Private Provision of Housing Assistance: Impacts on Targeting*

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July 14, 2026

Abstract

Over the past half-century, housing assistance in the U.S. has shifted from direct public provision toward provision through private markets, culminating in the Rental Assistance Demonstration (RAD) program, which has converted over 200,000 public housing units to project-based Section 8 private subsidies since 2014. We examine whether this shift toward private provision changes program targeting, as measured by tenant composition. Using nationwide administrative data from HUD and a difference-in-differences design that exploits plausibly exogenous variation in the timing of RAD conversions, we find that RAD leads to lower-income households living in converted developments over time. We decompose this effect into three mechanisms: lower income eligibility thresholds under Section 8, manager-driven responses, and tenant self-targeting. While eligibility changes contribute to the main result, focusing on incumbent households—who are unaffected by eligibility rule changes—reveals that the remaining two channels also contribute to the result: higher-income incumbents are more likely to exit converted developments over time. We provide suggestive evidence that higher-income incumbents are more likely to take up the tenant-based voucher option offered by RAD and use it to move to lower-poverty neighborhoods, and that take up of the voucher is more likely at developments controlled by housing authorities rather than private managers.

Keywords: public housing, private provision, targeting

JEL Codes: R38, L33, H42

*We are thankful for helpful comments from Ingrid Gould Ellen, Katherine O'Regan, and seminar participants at NYU Furman Center.

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1 Introduction

In the United States, housing assistance for low-income households has gradually shifted from public provision toward provision through private markets. Public housing was the predominant form of assistance for most of the twentieth century, peaking at 1.4 million units in the early 1990s. Over the decades, changes to eligibility rules and broader housing market forces concentrated poverty in public housing, while chronic federal underinvestment led to mounting backlogs in building maintenance and repairs and a growing perception of the failure of the public housing model. Beginning in the 1970s, policy efforts responded to these failures by turning toward tenant-based and project-based subsidies to private housing, marking a sustained retreat from government-owned and -operated housing (Vale and Freemark, 2012; Collinson et al., 2019). As Congressional appropriations for public housing steadily declined, the remaining stock continued to deteriorate. Today, the public housing stock faces an estimated $170 billion backlog in capital repairs and serves a population that is disproportionately elderly, disabled, and very low-income relative to earlier decades (Vale and Freemark, 2012; 10 Year Roadmap for Public Housing Sustainability, 2025).

The shift from public to private provision may affect both the quality of subsidized low-income housing as well as which households the program serves. A large literature on the private provision of government services emphasizes that profit-motivated private managers may cut costs along dimensions that are difficult to contract on or regulate, negatively affecting good quality (Hart et al., 1997; Shleifer, 1998). In the case of housing assistance, building quality may not be the primary concern given the already poor conditions of the existing public housing stock and mandatory quality inspections for subsidized private units. However, cost reduction incentives may extend to tenant composition: private managers have some discretion over which applicants are selected from waitlists and which tenants are terminated for lease violations, and managers may seek to admit or remove households they perceive as high-cost, such as families with children or tenants likely to generate excess wear-and-tear or administrative burden. Households themselves may also self-select differently into housing assistance if they perceive the private option as more desirable due to better housing quality or neighborhood access. Together, these supply- and demand-side forces suggest that private provision could produce economically meaningful changes in program targeting. Yet there is little causal evidence on whether and how this shift affects which households are

served.

This paper fills this gap by examining how the shift toward private provision affects tenant composition and thus program targeting, using the Rental Assistance Demonstration (RAD) program as our empirical setting. Since 2014, RAD has facilitated the conversion of more than 200,000 public housing units to project-based private subsidies by transferring management or ownership to private entities, enabling them to leverage private debt and equity financing for long-delayed repairs and renovations. This has produced some of the most significant improvements to the physical quality and financial sustainability of the public housing stock since the program's inception. To identify the impact of these conversions on tenant composition, we implement a difference-in-differences design that exploits plausibly exogenous variation in the timing of RAD conversions between 2014 and 2023 and uses nationwide administrative data from the U.S. Department of Housing and Urban Development (HUD), allowing us to track households in public housing developments before and after conversion as well as those moving in and out over time.

We aim to distinguish among three mechanisms through which RAD may affect tenant composition. The first is a *manager-driven* mechanism: private managers may directly shape which households live in converted developments by preferentially retaining, admitting, or removing tenants based on demographic or income characteristics they perceive as higher- or lower-cost. Such behavior would reflect the classic incomplete contracting problem between the government and the private manager (Hart et al., 1997). The second is a *tenant-driven* mechanism: RAD improves public housing quality and offers incumbent tenants the option of a tenant-based voucher, potentially affecting which residents choose to remain or move out. The extent to which incumbents take up the voucher option also reveals which types of households prefer vouchers over public housing, which has direct implications for the ongoing shift toward vouchers in U.S. housing policy. The third mechanism operates through *eligibility changes*: RAD transitions developments from public housing waitlists to Section 8 waitlists, which carry lower income eligibility thresholds, mechanically altering which new households can move in after conversion. Given the scale of RAD, this channel is of particular policy interest.

We first document the overall average impact of RAD on tenant composition by examining how the characteristics of all households, in-movers, and out-movers evolve over time. RAD conversions lead to lower-income households (4 percent decline from baseline) living in converted developments

relative to not-yet-converted developments. The change in income eligibility rules between public housing and Section 8 contributes to this shift, with relatively lower-income households moving into converted developments after RAD. We find no evidence of permanent displacement or loss of HUD assistance at the time of conversion, nor of significant differences in the average characteristics of households moving out after RAD relative to before. We do find that households are more likely move out with a voucher starting two years after conversion, consistent with the time when these vouchers become available for households living at developments before their conversion, which is offset by a similar reduction in exits without any HUD assistance.

To isolate manager- and tenant-driven effects from the mechanical effects of eligibility changes, we focus on incumbent households already living at RAD developments at the time of conversion, who are by definition unaffected by new eligibility rules. We find that higher-income incumbents and households with children are more likely to move out over time, leaving behind a relatively lower-income population without children compared to not-yet-converted public housing.

We then examine the sources of these manager- and tenant-driven effects. We cannot reject that income declines are equal across conversions where the Public Housing Authority (PHA) retains operational control of the development and conversions where management is transferred to a private entity. PHA-controlled conversions do, however, see larger increases in households exiting with a voucher, a pattern consistent with either PHAs conveying more information about the voucher option to incumbents than private managers do, or tenants being more willing to exit with a voucher when management does not change. Turning to the tenant-driven mechanism, we focus on incumbent households present in the year before conversion and examine the characteristics of those who exit by year 1—before vouchers become available—and by year 5, when vouchers are available. Higher-income incumbents are more likely to exit in year 1 without using a voucher, consistent with aversion to renovation disruption, and are also more likely to exit in year 5 using a voucher. Households exiting with vouchers move disproportionately to lower-poverty neighborhoods. These findings suggest that people-based assistance such as vouchers attracts higher-income households relative to place-based assistance such as public housing, a result with direct policy relevance for the ongoing shift from public housing to vouchers and its implications for who is ultimately served by the program.

This paper contributes first to the literature on the impacts of public housing and its evolution

over time. Prior work has documented how changes in housing policy reshaped who public housing serves and how residents are affected by redevelopment and demolition-based interventions (Goetz, 2012; Vale and Freemark, 2012; Collinson et al., 2019). Much of this literature focuses on displacement, neighborhood effects, and the outcomes of households who leave public housing, particularly in the context of programs such as HOPE VI (Jacob, 2004; Chyn, 2018; Tach and Emory, 2017; Blanco, 2023; Almagro et al., 2023; Haltiwanger et al., 2024; Staiger and Voorheis, 2025). In contrast, far less is known about how tenant composition evolves within developments that remain subsidized. To our knowledge, Chetty et al. (2026) is the only recent paper estimating the effects on adults and children who eventually lived in revitalized developments from the HOPE VI program, which substantially reduced the public housing stock. We are the first to use nationwide tenant-level administrative data to study compositional change under a large-scale rehabilitation effort that preserves rather than eliminates units, shedding new light on how this alternative approach reshapes who public housing ultimately serves. The scale of RAD further distinguishes it from prior interventions: RAD has affected nearly twice as many units as HOPE VI, which impacted just over 100,000 units.

