	76.5%	$1,292	$25,277	$34,025

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	13.9%		30	47.7%	2.7%	2.7%	50.7%
	2016	20.2%		34	60.9%	1.2%	9.1%	89.9%
	First Year	2001		2005	2001	2001	2001	2001
	Starting Value	24.1%		25	56.1%	0.0%	3.0%	51.6%
Linear Trend	**Pre**	-0.01		0.30	0.002	0.003	0.01	-0.01
	Post	0.002		1.51	-0.002	0.001	0.01	0.09
CITS Output	**Constant**	-0.014		0.50	-0.004	0.01	0.02	0.02
	Pre Trend	0.004		-0.10	-0.004	-0.001	-0.002	-0.002
	Post Trend	-0.005		0.46	-0.003	0.001	0.01	0.08
	Pre Level	0.04		-0.30	0.01	-0.004	0.03	0.04
	Post Level	0.02		-2.67	0.03	0.004	-0.01	-0.24
	Post Trend Sig.	0.561		0.293	0.879	0.857	0.451	0.000
	Post Level Sig.	0.686		0.061	0.608	0.731	0.901	0.004
	Analysis Year	2009		2009	2009	2009	2009	2009
	CITS p-value	0.1		0.1	0.3	0.1	0.01	0.2
	Matches	4		5	10	10	3	19
Trend Lines		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For MTW status CITS analyses, the analysis year is the year after the activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Boulder Housing Partners

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	1,233	85	28.4%	63.9%	$1,032	$19,121	$19,447
	2016	1,297	219	3.8%	63.8%	$1,381	$21,584	$24,653

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	6.9%	30.8%	26	53.4%	7.2%	1.0%	75.0%
	2016	17.0%	26.0%	N/A	60.5%	4.3%	16.4%	85.5%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	11.9%	36.4%	24	57.5%	4.5%	1.3%	75.0%
Linear Trend	**Pre**	-0.004	-0.01	0.17	-0.01	-0.001	0.001	-0.04
	Post	0.04	-0.01	2.50	0.01	-0.004	0.03	0.01
CITS Output	**Constant**	-0.01	-0.03	0.87	-0.01	-0.002	0.005	-0.03
	Pre Trend	0.003	0.01	-0.22	-0.002	0.001	-0.004	-0.01
	Post Trend	0.03	-0.02	2.22	-0.003	-0.004	0.03	-0.01
	Pre Level	-0.01	-0.02	0.97	-0.01	0.03	-0.01	0.14
	Post Level	-0.03	0.10	-9.04	-0.03	-0.01	0.04	0.19
	Post Trend Sig.	0.009	0.085	0.003	0.870	0.578	0.000	0.805
	Post Level Sig.	0.263	0.033	0.000	0.501	0.535	0.183	0.185
	Analysis Year	2012	2012	2012	2012	2012	2012	2012
	CITS p-value	0.1	0.1	0.1	0.3	0.1	0.0001	0.2
	Matches	16	2	9	1	7	4	3

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. We removed 2015 and 2016 from the analysis for housing quality due to missing data. For these MTW status analyses, the analysis year is the year after joining the MTW demonstration.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Charlotte Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	10,957	913	35.6%	59.1%	$827	$14,536	$15,222
	2016	10,144	1,861	23.2%	57.6%	$864	$13,886	$16,602

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	9.9%	9.1%	31	50.4%	2.6%	1.8%	47.7%
	2016	19.5%	10.9%	23	49.2%	32.1%	5.6%	71.4%
	First Year	2001	2001	2005	2001	2002	2001	2001
	Starting Value	15.4%	11.2%	24	47.0%	1.1%	3.0%	10.8%
Linear Trend	Pre	-0.01	0.001	0.29	0.01	0.004	-0.001	0.02
	Post	0.01	0.003	-0.07	0.01	0.06	-0.004	-0.001
CITS Output	Constant	-0.01	0.002	0.20	0.01	0.004	0.01	0.001
	Pre Trend	0.002	0.002	0.20	0.0003	0.001	-0.01	0.02
	Post Trend	0.004	0.001	0.74	-0.005	0.05	0.01	-0.05
	Pre Level	-0.0220	-0.06	-0.27	-0.01	-0.01	-0.02	-0.17
	Post Level	0.02	-0.03	-3.65	-0.03	-0.07	0.15	0.14
	Post Trend Sig.	0.511	0.936	0.716	0.613	0.000	0.622	0.113
	Post Level Sig.	0.325	0.682	0.429	0.327	0.076	0.013	0.286
	Analysis Year	2010	2010	2010	2010	2010	2010	2010
	CITS p-value	0.2	0.1	0.1	0.3	0.1	0.01	0.2
	Matches	11	7	3	4	4	4	11

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Charlotte Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	10,957	913	35.6%	59.1%	$827	$14,536	$15,222
	2016	10,144	1,861	23.2%	57.6%	$864	$13,886	$16,602
Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	9.9%	9.1%	31	50.4%	2.6%	1.8%	47.7%
	2016	19.5%	10.9%	23	49.2%	32.1%	5.6%	71.4%
	First Year	2001	2001	2005	2001	2002	2001	2001
	Starting Value	15.4%	11.2%	24	47.0%	1.1%	3.0%	10.8%
Linear Trend	Pre	-0.01	0.01	0.60	0.01	0.01	-0.001	0.04
	Post	0.01	-0.002	0.43	-0.01	0.04	0.004	0.01
CITS Output	Constant	-0.01	-0.01	1.33	0.012	0.01	-0.002	0.01
	Pre Trend	-0.0004	0.02	-0.33	-0.002	0.002	0.001	0.04
	Post Trend	0.01	-0.02	-0.63	-0.009	0.03	0.01	-0.03
	Pre Level	-0.02	-0.07	0.11	-0.003	-0.02	-0.02	-0.20
	Post Level	0.003	-0.07	1.40	0.01	-0.06	-0.03	-0.05
	Post Trend Sig.	0.075	0.213	0.551	0.218	0.001	0.308	0.459
	Post Level Sig.	0.863	0.225	0.628	0.829	0.228	0.574	0.763
	Analysis Year	2008	2008	2008	2008	2008	2008	2008
	CITS p-value	0.2	0.1	0.01	0.3	0.1	0.01	0.2
	Matches	11	6	3	5	3	2	8
Trend Lines		Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For MTW status CITS analyses, the analysis year is the year after the activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Chicago Housing Authority