Second, we contribute to the literature on public vs private provision in welfare programs. A large theoretical literature highlights tradeoffs between public and private provision, emphasizing incentives for cost reduction and the difficulty of contracting on difficult-to-observe dimensions of quality (Vickers and Yarrow, 1991; Hart et al., 1997; Shleifer, 1998; Levin and Tadelis, 2010). Empirical work has documented both efficiency gains and quality reductions following a switch to private provision, with much of the recent evidence coming from the health care sector and yielding mixed results regarding its impact on health outcomes (DeWenter and Malatesta, 2001; Galiani et al., 2005; Knutsson and Tyrefors, 2022; Chan et al., 2023; Duggan et al., 2023; Frakes et al., 2023). We extend this literature to the provision of low-income housing, a sector where quality is multidimensional and tenant composition itself is potentially a key margin of adjustment in cost reductions. Our results show that private provision can affect not only physical inputs but also the population served, highlighting a channel that has received little empirical attention.

Third, our findings speak to the public economics literature on targeting in welfare programs. In particular, we show that private provision may affect not only the quality of publicly subsidized goods but also beneficiary self-selection. Classic work in this literature emphasizes that, under

certain conditions, lowering quality along non-monetary dimensions can improve targeting by inducing self-selection of the neediest intended beneficiaries (Nichols and Zeckhauser, 1982; Lieber and Lockwood, 2019; Rafkin et al., 2023). In our setting, self-targeting may operate through two distinct channels. First, rehabilitation under the RAD program improves housing quality, which may attract relatively less needy households and shift the income composition of residents. Second, the option for incumbent tenants to exit converted developments with a tenant-based voucher reveals differences in the targeting properties of public housing and the voucher program. Together, these features of RAD allow us to empirically assess the role of self-targeting in housing assistance along two economically important margins.

Finally, we relate to a growing literature on the profitability and financial incentives associated with low-income housing. Recent work shows that subsidized housing can generate meaningful returns for private owners and investors and that financial incentives influence investment and management decisions (Desmond and Wilmers, 2019; Demers and Eisfeldt, 2022; Cornaggia et al., 2024; Damen et al., 2025). We complement this literature by showing that these incentives may also influence who is housed, not just how housing is financed or managed. By documenting systematic changes in tenant composition and targeting following a shift to private provision, our results suggest that profit incentives can shape distributional outcomes in subsidized housing markets.

2 Background

2.1 The U.S. Public Housing Program: Origins and Decline

The U.S. public housing program originated in the 1930s with the construction of government-owned and operated housing projects under the Public Works Administration. Public housing was initially intended to house working, two-parent families who were screened on their characteristics and employment and placed into developments that were strictly racially segregated. The program further took shape with the Housing Act of 1937 which directed federal funds to local housing authorities to administer the public housing program. By the early 1950s, there were nearly a quarter million public housing units, with the average public housing resident earning approximately 57 percent of the national median income (Vale and Freemark, 2012; Hanlon, 2017).

During the 1950s, the demographics of the program started to shift markedly. In the post-war period, white households increasingly moved out of public housing to take advantage of new homeownership opportunities in cities and newly developed suburbs, while the share of Black residents grew as many Black families arrived in major cities during the Second Great Migration and faced severely constrained options in racially discriminatory housing markets. Program eligibility changes further contributed to this shift. A 1956 law further expanded eligibility to single elderly adults, adding a population with lower average incomes than working families. By 1960, the average resident earned approximately 41 percent of the national median income (Vale and Freemark, 2012).

These trends accelerated through the following decades, and the the further concentration of very low-income households in public housing fueled a growing perception of public housing as a failed model. By 1970, average resident incomes had fallen to roughly 29 percent of the national median, and public housing had become widely associated with concentrated poverty and deteriorating conditions. Policy debates increasingly favored allocating subsidies to households rather than supplying housing directly, culminating in a 1973 moratorium on new public housing construction and a reallocation of resources toward project-based and tenant-based voucher programs. Further declining appropriations and changes to program eligibility only accelerated the worsening conditions of buildings and the demographic change of their residents during the 1980s. In 1987, Congress enacted explicit preferences for the most disadvantaged households, including those experiencing homelessness, those with disabilities or mental illness, and those spending more than half their income on rent. While these program eligibility changes prioritized those with the greatest needs for housing, these preferences also further concentrated poverty in the program. By 1990, average resident incomes had fallen below 20 percent of the national median (Vale and Freemark, 2012), and a 1989 capital needs assessment estimated a repair backlog of $20.9 billion in 2015 dollars (Hanlon, 2017).

Beginning in the 1990s, federal housing policy shifted toward mixed-financing models for housing redevelopment, as exemplified by HUD's HOPE VI program. HOPE VI carried out large-scale demolitions of the most distressed public housing projects and redeveloped them into mixed-income housing. From the 1990s to the early 2000s, HOPE VI demolished over 100,000 public housing units and permanently reduced the total amount of public housing in the U.S. The program dis-

placed thousands of residents of demolished buildings without guaranteeing alternative assistance or a chance to return after redevelopment. While HOPE VI did not change eligibility rules, the loss of total units and strict readmission standards imposed by PHAs likely affected the overall demographics of the public housing population. This large-scale displacement set the stage for debates in the early 2000s about mixed financing options for the increasingly deteriorating public housing stock and the need for stronger tenant protections.

2.2 The Rental Assistance Demonstration (RAD) Program

The Rental Assistance Demonstration (RAD) program emerged from a series of proposed precursors in the 2000s that introduced the concept of transferring public housing ownership to private entities that could leverage private financing for repairs and renovations.[1] RAD was introduced by the Obama administration in 2011 as a scaled-down version of these earlier proposals and was enacted as part of the Consolidated and Further Continuing Appropriations Act rather than as standalone legislation, with an initial scope of 60,000 units and first conversions beginning in 2013 (Hanlon, 2017). However, as Congressional appropriations for conventional public housing continued to decline and capital needs reached new extremes, RAD scaled up dramatically: by 2025, over 200,000 units had been converted, with many public housing authorities planning additional conversions in the coming years.

The RAD program allows PHAs to apply to HUD to convert some or all of their public housing portfolio from Section 9 (the federal public housing program) to project-based Section 8 contracts. These can be either Project Based Vouchers (PBV), administered by the local PHA using the tenant-based voucher funding stream, or Project Based Rental Assistance (PBRA) contracts, which are contracts between HUD's Office of Multifamily Housing and the property owner. HUD reviews RAD applications and assesses the ability of the PHA to complete the conversion before approving or rejecting the application. Once approved, PHAs compile a financing plan which is

[1] Precursor proposals included the Public Housing Reinvestment Initiative (PHRI, 2003) and the Preservation, Enhancement, and Transformation of Rental Assistance Act (PETRA, 2010), which introduced the concept of converting public housing to project-based Section 8 contracts and transferring ownership to private or nonprofit entities. Both met opposition from advocates and policymakers over concerns about tenant displacement and program costs, and neither passed Congress. A 1994 ruling by HUD's general counsel (the Diaz Opinion) had earlier established that private entities could own public housing provided they followed HUD regulations, a precedent that was eventually incorporated into these proposals.

also submitted for HUD approval before the conversion is formally closed. Unlike public housing funds, Section 8 funds can then be used to leverage funding from public, nonprofit, and private sources, enabling PHAs to fund long-delayed renovations while ensuring tenants stay subsidized. This ability to unlock additional capital for building improvements is the primary motivation for PHAs to convert, and RAD further requires that contracts be renewed upon expiration, ensuring the permanent affordability of converted developments.

Upon conversion, PHAs can either retain ownership and management of RAD developments or they can transfer ownership and/or management to private or nonprofit entities.[2] Even if ownership or management is transferred, the PHA must maintain a formal stake in the property, which can take various forms such as maintaining a long-term ground lease of the property, retaining the right of first refusal if the property is resold, or remaining involved in property management responsibilities. The requirement that the PHA maintains a stake plus the mandated renewal of subsidy contracts addresses the key concerns about privatization and potential loss of affordability that were raised by advocates and critics of the precursor programs to RAD.

Importantly, RAD conversion also means that new tenants who move into converted developments as units turn over are selected from a waitlist different than the PHA's public housing waitlist. If a PHA converts the development to the PBV program, new tenants may be selected from the regular Housing Choice Voucher waitlist. For PBRA conversions, a new project-specific waitlist is created for the converted development. PHAs have some discretion in setting waitlist priority designations, such as households fleeing domestic violence or households exiting homelessness.

Because the RAD program was designed primarily as a way for PHAs to renovate and improve physical conditions of public housing buildings, many RAD conversions involve renovations and repairs to building systems, unit interiors, and building exteriors. Prior work finds that RAD led to modest positive effects on children's health in New York State, potentially through renovations such as mold abatement and HVAC repairs in converted developments (Ellen et al., 2024a). RAD conversions can also involve construction of new subsidized or market-rate units as well as building demolitions, but the program requires that public housing units are replaced one-to-one with subsidies in the converted development, preventing large-scale loss of subsidized units as seen during HOPE VI. However, not all RAD conversions involve renovations. Some PHAs pursue RAD con-

[2]Ownership by a private entity is required if the financing includes the Low-Income Housing Tax Credit (LIHTC).

version since Section 8 funding streams are perceived as more reliable than public housing funding, with Congress generally demonstrating more support for Section 8 than the public housing program.

RAD also involves stringent protections for tenants living at developments at the time of conversion. Tenants are guaranteed a right to stay at the property, or a right to return to the property if short-term relocation is required during the renovation process. Similar to public housing, tenants maintain guaranteed lease renewals and good cause eviction protections (evictions are only allowed in cases of serious lease violations). HUD reports document that tenants are generally neutral to satisfied with the RAD conversion process and the resulting changes to the developments, with most tenants not having to relocate from the property during renovation.

Finally, tenants at RAD conversions also have the option to request a tenant-based Housing Choice Voucher after one or two years, allowing them to move to a different home in the private rental market that will still be subsidized. Early HUD reports indicate that the take-up of the Choice mobility options has been low, with many tenants preferring to stay at the converted property.

3 Theoretical Framework

Changing the tenant composition of converted public housing was not a stated goal of the design of the RAD program. Much of the program's design instead emphasized tenant protections and the right of existing tenants to remain in their homes at conversion. Despite this, the shift from public housing to project-based private subsidies could affect program targeting through three mechanisms, operating as households move in, remain, and move out over time.

The first is a manager-driven mechanism. In cases where management or ownership of RAD developments is transferred to private entities, private managers face cost-reduction incentives and may seek to lower costs by altering the composition of tenants they admit or retain. The direction of this effect is theoretically ambiguous. Managers may prefer lower-income households, since the government covers a larger share of total rent, reducing exposure to non-payment risk. Alternatively, if managers perceive lower-income households as generating higher maintenance or administrative costs, they may instead favor higher-income tenants. Managers may also perceive certain household types, such as families with children who may generate more wear-and-tear or households with social service needs, as particularly costly. Non-profit managers face similar cost pressures but

may additionally prioritize specific high-need groups, such as households exiting homelessness, if doing so aligns with their mission, even at higher cost. While recent research using court eviction records and comparing RAD converted to non-converted public housing has found no effect of RAD on formal eviction filings (Ellen et al., 2026), there may still be manager-driven selection through informal channels or administrative proceedings.

The second mechanism is tenant-driven. Tenants in RAD-converted developments make decisions about whether to remain based on several factors. First, conversions often involve renovations—such as improved heating and cooling, mold abatement, new appliances, accessibility upgrades—that may affect the desirability of staying. Households who particularly value these improvements, such as families with children sensitive to environmental hazards or residents with mobility constraints, may be more likely to remain. Second, incumbent tenants are offered a tenant-based voucher, creating a trade-off between staying at the converted development and renting elsewhere in the private market. Households seeking access to higher-opportunity neighborhoods or better schools may be more likely to take up the voucher, while those with fewer resources or greater mobility constraints may find it harder to navigate the private market search and administrative requirements involved. Third, the conversion process itself may prompt some households to exit without any HUD assistance. Renovation and temporary relocation can be disruptive, and because vouchers are not available until one to two years after conversion, households cannot use them to leave before construction is complete. Households averse to disruption, or those who anticipate stricter rent collection and rule enforcement under private provision, may choose to exit anyway, even at the cost of rejoining long waitlists for future assistance. As with the manager-driven mechanism, these forces operate in opposing directions, and the overall effect on composition is theoretically ambiguous.

The third mechanism operates through eligibility changes. RAD affects targeting by moving prospective tenants from public housing (Section 9) to Section 8 waitlists. HUD sets Section 8 income eligibility thresholds below those of Section 9 and requires a higher minimum share of very low-income households program-wide. These differences are visible in Appendix Table B.1, which compares tenant income and demographics across programs in 2013, prior to any RAD conversions. When a development converts through RAD, households newly selected from the waitlist must meet Section 8 eligibility requirements, implying a gradual compositional shift toward

lower-income tenants as vacancies open over time. Because this shift is neither immediate nor large at the time of conversion, it has received limited policy attention. Yet, it could meaningfully restrict access to housing assistance by income in the longer run.

Given the counteracting directions of these mechanisms, the overall impact of RAD on tenant composition is theoretically unclear and thus an empirical question. While documenting the mechanical effects of program eligibility changes after RAD is important in its own right, disentangling whether the remaining effects on tenant composition are driven by manager or tenant responses is key to understand the channels through which private provision affects program targeting.

4 Empirical Strategy

We estimate the impact of RAD on program targeting by linking multiple sources of administrative data from the U.S. Department of Housing and Urban Development (HUD) on RAD conversions and subsidized households and implementing a difference-in-differences estimator that compares public housing developments that converted earlier to developments that converted later in the sample period.

4.1 Data

RAD developments. We draw on data for all closed RAD conversions nationwide between 2014 to 2023.[3] The data include unit-level addresses and conversion-level information on approval and closing dates, project scope, total units, and subsidy type (PBV vs PBRA). We define a "RAD conversion" as a group of buildings within the same original public housing development that all closed on the same date as part of the same RAD application. Using this grouping, the full sample consists of 1,696 developments. While we also present results for the full sample, our main analyses use a restricted sample of 907 developments where building addresses do not change after conversion, ensuring that we reliably capture all households moving in and out of these developments.[4]

[3]There was an initial round of RAD conversions in 2013, however, the HUD RAD notice was revised in July of 2013 to allow multi-phase projects which enabled larger and more complex deals. We exclude 2013 conversions from the analysis since they are less representative of the RAD program in later years.

[4]Other conversions can involve address changes as buildings are modified or rebuilt, which the administrative data track less reliably. To partially capture new construction cases, we include addresses where more than 50 percent of original households relocate after conversion, though some address changes may remain undetected.