		Self-Sufficiency						
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	57,894	4,277	33.0%	60.7%	$1,001	$18,258	$19,313
	2016	66,387	7,815	26.0%	65.3%	$1,176	$18,557	$19,006
Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing work-able households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				52.9%	2.7%	1.1%	47.9%
	2016				50.6%	0.80%	3.3%	72.4%
	First Year				2007	2007	2007	2007
	Starting Value				59.1%	5.4%	1.5%	55.8%
Linear Trend	Pre				-0.07	-0.01	0.11	0.08
	Post				0.01	-0.003	-0.04	-0.01
CITS Output	Constant				0.02	-0.01	-0.001	-0.003
	Pre Trend				-0.0003	-0.01	-0.001	-0.07
	Post Trend				0.01	-0.0004	-0.04	0.05
	Pre Level				0.01	0.03	-0.11	0.01
	Post Level				-0.10	0.01	0.28	0.38
	Post Trend Sig.				0.476	0.954	0.679	0.343
	Post Level Sig.				0.156	0.458	0.212	0.018
	Analysis Year				2010	2010	2010	2010
	CITS p-value				0.2	0.1	0.01	0.2
	Matches				2	8	1	9
Trend Lines					Pre	Post	Pre	Post	Pre	Post	Pre	Post
												

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Home Forward (Portland)

Housing Choice								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	12,276	954	23.2%	71.6%	$931	$17,308	$19,650
	2016	12,594	1,340	17.6%	77.6%	$1,208	$19,486	$21,609

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	7.8%	4.9%	34				
	2016	10.8%	13.5%	35				
	First Year	2007	2006	2005				
	Starting Value	23.8%	9.4%	27				
Linear Trend	**Pre**	-0.04	-0.01	0.64				
	Post	0.004	0.02	0.54				
CITS Output	**Constant**	-0.04	-0.01	1.60E-14				
	Pre Trend	-0.02	-0.002	-3.40E-14				
	Post Trend	0.02	0.004	0.54				
	Pre Level	0.03	-0.003	4.50				
	Post Level	0.02	-0.011	-3.86				
	Post Trend Sig.	0.207	0.609	0.562				
	Post Level Sig.	0.601	0.571	0.314				
	Analysis Year	2011	2011	2011				
	CITS p-value	0.1	0.01	0.1				
	Matches	2	3	2				
Trend Lines		Pre / Post	Pre / Post	Pre / Post				

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of Baltimore City

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	25,444	2,178	43.3%	48.7%	$1,287	$18,947	$21,200
	2016	26,574	3,086	33.5%	57.5%	$1,298	$17,454	$21,079

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new*	Share of TBV households in low-poverty census tracts*	Housing quality (PASS)*	Share of existing workable households with increasing income*	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP*	Share of existing workable households with minimal HAP that leave*
Summary	**2012**	8.6%	12.8%	26	57.4%	1.0%	0.3%	67.7%
	2016	11.7%	16.1%	24	56.4%	1.2%	4.2%	76.1%
	First Year	2008	2008	2008	2008	2007	2007	2007
	Starting Value	39.1%	9.0%	20	49.7%	1.6%	8.9%	84.2%
Linear Trend	**Pre**	-0.12	0.01	0.00	0.03	-0.002	-0.02	-0.04
	Post	-0.001	0.01	0.68	0.004	0.0001	-0.001	-0.01
CITS Output	**Constant**	-0.01	0.01	-1.53E-14	0.06	0.0001	0.001	-0.11
	Pre Trend	-0.04	0.01	6.51E-14	0.002	-0.001	-0.03	-0.01
	Post Trend	0.04	0.003	0.51	-0.002	0.001	0.02	-0.02
	Pre Level	0.23	-0.03	-5.50	-0.03	0.01	0.03	0.06
	Post Level	-0.12	0.02	-1.80	0.06	-0.004	0.06	0.17
	Post Trend Sig.	0.066	0.559	0.675	0.872	0.759	0.684	0.761
	Post Level Sig.	0.070	0.434	0.510	0.018	0.371	0.579	0.079
	Analysis Year	2010	2010	2010	2010	2010	2010	2010
	CITS p-value	0.00001	0.00001	0.3	0.1	0.2	0.1	0.4
	Matches	8	17	6	14	17	1	37

	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Trend Lines														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The CITS analysis for housing quality and for share of existing workable households with escrow had a statistically significant treatment levels at the 0.01 level of significance, and the share of existing households with increasing income had a statistically significant pre-treatment level at the 0.05 level of significance. For these MTW status CITS analyses, the analysis year is two years after joining the MTW demonstration, because using one year after joining produces poor pre-intervention matches due to too few pre-intervention years.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of Champaign County

Self-Sufficiency								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	1,995	142	19.5%	79.2%	$838	$11,133	$15,149
	2016	2,058	411	19.5%	72.3%	$824	N/A	N/A

Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				52.2%	0.3%	2.7%	38.5%
	2016				56.9%	0.6%	12.2%	77.9%
	First Year				2001	2001	2001	2001
	Starting Value				46.6%	0.0%	1.7%	42.9%
Linear Trend	Pre				0.01	-0.01	0.004	-0.02
	Post				0.01	0.001	0.02	0.09
CITS Output	Constant				0.01	0.001	-0.0001	-0.02
	Pre Trend				-0.002	-0.01	0.01	0.00
	Post Trend				-0.01	0.01	0.01	0.08
	Pre Level				0.02	0.05	0.01	-0.03
	Post Level				0.05	-0.02	-0.04	-0.02
	Post Trend Sig.				0.321	0.078	0.127	0.001
	Post Level Sig.				0.453	0.480	0.554	0.903
	Analysis Year				2012	2012	2012	2012
	CITS p-value				0.3	0.1	0.1	0.2
	Matches				1	11	1	22
Trend Lines					Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of Champaign County

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	1,995	142	19.5%	79.2%	$838	$11,133	$15,149
	2016	2,058	411	19.5%	72.3%	$824	N/A	N/A