RAD conversions are spread across the sample period and are geographically concentrated in certain regions. Figure 1 shows total RAD developments by closing year and subsidy type for the full and restricted samples. The majority of RAD developments convert to PBV subsidies, and the share of PBV versus PBRA conversions have remained fairly consistent across years. Figure 2 shows quartiles of total converted units by state; conversions are most prevalent in the Northeast, Midwest, and South.

Household-level administrative data. We use administrative data from HUD Forms 50058, 50059, and MTW that track household-level program information and demographics for all households across HUD subsidy programs. These data include programmatic actions and the corresponding dates, such as the initial certification into a program, annual and interim recertifications, changes of address, change of program, and exits from HUD assistance. At the time of each recorded action, information on the household's address, income, and household demographic information is also recorded. Programmatic actions and street addresses can be used to identify all households who ever lived at RAD developments. The data allow us to observe households moving in and out of developments before and after conversion as well as the households who remain at the development through the conversion process.

In our analyses, we only consider a household to have moved out of a development if the move is permanent. If households temporarily relocate around the time of RAD conversion and then return to an address associated with the development, we do not count their temporary relocation as a move out or their return to the development as a move in. For households who permanently move out of developments, we can also observe whether they switch to another HUD subsidy program (e.g., leasing up with a voucher or moving to another project-based subsidized building) or whether they exit HUD assistance entirely.

Appendix Figure A.1 shows average total households per development, moves in, and moves out by year relative to RAD conversion. At some developments, the PHA will hold vacancies in the period leading up to conversion and fill vacancies after conversion, as seen in the average share of moves in falling and then increasing around the time of RAD closing.

Table 1 presents summary statistics on mean development characteristics, household characteristics, and neighborhood characteristics in the baseline year of 2013 (before any sample develop-

ments converted to RAD) for public housing developments that do not convert to RAD compared to developments that later convert to RAD. Overall, these groups of developments had similar physical inspection scores (indicating building quality) and housed tenants with similar average characteristics at baseline. A greater share of developments that later converted through RAD are in central cities compared to non-RAD public housing and have more units per building on average. RAD developments were also located in census tracts with higher median home values, higher median rents, and larger Black and Hispanic populations at baseline.

4.2 Estimating Equation

To estimate the causal effect of RAD on targeting, we would ideally compare public housing developments that were randomly assigned to RAD conversion to developments that were not. However, this study design is not possible in practice since the selection of developments for RAD conversion is carried out by PHAs determining which developments to submit for HUD approval to convert. This poses a challenge for causal analysis since PHAs may select developments for RAD based on specific property characteristics such as the level of capital needs. We do find some differences in the development sizes and location characteristics between converted and non-converted developments in Table 1.

We address this issue by comparing developments that are approved for RAD conversion earlier versus later in time. The identifying assumption is that the precise timing of conversion is not correlated with development characteristics. This is a plausible assumption, as it can take months or even years for PHAs to apply for RAD conversion, compile financing plans, receive initial approval from HUD, and complete all necessary administrative and planning steps for closing. Thus, the timing of RAD closing for one development relative to others has little to do with the characteristics of the property or the composition of tenants. We provide supporting evidence for this assumption with two analyses. First, Appendix Table B.2 compares characteristics of RAD developments that closed in 2014-2017 to those that closed in 2018-2023. Development characteristics, tenant characteristics, and characteristics of the surrounding census tracts are more similar across these two groups. Second, we run pairwise regressions of a RAD conversion's closing year on development characteristics in the baseline year to formally test whether any characteristics are correlated

with later closing dates. Appendix Figure A.2 plots the coefficients from these regressions, none of which are statistically significant.[5]

Using the quasi-random timing of RAD closing, we implement a stacked difference-in-differences design to compare the evolution of average tenant characteristics and the characteristics of in-movers and out-movers at closed RAD developments relative to developments that close at a later date. We construct the stacked dataset as follows. For the cohorts of developments that closed in 2014 and 2015, we use developments closed in 2021-2023 as controls; for 2016 closings we use 2022-2023 as controls, and for 2017 closings we use 2023 as controls. This structure ensures that the developments used as controls in each stack have not yet converted to RAD in the 5-year post period for the focal converted developments in that stack. Next, we define an indicator variable Treated_{dc} for whether development d is treated in a given stack c. We also define event year t as the difference between a calendar year and the year when the conversion for the treated project in the stack was closed. We then append all stacks. Henceforth, we refer to each stack c as a "conversion" event.

We estimate the following equation for household h, development d, relative year t, conversion c:

$$Y_{hdtc} = \alpha_{dc} + \omega_{tc} + \sum_{\tau} \beta^{\tau} \mathbb{1}(t = \tau) \times \text{Treated}_{dc} + \varepsilon_{hdtc} \tag{1}$$

where β^{τ} captures the difference in the outcome between converted and not-yet-converted RAD developments in year τ after conversion. We control for baseline levels of the outcomes and time patterns within each conversion event by including development-by-conversion (α_{dc}) and event year-by-conversion (ω_{tc}) fixed effects, respectively. We weight each conversion–treated status–event year combination equally and cluster standard errors at the closing level.[6]

5 Main Results: The Impact of RAD on Program Targeting

We estimate the average effects of RAD conversion on tenant characteristics and find that average household incomes significantly decline after conversion. We provide evidence that this decline partly comes from lower-income households moving into these developments after conversion. We

[5] Appendix Table B.3 and Appendix Figure A.3 show this for the full sample

[6] This weighting scheme is consistent with the corrective sample weights proposed by Wing et al. (2024) for stacked difference-in-differences designs and ensures that our estimates recover the average treatment effect on the treated, averaging equally across RAD closings rather than implicitly weighting by cohort size.

find limited evidence of effects on other tenant characteristics beyond income.

5.1 Impacts on Total Population and Moves

We first examine how the total number of households living at RAD developments evolves around the time of conversion. Figure 3 reports average treatment effects on the treated (ATT) from estimating a Poisson regression version of Equation (1) using households counts, moves in, and moves out as outcomes in each panel. Results refer to the restricted sample of developments unless stated otherwise.

The results are consistent with expected patterns around the time of conversion. Total households decline at the time of closing as some temporary relocation takes place during renovations and then recover as households return and preexisting vacancies are filled. Moves in are relatively lower in the year prior to and and the year of conversion, as some PHAs hold vacancies to facilitate relocation during renovations, and increase above pre-period levels thereafter. Moves out are higher in the conversion year, as some households permanently relocate to other subsidized buildings within the PHA or exit HUD assistance altogether, but return to pre-period levels in the longer run.

To better understand moves out after conversions, we disaggregate them by type in Appendix Figure A.4. Moves out with a Housing Choice Voucher increase starting two years after conversion—when the voucher option becomes available—and stabilize at a statistically significant 50 percent above pre-period levels by event year five (panel a). This is offset with an equivalent decrease in move outs with other HUD assistance, suggesting that tenant-based vouchers crowd out other assistance types (panel b). Notably, there is a temporary increase in households moving out with other HUD assistance in the conversion year, which is largely driving the result in panel (b) of Figure 3. This could be households relocating to other nearby project-based subsidized buildings within the PHA's portfolio as part of the PHA's conversion plan. Finally, panel (c) points to a (statistically not significant) temporary increase in households exiting HUD assistance at conversion and a small subsequent decline in exits without HUD assistance in the first couple of post-converison years.

Taken together, these results suggest that RAD conversions significantly affected household flows beyond temporary relocations, which may have in turn impacted tenant composition at con-

verted developments.

5.2 Impacts on Tenant Characteristics

We next examine the effect of RAD on tenant characteristics, with a focus on average household income. Columns (1)-(4) of Table 2 report ATTs from a static version of Equation (1) using annual household income and indicator variables for earning a positive wage, the presence of children, and having a disabled, non-elderly household member as outcomes, with the corresponding event study for income shown in Figure 4. Panels refer to all households, moves in, and moves out, respectively.