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)*	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	7.1%	8.4%	34	52.2%	0.3%	2.7%	38.5%
	2016	20.0%	18.8%	38	56.9%	0.6%	12.2%	77.9%
	First Year	2001	2005	2005	2001	2001	2001	2001
	Starting Value	12.7%	6.8%	26	46.6%	0.0%	1.7%	42.9%
Linear Trend	**Pre**	-0.002	0.003	0.57	0.01	-0.005	0.01	-0.02
	Post	0.02	0.02	1.00	0.016	-0.0011	0.019	0.07
CITS Output	**Constant**	-0.01	0.002	-0.26	0.01	0.002	0.0001	-0.01
	Pre Trend	0.002	-0.00005	-0.65	-0.004	-0.01	0.01	-0.01
	Post Trend	0.01	0.02	2.13	-0.004	0.01	0.01	0.06
	Pre Level	-0.01	-0.004	-0.60	0.03	0.05	-0.001	-0.002
	Post Level	-0.002	0.005	4.25	0.05	-0.02	-0.07	0.03
	Post Trend Sig.	0.572	0.040	0.007	0.599	0.256	0.356	0.014
	Post Level Sig.	0.952	0.816	0.022	0.190	0.439	0.405	0.889
	Analysis Year	2011	2011	2011	2011	2011	2011	2011
	CITS p-value	0.1	0.1	0.1	0.3	0.1	0.1	0.2
	Matches	12	5	14	1	11	1	23

	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Trend Lines														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The CITS analysis for housing quality used percent public housing as a control variable to produce a better pre-intervention match, but still had a statistically significant pre-treatment trend at the 0.05 level of significance. We also removed 2015 from the analysis for housing quality due to missing data. For MTW status CITS analyses, the analysis year is the year after joining the MTW demonstration.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of the City of Pittsburgh

Self-Sufficiency								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	10,306	950	44.5%	55.0%	$724	$15,701	$18,085
	2016	10,605	1,115	41.2%	54.9%	$827	$17,126	$18,500

Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)*	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				55.4%	4.7%	1.6%	53.0%
	2016				60.7%	1.0%	3.7%	58.6%
	First Year				2001	2002	2001	2001
	Starting Value				51.3%	2.2%	1.8%	32.9%
Linear Trend	Pre				0.001	0.001	0.002	0.002
	Post				0.01	-0.010	0.01	0.01
CITS Output	Constant				0.001	0.0008	0.01	0.00
	Pre Trend				-0.001	-0.001	0.00	0.01
	Post Trend				-0.0005	-0.013	0.01	-0.04
	Pre Level				-0.003	-0.004	-0.02	-0.05
	Post Level				0.043	0.031	0.03	0.08
	Post Trend Sig.				0.941	0.00	0.404	0.052
	Post Level Sig.				0.031	0.004	0.399	0.499
	Analysis Year				2012	2012	2012	2012
	CITS p-value				0.3	0.0	0.0	0.2
	Matches				7	38	5	9
Trend Lines					Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of the County of San Bernardino

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	10,550	1,429	12.4%	79.1%	$1,201	$20,877	$19,341
	2016	11,240	1,968	5.3%	78.6%	$1,187	$22,700	$23,037

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP*	Share of existing workable households with minimal HAP that leave
Summary	**2012**	13.5%	7.3%	32	38.1%	1.4%	1.2%	69.6%
	2016	17.5%	6.4%	36	44.5%	2.6%	7.3%	90.7%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	11.4%	6.4%	20	46.9%	0.4%	2.7%	47.9%
Linear Trend	Pre	-0.005	0.001	1.30	-0.02	-0.003	-0.003	0.001
	Post	0.01	0.002	0.80	0.01	0.003	0.02	0.03
CITS Output	Constant	-0.01	-0.0005	1.34	-0.012	0.0005	0.001	-0.02
	Pre Trend	-0.001	0.003	-0.10	-0.0004	-0.004	-0.005	0.01
	Post Trend	0.01	-0.01	0.97	-0.04	0.005	0.02	0.02
	Pre Level	0.02	-0.01	0.71	-0.02	0.02	-0.002	-0.03
	Post Level	0.07	-0.01	-1.21	-0.01	0.01	0.06	0.19
	Post Trend Sig.	0.571	0.005	0.155	0.007	0.427	0.000	0.451
	Post Level Sig.	0.039	0.455	0.532	0.864	0.621	0.000	0.029
	Analysis Year	2013	2013	2013	2013	2013	2013	2013
	CITS p-value	0.1	0.1	0.1	0.3	0.1	0.1	0.2
	Matches	20	2	15	2	5	14	20

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The MTW activity-specific CITS analysis for share of existing workable households with minimal HAP had a statistically significant pre-treatment trend at the 0.01 level of significance. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of the County of San Bernardino

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	10,550	1,429	12.4%	79.1%	$1,201	$20,877	$19,341
	2016	11,240	1,968	5.3%	78.6%	$1,187	$22,700	$23,037

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts*	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	13.5%	7.3%	32	38.1%	1.4%	1.2%	69.6%
	2016	17.5%	6.4%	36	44.5%	2.6%	7.3%	90.7%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	11.4%	6.4%	20	46.9%	0.4%	2.7%	47.9%
Linear Trend	Pre	-0.02	0.0005	1.20	-0.003	-0.002	-0.01	-0.02
	Post	0.02	-0.003	1.5	0.01	0.002	0.01	0.05
CITS Output	Constant	-0.01	0.002	1.20	-0.003	0.003	0.01	-0.01
	Pre Trend	-0.01	-0.004	0.60	0.001	-0.001	0.01	-0.02
	Post Trend	0.02	-0.01	-0.71	-0.02	-0.001	0.02	0.05
	Pre Level	0.03	-0.005	1.60	-0.02	0.02	0.05	0.02
	Post Level	0.004	0.03	-5.75	-0.05	-0.03	0.05	0.26
	Post Trend Sig.	0.001	0.168	0.617	0.090	0.859	0.012	0.036
	Post Level Sig.	0.867	0.126	0.299	0.242	0.172	0.259	0.006
	Analysis Year	2009	2009	2009	2009	2009	2009	2009
	CITS p-value	0.1	0.001	0.1	0.3	0.1	0.05	0.2
	Matches	17	9	1	10	15	1	14

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For MTW status CITS analyses, the analysis year is the year after joining the MTW demonstration.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of the County of San Mateo

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	4,616	152	0.7%	96.2%	$1,991	$21,558	$28,927
	2016	4,555	409	0.7%	98.9%	$2,289	$26,737	$32,756