We find that annual household incomes decline by 547 dollars on average (4 percent from the pre-treatment baseline) after conversion (column 1). Income falls sharply in the first post-conversion year and continues to decline gradually thereafter, as shown in panel (a) of Figure 4. This effect appears to be mainly driven by lower-income households moving in after conversion: panel (b) shows that average incomes of incoming households are approximately $800 (6 percent from baseline) lower relative to the comparison group, while panel (c) shows no corresponding difference in the incomes of outgoing households. Furthermore, Column (2) and the event study plots in Appendix Figure A.5 show that the share of households earning a positive wage decreases by 2.4 percentage points (5 percent from baseline), part of which is explained by incoming households being less likely to work as illustrated in panel (b) of the Figure.

The decline in average incomes among incoming households could be a result of both lower Section 8 income eligibility thresholds and newly introduced preferences for more disadvantaged groups such as households exiting homelessness. To explore this, we compare income effects separately for PBV and PBRA conversions, since PBV conversions can draw from the PHA's broader Housing Choice Voucher waitlist while PBRA conversions draw from a newly created project-specific waitlist, affording managers somewhat greater discretion over admissions preferences. Appendix Figure A.6 shows that the income decline is more pronounced for PBRA conversions. While incoming household incomes do not differ substantially between conversion types, relatively higher-income households—earning roughly 2,500 dollars more than the comparison group—move out of PBRA developments in the conversion year, which may contribute to the sharp income decline in event year 1 in panel (a) of Figure 4.

Effects on other household characteristics are limited. Columns (3) and (4) of Table 2 and Appendix Figures A.7, A.8, A.9, and A.10 report results for the share of households with children, disabled and elderly individuals, and racial composition.[7] The share of households with children declines slightly around conversion, likely due to the temporary relocation of families during renovation, but recovers to near pre-conversion levels thereafter. Notably, there is an increase in the share of households moving in who have children with larger increases two to five years after conversion. The share of non-elderly households with disabilities rises after the conversion year. The share of elderly households rises temporarily around the conversion year, possibly because these households are prioritized to remain on-site during renovations, but shows no lasting effect. Finally, there is a slight decline in the share of white households and a corresponding increase in Hispanic households after conversion, though neither effect is statistically significant and both fade in the longer run.

5.3 Robustness

We test the robustness of the results in two ways. First, we estimate our main effects for the full sample of RAD developments, which includes those that may involve changes of address as part of building renovations or new construction. Appendix Figure A.11 shows that results for household income are very similar across samples. Second, we estimate effects with the estimator proposed by Sun and Abraham (2021), using conversions between 2021–2023 as the comparison group. We do this for both the full and restricted samples and again find very similar effects, as shown in Appendix Figure A.12.

6 Mechanisms

We examine the three key channels through which private provision of public housing through RAD could impact targeting: private managers' management strategies, self-targeting by households, and mechanical income eligibility changes introduced by the program. We find that tenant composition changes go beyond a pure mechanical effects and provide evidence that both manager

[7] A household is classified as elderly or disabled if the household head, co-head, or spouse meets HUD's definitions of those categories.

decisions and tenant self-targeting behavior matter in determining who is ultimately served by the program.

6.1 Incumbent Analysis: Removing Effects from Eligibility Changes

We isolate the combined effects of the manager- and tenant-driven mechanisms by focusing on incumbent households. Since the new income eligibility rules under Section 8 do not apply to these residents, any effects on tenant characteristics for this sample should reflect changes in manager and tenant behavior caused by the shift to private provision of public housing. We define incumbents as households living at RAD developments four years prior to conversion and restrict the analyses to this sample throughout this section.[8]

Income levels among incumbent households decline over time by a magnitude similar to our main estimates in Table 2, indicating that eligibility changes alone cannot explain the full extent of income decreases. Figure 5 plots event studies for annual household income under two definitions of the incumbent sample. Panel (a) first uses the group of incumbents who remain at the development for the entire post period and do not move out, while panel (b) then uses the full set of incumbents, some of whom move out of the development over time, so that changes in average income reflect the evolving composition of the group as some households exit. Average incomes among the fixed group in panel (a) show no change relative to the comparison group, while average incomes among the broader incumbent group in panel (b) decline over time. Appendix Figure A.13 shows a similar pattern for households reporting a positive wage. Together, these results suggest that relatively higher-income incumbent households are more likely to move out after conversion.

Effects on other household characteristics are limited, consistent with the full-sample results. Event study estimates suggest a decline in the share of incumbent residents with children after conversion, though these estimates should be interpreted with caution given visible pre-trends (Appendix Figure A.14). Results for the share of disabled and elderly residents and for racial composition are broadly similar to those in the previous section (Appendix Figures A.15, A.16, A.17, A.18, and A.19). There is no evidence of meaningful effects on the share of elderly or disabled households, while there is a small decrease in the share of white households after conversion, offset

[8] We also test the robustness of this definition using incumbents living at developments two and three years prior to conversion.

by modest increases in Black and Hispanic households.[9]

6.2 Evidence on Manager-Driven Effects on Targeting

We next investigate whether the shift to private provision through the transfer of management and ownership of the developments is an important mechanism to explain declining tenant incomes. To do so, we estimate our main specifications separately for conversions operated by the PHA and conversions operated by private for-profit or non-profit entities. We identify these types using information from HUD on email domains and mailing addresses of the pre- and post-conversion controlling entities of properties. These data indicate whether the PHA (or a direct subsidiary) is controlling day-to-day operations of the property or whether the property has transferred to a private entity, the majority of which are for-profit entities.[10] A potential concern is that controlling entity types may be correlated with development or location characteristics that independently affect tenant composition. However, Appendix Table B.4 shows that counties with conversions controlled by PHAs compared to those controlled by private entities are similar in terms of poverty rates and median household incomes, mitigating this concern.

Income declines are not significantly different for conversions controlled by the PHA versus a private entity. Figure 6 estimates Equation (1) separately by entity type, using same-type not-yet-converted developments as the comparison group. The event study shows that household income declines somewhat more sharply at conversions controlled by private entities than those retained by PHAs, though the post-conversion coefficients are not significantly different from one another.[11] Appendix Figure A.21 reproduces the incumbent analysis by entity type and finds evidence that a relatively lower-income incumbent group remains at the property over time for conversions controlled by private entities, but this result is also not significantly different from the group of conversions retained by PHAs.

We do, however, find some suggestive evidence of differences in household exits by entity type.

[9] Among incumbents who do not move, we find a small and statistically insignificant decrease in the share of elderly and disabled households, which may reflect household members departing from otherwise-stable households. We also find a slight increase in the share of elderly and disabled incumbents remaining at the development in the year after conversion, consistent with the earlier finding that these households were relatively less likely to be temporarily relocated.

[10] Appendix Figure A.20 shows the number of conversions by closing year and controlling entity type

[11] This result also holds when post-conversion periods are collapsed.

At the development level, Appendix Figure A.22 shows more voucher-assisted move-outs and fewer move outs with other HUD assistance at conversions where the PHA is the controlling entity, while exits without HUD assistance are more similar across entity types. These patterns suggest that PHA-controlled conversions trigger more voucher moves that substitute for other forms of housing assistance and that private managers are not pursuing evictions more aggressively than PHAs.

6.3 Evidence on Tenant-Driven Effects on Targeting

The final mechanism we study is tenant self-targeting after conversion, which sheds light on household preferences between place-based assistance programs such as public housing and people-based assistance programs such as tenant-based vouchers, which expand beneficiaries' neighborhood choice. In our setting, while improved housing quality may make converted developments more attractive to incumbent households, the option to move out with a voucher one to two years after conversion may appeal to households who value the ability to choose their neighborhood. The characteristics of households who take up each option reveal the direction of self-targeting and which types of households value one form of assistance over the other, which has important implications for the composition of households which eventually benefit from these programs (Nichols and Zeckhauser, 1982; Lieber and Lockwood, 2019).

We study differences in tenant composition by move-out type and event year among incumbents, netting out the mechanical effect of eligibility rule changes. We focus on move-outs by event years 1 and 5. The reasons households self-select to leave plausibly differ across these two horizons. In years 0 to 1, households may wish to avoid disruption from ongoing renovations. Given RAD's strict protections on right-to-return and against re-screening, these early exits plausibly reflect self-selection: the disruption is common to all households, but those already near the margin of moving out and with better outside options—likely higher-income—are more likely to act on it. By year 5, renovations are complete and households may instead be responding to the availability of the voucher option, which becomes available roughly one to two years after conversion. The characteristics of households exiting at each horizon are therefore informative about both the self-targeting properties of the renovation intervention and household preferences between vouchers and place-based public housing assistance. One caveat is that in both cases, compositional effects may

also reflect private managers' incentives to engage in cream-skimming—for example, by failing to recertify certain tenants—to reduce expected costs. However, as long as these incentives do not systematically change over time, differences in the magnitude of effects between the two horizons remain informative about the relative importance of the two tenant self-targeting explanations.

Using the sample of households living at the developments in the year before conversion, we estimate the following cross-sectional regression:

$$Y_{hdc} = \phi_{dc} + \sum_{k} \gamma^k \mathbb{1}(\text{Move-out type}_{hdc} = k) + \sum_{k} \delta^k \mathbb{1}(\text{Move-out type}_{hdc} = k) \times \text{Treated}_{dc} + \nu_{hdc} \tag{2}$$

The equation includes development-by-stack fixed effects to control for baseline differences in the outcomes and four indicator variables for whether the incumbent moved out in the pre-period (event year -1) and whether the incumbent with other HUD assistance, without HUD assistance, or with a voucher. Each indicator is also interacted with a treated indicator. The omitted category is households who remain at the development by the event year of interest. The coefficients on the interactions between move-out type and the treated indicator, δ^k, are our coefficients of interest since they capture which types of households choose to move out in response to conversion, and through which exit pathway.

The identifying assumption underlying Equation (2) is that, absent conversion, differences in outcomes between incumbent households who exit via each move-out type and those who remain would have evolved similarly across earlier- and later-converting developments. While this assumption is untestable, it is plausible given the broad comparability of earlier- and later-converting developments across a wide range of characteristics, as shown in Appendix Table B.2.

Our findings are consistent with higher-income households self-selecting out of converted developments in response to both renovation disruption and the offer of a tenant-based voucher. Table 3 reports estimates from Equation (2) at event years 1 and 5 for three outcomes: annual household income, the presence of children, and an indicator for Black household head. By year 1, households with higher incomes—relative to those who remain—are more likely to exit with other HUD assistance or without any assistance, and households with children are also more likely to leave without assistance. By year 5, higher-income households are more likely to exit either without HUD assistance or with a voucher. The latter result suggests that vouchers may have self-targeting properties

whereby higher-income households prefer them to place-based assistance, even though voucher programs have lower income eligibility thresholds. One plausible explanation is that higher-income are more likely to successfully lease up in the private market and thus less likely to lose their voucher benefits (Phillips, 2017; Ellen et al., 2024b).

We further find supporting evidence that households taking up the voucher option move to lower-poverty neighborhoods. Appendix Table B.5 reports the Census tract destinations of incumbent households who exited with a voucher. Among these households, 93 percent moved to a different Census tract, and more than half (56.5 percent) moved to tracts with poverty rates at least 5 percentage points lower than their origin tract, compared to only 19 percent who moved to tracts with poverty rates at least 5 percentage points higher. We formalize this comparison by estimating a version of Equation 1 on the sample of households exiting with vouchers, using the destination tract's poverty rate as the outcome. The estimates, shown in Appendix Figure A.23, suggest that households in converted developments move to neighborhoods with poverty rates nearly 2 percentage points lower than the comparison group after conversion, though the results are imprecisely estimated due to the small sample size. Together, these findings suggest that households taking up the voucher option value expanded neighborhood choice and effectively use it to access lower-poverty neighborhoods.

7 Conclusion

Over the past few decades, U.S. housing policy has shifted from direct public provision of housing assistance toward private provision through subsidies. The RAD program represents the most recent and largest step in this transition, transferring management and/or ownership of public housing to for-profit and non-profit entities with the explicit goal of addressing severe maintenance backlogs and preserving the long-run affordability of the stock.

We provide evidence that an unintended consequence of this shift is a change in program targeting, as measured by tenant composition. RAD reduces the average income of households living in converted developments, and this decline extends beyond the mechanical effect of switching to Section 8 waitlists, which carry lower income eligibility thresholds. Focusing on incumbent households—who are unaffected by eligibility rule changes—we show that higher-income house-

holds are more likely to move out over time, indicating that both private manager decisions and tenant self-targeting behavior shape who is ultimately served by the program.

Our findings shed light on the mechanisms behind these compositional changes. Income declines are similar for conversions controlled by PHAs versus private entities, though conversions managed by PHAs are more likely to see households moving out with vouchers, potentially due to either PHAs providing more information or assistance regarding the tenant-based voucher option than new private managers or more tenants preferring to move out with a voucher under public management. On the tenant side, higher-income incumbents are more likely to exit by year one after conversion—plausibly due to renovation disruptions—and by year five, likely because they prefer the voucher option, which enables moves to lower-poverty neighborhoods. This last result is of particular policy relevance: it suggests that place-based and people-based assistance programs have different self-targeting properties, with people-based programs such as vouchers more likely attracting higher-income households. As housing policy continues to shift toward vouchers, understanding these differential targeting effects will be essential for evaluating the distributional consequences of this transition.