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	3.3%	57.3%	32	49.4%	0.0%	0.9%	55.0%
	2016	9.1%	46.9%	N/A	58.2%	0.0%	4.3%	54.2%
	First Year	2003	2007	2005	2003	2003	2003	2003
	Starting Value	9.8%	61.7%	26	56.5%	1.0%	0.7%	43.8%
Linear Trend	**Pre**	-0.002	-0.010	1.43	-0.01	-0.0003	0.003	0.02
	Post	0.02	-0.027	-2.00	0.03	0.00	-0.01	-0.09
CITS Output	**Constant**	-0.003	-0.02	0.73	-0.005	0.0005	0.001	-0.003
	Pre Trend	0.002	0.01	0.13	-0.002	0.0001	0.001	0.02
	Post Trend	0.004	-0.04	-1.63	0.01	-0.001	-0.01	-0.17
	Pre Level	-0.01	-0.001	1.51	0.01	0.001	-0.004	-0.01
	Post Level	-0.02	0.03	5.80	-0.001	-0.02	0.05	0.20
	Post Trend Sig.	0.347	0.210	0.225	0.458	0.689	0.070	0.000
	Post Level Sig.	0.434	0.704	0.014	0.959	0.143	0.299	0.105
	Analysis Year	2013	2013	2013	2013	2013	2013	2013
	CITS p-value	0.2	0.0001	0.1	0.3	0.1	0.1	0.2
	Matches	15	6	6	5	8	2	1

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. We removed 2015 and 2016 from the analysis for housing quality due to missing data. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of the County of Santa Clara / Housing Authority of the City of San Jose

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	17,744	760	0.1%	92.1%	$1,697	$19,102	$24,395
	2016	16,381	705	0.0%	91.0%	$1,994	$24,260	$27,387

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)*	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	4.3%	37.7%	16	42.5%	1.7%	0.5%	70.7%
	2016	4.4%	41.7%	37	54.3%	0.5%	2.4%	71.6%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	17.5%	47.4%	26	59.1%	4.2%	1.7%	40.4%
Linear Trend	**Pre**	-0.01	-0.01	0.53	-0.01	-0.004	0.001	0.02
	Post	0.01	0.02	0.00	0.04	-0.001	0.00	0.01
CITS Output	**Constant**	-0.01	-0.004	-0.14	-0.01	-0.002	0.0001	0.01
	Pre Trend	0.004	-0.01	-0.93	-0.001	-0.002	0.001	0.01
	Post Trend	-0.00002	0.05	0.93	0.01	-0.002	-0.003	-0.22
	Pre Level	-0.02	-0.03	-2.75	-0.03	0.005	-0.01	0.06
	Post Level	-0.06	0.06	23.68	0.004	-0.01	0.02	0.42
	Post Trend Sig.	0.997	0.374	0.713	0.603	0.711	0.342	0.006
	Post Level Sig.	0.058	0.601	0.000	0.925	0.275	0.409	0.022
	Analysis Year	2013	2013	2013	2013	2013	2013	2013
	CITS p-value	0.1	0.0001	0.1	0.3	0.1	0.1	0.4
	Matches	24	3	2	3	3	3	2

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The CITS analysis for housing quality used percent public housing as a control variable to produce a better pre-intervention match. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Housing Authority of the County of Santa Clara / Housing Authority of the City of San Jose

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	17,744	760	0.1%	92.1%	$1,697	$19,102	$24,395
	2016	16,381	705	0.0%	91.0%	$1,994	$24,260	$27,387

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	4.3%	37.7%	16	42.5%	1.7%	0.5%	70.7%
	2016	4.4%	41.7%	37	54.3%	0.5%	2.4%	71.6%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	17.5%	47.4%	26	59.1%	4.2%	1.7%	40.4%
Linear Trend	**Pre**	-0.01	-0.02	-2.40	-0.01	-0.002	0.002	0.02
	Post	-0.02	0.004	4.00	0.01	-0.003	0.00	-0.02
CITS Output	**Constant**	-0.01	-0.005	-2.00	-0.01	0.0002	0.02	0.02
	Pre Trend	-0.01	-0.02	-1.40	0.01	-0.0002	-0.02	0.003
	Post Trend	-0.01	0.04	4.26	-0.0003	-0.01	0.02	-0.03
	Pre Level	0.01	0.10	-0.90	-0.03	0.01	0.04	-0.05
	Post Level	0.11	0.02	-3.50	-0.08	-0.005	0.16	0.32
	Post Trend Sig.	0.160	0.050	0.002	0.980	0.257	0.098	0.116
	Post Level Sig.	0.007	0.686	0.438	0.118	0.833	0.018	0.000
	Analysis Year	2010	2009	2009	2009	2009	2009	2009
	CITS p-value	0.1	0.000001	0.01	0.3	0.1	0.1	0.4
	Matches	19	15	1	4	3	2	12

	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Trend Lines														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. The CITS analysis for housing quality used percent public housing as a control variable to produce a better pre-treatment match. The MTW status CITS analysis for share of TBV households in low-poverty census tracts had a statistically significant pre-treatment level at the 0.05 level of significance. For MTW status CITS analyses, the analysis year is the year after joining the MTW demonstration for the MTW status CITS analysis of share of total households that are new, 2010 is used as the analysis year rather than 2009 due to data quality.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

King County Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	13,805	1,463	15.4%	71.7%	$1,148	$24,551	$23,003
	2016	15,233	1,420	15.3%	70.2%	$1,523	$22,287	$26,146

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave*
Summary	**2012**	10.7%	29.4%	38	47.9%	2.6%	0.5%	64.0%
	2016	9.5%	34.2%	39	58.6%	0.2%	19.5%	80.5%
	First Year	2008	2001	2007	2007	2007	2007	2008
	Starting Value	22.7%	47.1%	25	63.3%	2.1%	2.2%	92.2%
Linear Trend	**Pre**	-0.01	-0.02	2.79	-0.02	0.001	-0.003	-0.03
	Post	0.01	0.02	0.30	0.04	-0.01	0.04	-0.03
CITS Output	**Constant**	-0.01	-0.02	2.18	-0.03	-0.0001	-0.01	-0.11
	Pre Trend	-0.01	0.01	0.80	0.001	0.001	0.01	0.06
	Post Trend	0.01	0.01	0.10	-0.003	-0.009	0.04	-0.07
	Pre Level	0.05	0.04	0.05	0.018	0.001	-0.01	0.15
	Post Level	0.02	0.004	-1.53	-0.003	0.003	-0.02	-0.16
	Post Trend Sig.	0.465	0.591	0.922	0.711	0.01	0.029	0.181
	Post Level Sig.	0.587	0.946	0.611	0.908	0.698	0.639	0.358
	Analysis Year	2013	2013	2013	2013	2013	2013	2013
	CITS p-value	0.003	0.1	0.1	0.3	0.1	0.1	0.2
	Matches	25	3	16	1	6	3	5