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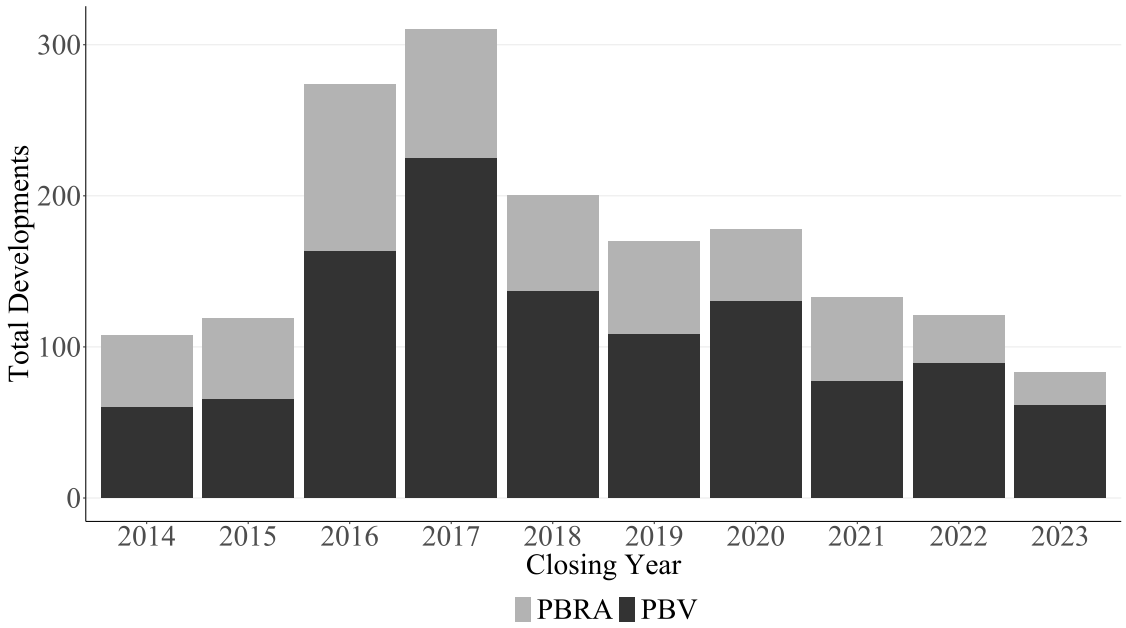
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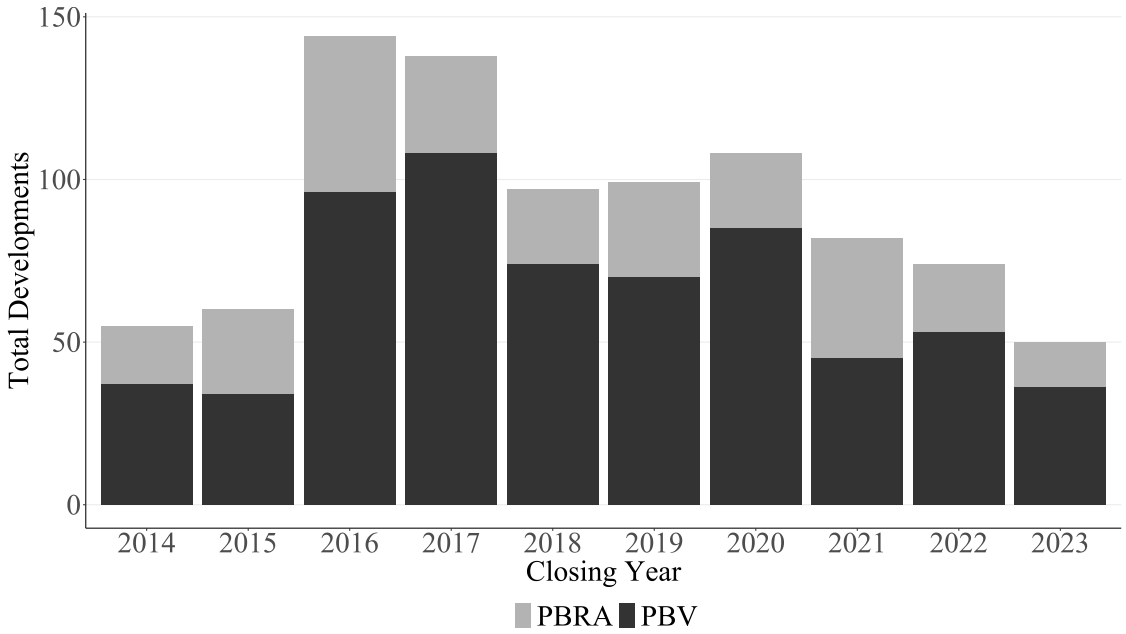
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Tables and Figures

Figure 1: Number of RAD-converted developments by closing year and subsidy type



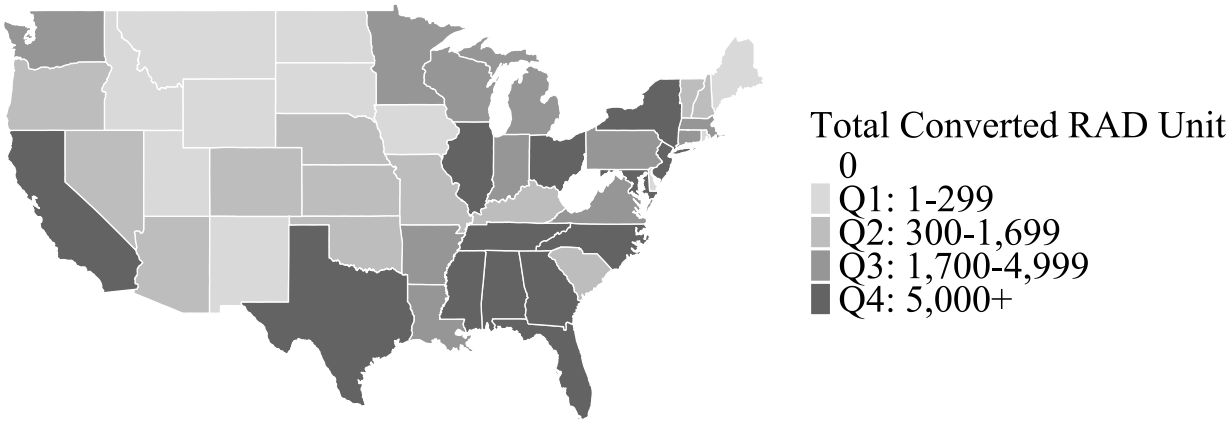
(a) Full sample (N = 1,696)



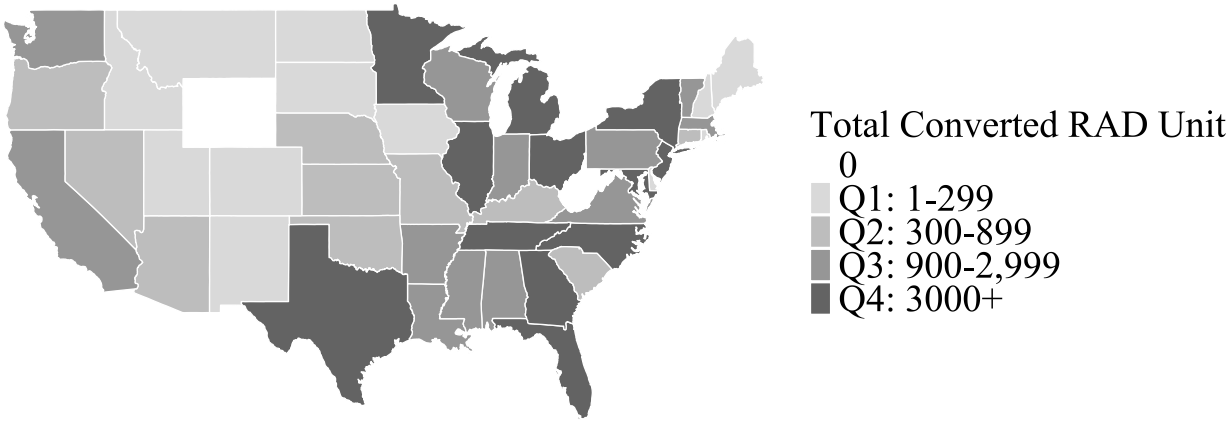
(b) Restricted sample (N = 907)

Note: The figure shows the number of RAD conversions by closing year and subsidy type (Project-Based Rental Assistance or Project-Based Vouchers) for the full sample of all RAD conversions (panel a) and the restricted sample of RAD conversions where all street addresses remain the same before and after conversion (panel b).

Figure 2: Map of the number of RAD-converted public housing units by state



(a) Full sample



(b) Restricted sample

Note: The figure shows quartiles of the number of public housing units converted under the RAD program by state for the full sample of all RAD conversions (panel a) and the restricted sample of RAD conversions where all street addresses remain the same before and after conversion (panel b).