	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Trend Lines														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Lexington-Fayette Urban County Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	4,506	361	31.6%	68.4%	$692	$13,557	$15,948
	2016	4,800	523	26.4%	67.9%	$796	$14,891	$16,978

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)*	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	8.0%	12.5%	30	55.4%	0.1%	3.0%	79.4%
	2016	12.5%	21.8%	29	67.8%	1.4%	4.2%	47.5%
	First Year	2007	2007	2005	2007	2007	2007	2007
	Starting Value	13.3%	11.2%	27	64.0%	1.6%	1.9%	100.0%
Linear Trend	Pre	-0.004	0.001	0.37	-0.01	-0.003	-0.02	-0.06
	Post	0.01	0.03	-0.40	0.04	0.002	-0.004	-0.09
CITS Output	Constant	0.003	-0.001	0.46	-0.01	-0.002	-0.02	-0.13
	Pre Trend	0.002	0.01	-0.24	-0.001	-0.001	-0.004	-0.002
	Post Trend	0.01	0.02	0.01	0.02	0.0004	-0.01	-0.10
	Pre Level	0.01	-0.02	0.67	0.03	0.004	0.01	0.09
	Post Level	-0.03	0.06	-2.23	-0.01	-0.01	0.06	0.14
	Post Trend Sig.	0.284	0.290	0.989	0.122	0.899	0.723	0.060
	Post Level Sig.	0.147	0.206	0.223	0.779	0.295	0.260	0.517
	Analysis Year	2012	2012	2012	2012	2012	2012	2012
	CITS p-value	0.1	0.03	0.4	0.3	0.1	0.1	0.2
	Matches	15	5	11	7	10	2	4

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For these MTW status CITS analyses, the analysis year is the year after joining the MTW demonstration.

Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Lincoln Housing Authority

Housing Choice

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	3,857	499	9.0%	90.8%	$695	$16,127	$18,410
	2016	3,818	541	9.4%	89.1%	$762	$19,354	$22,336

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	12.9%	13.4%	36				
	2016	14.2%	16.6%	38				
	First Year	2007	2007	2006				
	Starting Value	23.5%	20.3%	27				
Linear Trend	**Pre**	-0.02	-0.02	1.61				
	Post	0.021	0.02	0.70				
CITS Output	**Constant**	-0.01	-0.01	1.35				
	Pre Trend	-0.01	-0.01	0.26				
	Post Trend	0.03	0.02	-2.75				
	Pre Level	0.04	-0.01	1.47				
	Post Level	-0.0004	-0.005	-2.75				
	Post Trend Sig.	0.044	0.279	0.172				
	Post Level Sig.	0.993	0.914	0.467				
	Analysis Year	2013	2013	2013				
	CITS p-value	0.2	0.00001	0.1				
	Matches	5	14	9				
Trend Lines		Pre / Post	Pre / Post	Pre / Post				

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Louisville Metro Housing Authority

Self-Sufficiency								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	13,877	875	31.6%	66.5%	$730	$15,971	$18,411
	2016	14,419	1,623	31.2%	66.5%	$817	$16,265	$18,384

Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				55.3%	0.1%	1.9%	68.3%
	2016				58.0%	0.04%	2.7%	53.8%
	First Year				2006	2006	2006	2006
	Starting Value				58.7%	6.3%	2.5%	88.2%
Linear Trend	Pre				-0.002	-0.01	-0.003	-0.04
	Post				0.01	-0.0001	0.003	-0.01
CITS Output	Constant				0.003	-0.01	-0.002	-0.05
	Pre Trend				-0.01	-0.01	-0.002	-0.0001
	Post Trend				-0.001	0.01	0.002	-0.02
	Pre Level				-0.01	0.03	-0.04	0.05
	Post Level				0.07	0.02	0.06	0.07
	Post Trend Sig.				0.953	0.182	0.810	0.716
	Post Level Sig.				0.013	0.347	0.154	0.694
	Analysis Year				2011	2011	2011	2011
	CITS p-value				0.3	0.01	0.0001	0.2
	Matches				9	4	4	17
Trend Lines					Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Massachusetts Department of Housing and Community Development

Self-Sufficiency								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	21,926	1,459	0.0%	88.4%	$1,431	$21,292	$22,382
	2016	23,748	2,017	0.0%	81.9%	$1,567	$20,192	$23,574

Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				51.4%	4.5%	2.1%	42.7%
	2016				56.6%	3.7%	2.0%	48.4%
	First Year				2001	2002	2001	2001
	Starting Value				53.6%	2.5%	1.9%	50.8%
Linear Trend	Pre				-0.001	0.001	0.002	-0.02
	Post				0.02	-0.003	0.002	0.06
CITS Output	Constant				-0.002	0.001	0.002	-0.02
	Pre Trend				0.002	-0.0004	0.002	0.001
	Post Trend				-0.01	-0.01	-0.005	0.05
	Pre Level				-0.01	-0.003	-0.01	-0.04
	Post Level				-0.01	0.01	-0.003	-0.22
	Post Trend Sig.				0.481	0.752	0.389	0.034
	Post Level Sig.				0.834	0.835	0.962	0.017
	Analysis Year				2013	2013	2013	2013
	CITS p-value				0.3	0.1	0.1	0.2
	Matches				3	4	4	14
Trend Lines					Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Minneapolis Public Housing Authority

Self-Sufficiency								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	12,502	995	53.9%	37.0%	$945	$16,533	$17,696
	2016	12,688	879	53.3%	37.8%	$1,027	$19,335	$20,922

Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				51.5%	0.7%	0.7%	80.0%
	2016				62.4%	0.3%	1.5%	68.1%
	First Year				2001	2002	2001	2001
	Starting Value				46.2%	0.1%	0.8%	31.0%
Linear Trend	Pre				0.002	0.0002	-0.0003	0.01
	Post				0.03	-0.001	0.002	-0.04
CITS Output	Constant				0.003	0.001	0.01	0.0001
	Pre Trend				-0.00004	-0.0003	-0.01	-0.0001
	Post Trend				0.02	-0.004	0.01	-0.05
	Pre Level				-0.02	0.001	-0.01	0.05
	Post Level				0.020	-0.01	0.08	0.21
	Post Trend Sig.				0.015	0.437	0.425	0.022
	Post Level Sig.				0.431	0.541	0.257	0.024
	Analysis Year				2012	2012	2012	2012
	CITS p-value				0.3	0.1	0.1	0.2
	Matches				12	10	1	19
Trend Lines					Pre	Post	Pre	Post	Pre	Post	Pre	Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Oakland Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	14,189	810	11.9%	80.1%	$1,466	$20,333	$23,041
	2016	15,124	830	11.4%	71.4%	$2,103	$21,988	$26,610

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income*	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	6.0%	7.6%	36	48.3%	0.6%	2.2%	40.0%
	2016	5.8%	9.7%	36	58.4%	1.3%	5.3%	59.5%
	First Year	2001	2007	2005	2001	2002	2001	2001
	Starting Value	7.8%	7.0%	19	53.0%	1.3%	1.0%	47.9%
Linear Trend	**Pre**	0.002	0.002	2.78	-0.02	-0.001	0.01	0.01
	Post	0.0004	0.01	-0.30	0.03	0.002	0.01	0.01
CITS Output	**Constant**	-0.002	0.0005	1.43	0.005	-0.00002	0.01	0.001
	Pre Trend	0.01	-0.0001	1.00	-0.03	-0.001	0.001	0.02
	Post Trend	-0.010	-0.005	-1.50	0.06	0.001	0.002	-0.01
	Pre Level	-0.02	-0.001	-7.36	0.06	-0.004	-0.01	-0.05
	Post Level	-0.08	0.02	3.00	0.11	0.01	0.01	-0.22
	Post Trend Sig.	0.131	0.445	0.281	0.016	0.167	0.418	0.529
	Post Level Sig.	0.172	0.246	0.672	0.154	0.023	0.502	0.054
	Analysis Year	2013	2013	2013	2011	2011	2011	2011
	CITS p-value	0.1	0.00001	0.1	0.1	0.1	0.1	0.2
	Matches	9	9	11	1	8	10	15
Trend Lines		Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Orlando Housing Authority

		Self-Sufficiency						
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	5,044	721	32.2%	65.6%	$978	$18,370	$19,286
	2016	5,211	604	28.3%	68.6%	$1,003	$16,646	$20,113
Category		Housing Choice			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	2012				55.9%	0.6%	1.3%	42.9%
	2016				59.3%	0.1%	2.0%	59.0%
	First Year				2001	2002	2001	2001
	Starting Value				59.5%	3.6%	1.9%	87.2%
Linear Trend	Pre				-0.002	-0.004	0.0001	-0.03
	Post				0.02	-0.002	0.003	0.02
CITS Output	Constant				-0.001	-0.001	-0.002	-0.03
	Pre Trend				0.0003	-0.003	0.003	-0.01
	Post Trend				0.01	0.002	-0.01	-0.01
	Pre Level				0.02	0.01	-0.005	0.07
	Post Level				-0.03	0.01	-0.06	0.09
	Post Trend Sig.				0.252	0.691	0.226	0.725
	Post Level Sig.				0.538	0.671	0.204	0.392
	Analysis Year				2013	2013	2013	2013
	CITS p-value				0.3	0.1	0.1	0.2
	Matches				3	8	1	8
Trend Lines					Pre / Post	Pre / Post	Pre / Post	Pre / Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The MTW activity-specific CITS analysis for share of existing workable households with escrow had a statistically significant pre-treatment trend at the 0.05 level of significance. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Orlando Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	5,044	721	32.2%	65.6%	$978	$18,370	$19,286
	2016	5,211	604	28.3%	68.6%	$1,003	$16,646	$20,113

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts*	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	14.3%	2.5%	37	55.9%	0.6%	1.3%	42.9%
	2016	11.6%	4.2%	37	59.3%	0.1%	2.0%	59.0%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	8.7%	9.6%	23	59.5%	3.6%	1.9%	87.2%
Linear Trend	**Pre**	0.003	-0.010	2.00	0.00	-0.004	0.00	-0.04
	Post	-0.004	0.004	-0.10	0.010	-0.0015	0.002	0.04
CITS Output	**Constant**	-0.002	-0.01	0.75	0.002	0.0005	-0.003	-0.03
	Pre Trend	0.004	-0.003	0.89	-0.002	-0.004	0.01	-0.01
	Post Trend	-0.01	0.001	0.64	0.01	0.003	-0.01	0.01
	Pre Level	-0.02	-0.01	-2.09	0.03	0.02	-0.01	0.07
	Post Level	0.04	-0.01	1.16	-0.003	0.004	-0.07	0.04
	Post Trend Sig.	0.051	0.924	0.657	0.243	0.501	0.124	0.699
	Post Level Sig.	0.100	0.702	0.789	0.945	0.760	0.227	0.641
	Analysis Year	2012	2012	2012	2012	2012	2012	2012
	CITS p-value	0.1	0.01	0.1	0.3	0.1	0.1	0.2
	Matches	14	24	10	1	8	1	11
Trend Lines		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The MTW-status CITS analysis for share of existing workable households with escrow had a statistically significant pre-treatment trend and level at the 0.05 level of significance. For MTW status CITS analyses, the analysis year is the year after joining the MTW demonstration.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Portage Metropolitan Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	2,239	202	15.0%	71.0%	$776	$13,530	$14,600
	2016	2,218	233	15.2%	68.8%	$786	$14,639	$15,907

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave*
Summary	**2012**	9.0%	10.0%	29	48.8%	2.4%	2.0%	68.2%
	2016	10.5%	8.3%	31	48.5%	1.0%	10.6%	75.9%
	First Year	2007	2007	2007	2007	2007	2007	2007
	Starting Value	10.8%	14.1%	27	46.3%	1.0%	3.2%	92.5%
Linear Trend	**Pre**	-0.01	-0.01	0.00	0.01	0.004	0.016	-0.02
	Post	0.01	-0.01	1.39	0.002	-0.003	0.006	-0.01
CITS Output	**Constant**	-0.02	0.004	-1.88E-14	0.02	0.0023	-0.005	1.09E-14
	Pre Trend	0.01	-0.01	9.65E-14	-0.02	0.004	0.03	0.001
	Post Trend	-0.01	-0.002	1.49	-0.01	-0.01	-0.03	-0.06
	Pre Level	-0.005	0.01	1.00	-0.02	0.01	-0.01	-0.02
	Post Level	-0.06	0.04	-3.07	0.12	-0.01	-0.02	0.47
	Post Trend Sig.	0.408	0.792	0.155	0.657	0.076	0.341	0.171
	Post Level Sig.	0.001	0.056	0.194	0.063	0.221	0.809	0.016
	Analysis Year	2010	2010	2010	2010	2010	2010	2010
	CITS p-value	0.1	0.001	0.1	0.1	0.1	0.01	0.3
	Matches	12	10	14	2	7	2	1

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The MTW activity-specific CITS analysis of the share of existing workable households with escrow had a statistically significant pre-treatment level at the 0.05 level of significance. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

San Antonio Housing Authority

Housing Choice								
Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	21,519	2,649	33.1%	64.7%	$794	$10,282	$13,604
	2016	20,930	2,340	31.9%	66.5%	$929	$12,683	$14,876

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	12.3%	4.2%	31				
	2016	11.2%	8.5%	32				
	First Year	2001	2001	2005				
	Starting Value	12.2%	7.7%	22				
Linear Trend	**Pre**	0.008	0.001	1.40				
	Post	0.004	0.01	0.30				
CITS Output	**Constant**	0.004	0.004	1.16				
	Pre Trend	0.01	-0.003	-0.02				
	Post Trend	0.01	0.01	0.07				
	Pre Level	-0.01	-0.06	0.05				
	Post Level	-0.10	0.03	-1.78				
	Post Trend Sig.	0.603	0.485	0.944				
	Post Level Sig.	0.108	0.378	0.647				
	Analysis Year	2012	2012	2012				
	CITS p-value	0.1	0.05	0.1				
	Matches	4	11	4				
		Pre / Post	Pre / Post	Pre / Post				
Trend Lines								

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

San Diego Housing Commission

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	14,986	982	0.5%	98.3%	$1,440	$22,921	$22,978
	2016	16,445	1,213	1.1%	94.8%	$1,499	$24,747	$26,143

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	6.6%	11.0%	34	42.9%	1.0%	1.0%	66.7%
	2016	7.6%	19.9%	38	53.9%	2.5%	7.3%	37.4%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	5.6%	13.8%	24	49.0%	5.3%	1.2%	31.1%
Linear Trend	Pre	-0.01	0.0004	1.07	-0.02	-0.004	0.002	0.01
	Post	0.004	0.02	1.00	0.03	0.004	0.01	-0.08
CITS Output	Constant	-0.01	0.005	0.57	-0.01	-0.0005	0.003	-0.01
	Pre Trend	-0.002	-0.005	-0.57	-0.002	-0.003	0.001	0.02
	Post Trend	0.01	0.03	1.61	0.003	0.002	0.01	-0.12
	Pre Level	0.01	-0.04	0.60	0.005	-0.001	-0.01	-0.05
	Post Level	0.02	0.06	4.56	-0.08	0.01	0.12	0.08
	Post Trend Sig.	0.402	0.229	0.011	0.834	0.854	0.839	0.000
	Post Level Sig.	0.484	0.497	0.011	0.190	0.696	0.130	0.456
	Analysis Year	2011	2011	2011	2012	2012	2012	2012
	CITS p-value	0.1	0.0001	0.1	0.3	0.1	0.1	0.2
	Matches	22	4	4	12	5	13	16

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Tacoma Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	4,986	585	17.8%	65.7%	$971	$18,328	$16,429
	2016	5,247	929	8.2%	65.3%	$1,126	$18,761	$23,272

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow*	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	11.7%	7.4%	32	45.1%	2.6%	0.8%	50.0%
	2016	18.0%	13.2%	24	58.3%	0.3%	3.1%	68.3%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	15.4%	6.2%	24	56.5%	1.7%	1.9%	63.4%
Linear Trend	**Pre**	-0.003	0.005	1.18	-0.01	0.002	-0.004	-0.01
	Post	0.01	0.002	-3.10	0.04	-0.005	0.004	-0.02
CITS Output	**Constant**	-0.01	-0.0001	1.30	-0.003	0.002	0.002	-0.01
	Pre Trend	0.00004	0.002	-0.22	-0.002	0.0004	-0.01	0.001
	Post Trend	0.01	-0.01	-2.38	0.01	-0.01	0.01	-0.02
	Pre Level	0.004	-0.01	0.48	0.004	-0.002	0.01	0.03
	Post Level	0.05	0.03	0.69	-0.01	-0.03	0.05	0.01
	Post Trend Sig.	0.379	0.308	0.048	0.576	0.055	0.516	0.671
	Post Level Sig.	0.012	0.050	0.847	0.911	0.006	0.195	0.939
	Analysis Year	2013	2013	2013	2013	2013	2013	2013
	CITS p-value	0.1	0.1	0.1	0.3	0.1	0.01	0.2
	Matches	21	1	9	9	20	2	15

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. For MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Tacoma Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	4,986	585	17.8%	65.7%	$971	$18,328	$16,429
	2016	5,247	929	8.2%	65.3%	$1,126	$18,761	$23,272

Category		Housing Choice (MTW-status)			Self-Sufficiency (MTW-status)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	11.7%	7.4%	32	45.1%	2.6%	0.8%	50.0%
	2016	18.0%	13.2%	24	58.3%	0.3%	3.1%	68.3%
	First Year	2001	2005	2005	2001	2002	2001	2001
	Starting Value	15.4%	6.2%	24	56.5%	1.7%	1.9%	63.4%
Linear Trend	**Pre**	-0.01	0.002	0.86	-0.003	0.004	-0.004	0.001
	Post	0.02	0.01	-1.06	0.03	-0.01	0.003	-0.03
CITS Output	**Constant**	-0.01	0.001	0.31	0.003	0.001	0.01	-0.01
	Pre Trend	-0.0004	0.002	-0.16	0.0004	0.003	-0.01	0.003
	Post Trend	0.02	0.002	-2.22	0.02	-0.014	0.01	-0.03
	Pre Level	0.00	-0.01	-0.13	0.00	-0.004	0.03	0.01
	Post Level	0.01	0.01	7.00	-0.10	-0.019	0.07	0.06
	Post Trend Sig.	0.002	0.627	0.054	0.004	0.046	0.201	0.347
	Post Level Sig.	0.790	0.644	0.021	0.000	0.200	0.327	0.534
	Analysis Year	2011	2011	2011	2011	2011	2011.00	2011
	CITS p-value	0.1	0.1	0.1	0.3	0.1	0.1	0.2
	Matches	21	1	4	11	5	1	16

Trend Lines	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
														

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For MTW status CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after joining the MTW demonstration.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Tulare County Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	4,512	656	19.6%	79.7%	$758	$22,199	$26,358
	2016	4,786	577	19.8%	79.9%	$758	$25,076	$29,844

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts*	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP*	Share of existing workable households with minimal HAP that leave
Summary	**2012**	15.1%	4.2%	38	51.9%	0.0%	0.3%	100.0%
	2016	13.7%	3.6%	37	60.9%	0.0%	6.1%	98.0%
	First Year	2007	2007	2007	2007	2007	2007	2007
	Starting Value	23.1%	6.1%	29	66.7%	0.0%	0.6%	84.6%
Linear Trend	**Pre**	-0.03	0.01	0.00	-0.03	0.00	-0.002	-0.04
	Post	-0.0004	-0.01	0.75	0.02	0.00	0.01	-0.002
CITS Output	**Constant**	-0.05	0.01	-2.59E-14	0.01	1.51E-17	-0.01	-0.27
	Pre Trend	-0.01	0.01	6.60E-14	-0.04	-7.20E-17	0.004	-0.16
	Post Trend	0.01	-0.03	0.66	0.05	-0.004	-0.002	0.13
	Pre Level	0.04	-0.0002	6.40	0.04	-0.0001	-0.15	0.14
	Post Level	0.03	-0.02	-2.09	0.002	0.003	0.10	0.87
	Post Trend Sig.	0.738	0.034	0.712	0.072	0.026	0.986	0.401
	Post Level Sig.	0.523	0.360	0.624	0.968	0.344	0.656	0.024
	Analysis Year	2010	2010	2010	2010	2010	2010	2010
	CITS p-value	0.1	0.01	0.1	0.1	0.01	0.0001	0.2
	Matches	7	3	5	11	4	1	2
Trend Lines		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. For indicators with an asterisk, this matching process resulted in a comparison group with significantly different pre-treatment trends and/or levels. For these cases we broadened the comparison group by selecting a universe of 100 traditional comparison PHAs and conducting propensity score matching based only on the 2008 share of total households with tenant-based vouchers. The CIT analysis for housing quality used percent housing as a control variable to produce a better pre-intervention match, but still had a statistically significant pre-treatment level at the 0.01 level of significance. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

Vancouver Housing Authority

Housing Choice and Self-Sufficiency

Indicator		Total households	New households	Share public housing	Share TBV	Fair Market Rent (FMR) (2016 dollars)	Average household income (new workable) (2016 dollars)	Average household income (existing workable) (2016 dollars)
Summary	2012	3,263	329	12.9%	77.0%	$931	$15,041	$19,567
	2016	3,196	382	0.0%	79.8%	$1,208	$16,583	$22,779

Category		Housing Choice (MTW activity-specific)			Self-Sufficiency (MTW activity-specific)			
Indicator		Share of total that are new	Share of TBV households in low-poverty census tracts	Housing quality (PASS)	Share of existing workable households with increasing income	Share of existing workable households with escrow	Share of existing workable households with minimal HAP	Share of existing workable households with minimal HAP that leave
Summary	**2012**	10.1%	12.0%	34	50.3%	3.7%	2.2%	81.0%
	2016	12.1%	29.0%	N/A	68.0%	5.2%	7.8%	78.8%
	First Year	2005	2005	2005	2005	2005	2005	2005
	Starting Value	13.9%	19.3%	28	45.1%	1.0%	3.1%	87.5%
Linear Trend	**Pre**	0.07	-0.01	-0.14	0.01	-0.001	0.002	-0.07
	Post	-0.07	0.02	2.40	0.04	0.01	0.01	0.03
CITS Output	**Constant**	-0.02	-0.01	-0.40	0.02	0.001	0.03	-0.06
	Pre Trend	-0.01	-0.004	0.20	-0.002	-0.002	-0.01	-0.03
	Post Trend	-0.05	0.02	-1.45E-14	0.05	0.005	0.02	0.01
	Pre Level	0.03	0.02	2.80	-0.02	0.004	0.01	0.08
	Post Level	0.32	0.06	0.07	-0.05	0.01	0.01	0.26
	Post Trend Sig.	0.203	0.043	1.000	0.004	0.164	0.608	0.860
	Post Level Sig.	0.056	0.293	0.985	0.336	0.508	0.952	0.083
	Analysis Year	2010	2010	2010	2010	2010	2010	2010
	CITS p-value	0.1	0.01	0.1	0.3	0.1	0.1	0.2
	Matches	6	2	3	1	8	1	6
		Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post	Pre / Post
Trend Lines								

Notes: We use a two-step matching process for this analysis. First, each MTW agency was matched with a universe of 25 comparison traditional PHAs (with more than 500 total households in 2008) using propensity score matching for the total number of households (including MTW local, non-traditional assistance), the share of total households with tenant-based vouchers, and the HUD Fair Market Rent, all for 2008. Second, CITS analyses were run for each indicator, selecting comparison agencies from the propensity score matching universe that most closely matched the MTW agency's pre-treatment levels and trends for the given indicator. We removed 2014, 2015, and 2016 from the analysis for housing quality due to missing data. For these MTW activity-specific CITS analyses, the analysis year is the year after the activity's implementation year. For PHAs with multiple significant housing choice or self-sufficiency activities, the analysis year is the year after the most recent activity's implementation year.
Source: 2001-2016 HUD PIC data for characteristics of households served, 2001-2016 Census/ACS data for poverty measures, HUD Physical Assessment Subsystem (PASS) scores for housing quality, and HUD counts of MTW local, non-traditional assistance included in total households served.

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