Table 1: Mean characteristics of Non RAD- and RAD-converted developments at baseline

	Non-RAD Public Housing (N=6,791)	Convert to RAD (N = 1,609)	Convert to RAD - Restricted Sample (N=888)
Panel A: Development Characteristics			
Mean units per building in development	22.1	28.8	48.0
Located in central city	48.4	70.5	72.0
Vacancy rate	4.3	6.6	5.0
Inspection score	84.8	83.6	85.4
Panel B: Household Characteristics			
Disabled household (non-elderly)	20.9	21.2	23.1
Children in household	41.7	44.7	34.3
Female household head	75.4	76.5	70.8
Black household head	42.5	56.2	50.1
Hispanic household head	16.6	15.4	16.6
Elderly household	30.4	28.7	36.7
Number of household members	2.2	2.2	1.9
Total income	13,501.5	13,139.2	12,761.0
Total tenant payment	312.9	306.7	303.5
Panel C: Tract Characteristics			
Poverty rate	28.0	32.0	29.9
Median household income	36,387.5	35,054.4	36,075.6
Percent Black	28.0	35.6	31.7
Percent Hispanic	15.2	18.8	19.5
Percent Non-Hispanic White	51.8	39.9	42.7
Percent less than high school education	21.2	22.9	22.2
Median home value (2013 dollars)	147,681.8	167,290.0	177,714.4
Median gross rent (2013 dollars)	693.0	759.3	773.1
Median year built	1,964.4	1,965.1	1,965.2
Percent owner occupied	49.4	41.7	40.7
Percent vacant	14.4	13.6	13.1

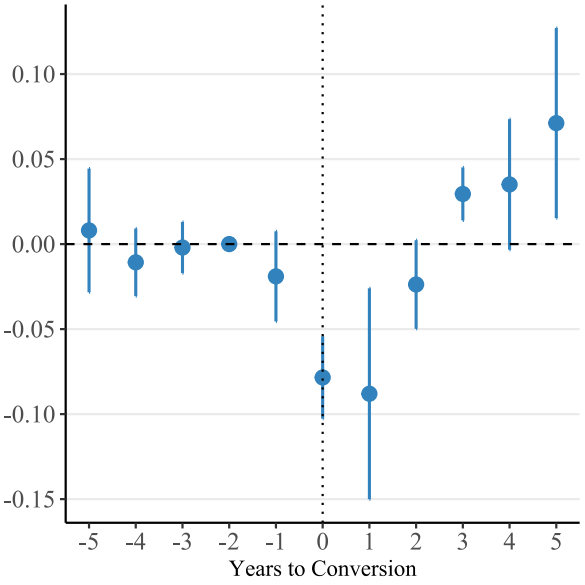
Note: The table reports mean 2013 characteristics of developments (panel A) and households living in those developments (panel B), and 2010 characteristics of the Census tracts (panel C) for non-RAD public housing developments (column 1), all public housing developments that later convert to RAD (column 2), and a subset of these RAD developments used in the restricted analysis sample where all street addresses remain the same before and after conversion (column 3). Only developments that present in the baseline year (2013) are included in the table (a small number of developments were added in later years).

Table 2: DID estimates: The impact of the RAD program on tenant composition

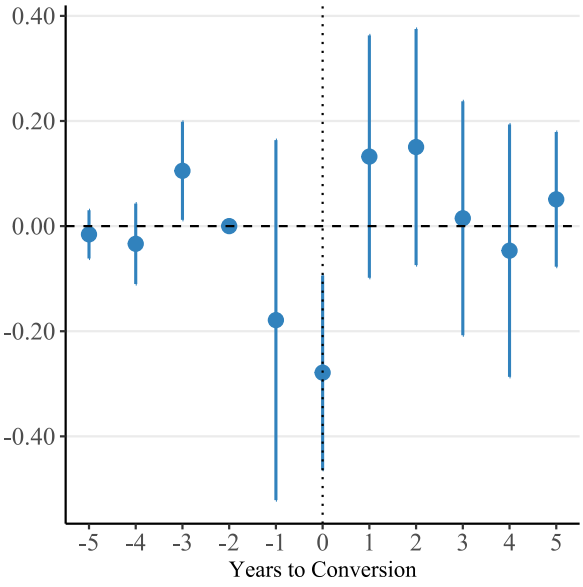
	Total Annual Income Amount	Any Wage Income	Household with Children	Disabled Household (Non-Elderly)
	(1)	(2)	(3)	(4)
Panel A: All Households				
treated × post	-546.9**	-0.024**	-0.003	0.009**
	(161.6)	(0.007)	(0.004)	(0.002)
Pre-treatment mean	14,162.1	0.487	0.331	0.469
Observations	1,115,512	1,115,009	1,115,425	1,115,425
R^2	0.156	0.209	0.492	0.141
Panel B: Moves In				
treated × post	-801.7***	-0.024	0.023*	0.008
	(103.5)	(0.010)	(0.008)	(0.017)
Pre-treatment mean	12,910.0	0.452	0.349	0.379
Observations	111,702	111,676	111,694	111,694
R^2	0.192	0.219	0.622	0.195
Panel C: Moves Out				
treated × post	-237.2	-0.016	-0.0008	0.002
	(464.2)	(0.015)	(0.006)	(0.004)
Pre-treatment mean	13,544.9	0.361	0.331	0.354
Observations	122,358	122,283	122,358	122,358
R^2	0.190	0.241	0.532	0.138

Note: The table reports estimated average treatment effects on the treated (ATT) from a pooled difference-in-differences version of Equation (1), replacing the event year indicators with a single post-treatment indicator interacted with treatment status. Each column refers to a household-level outcome, in order: annual household income, an indicator for positive wage earnings, an indicator for the presence of at least one child, and an indicator for whether the household head, co-head, or spouse is elderly or disabled as defined by HUD. Standard errors are clustered at the stack (conversion) level and reported in parentheses. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion. Significance levels: ***: 0.01, **: 0.05, *: 0.1.

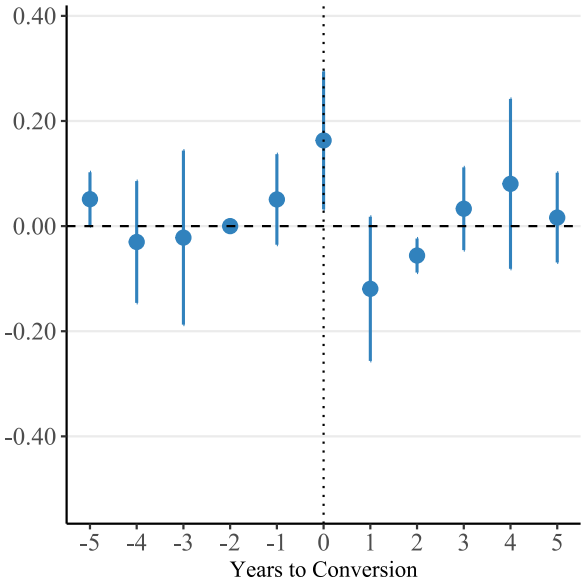
Figure 3: Event studies: Impact of RAD on development-level household counts



(a) All households



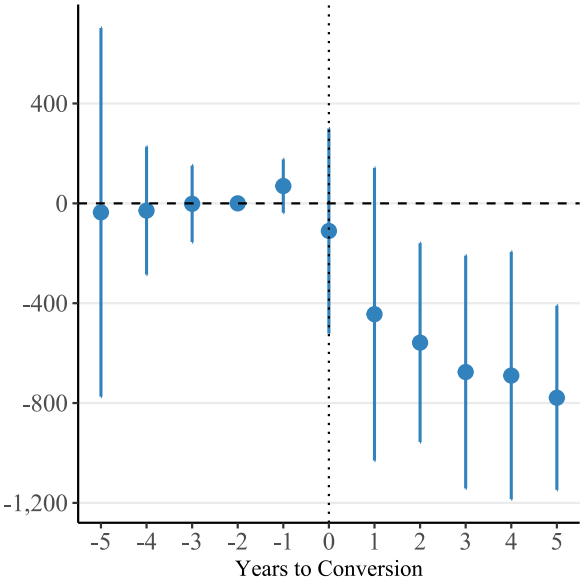
(b) Moves in



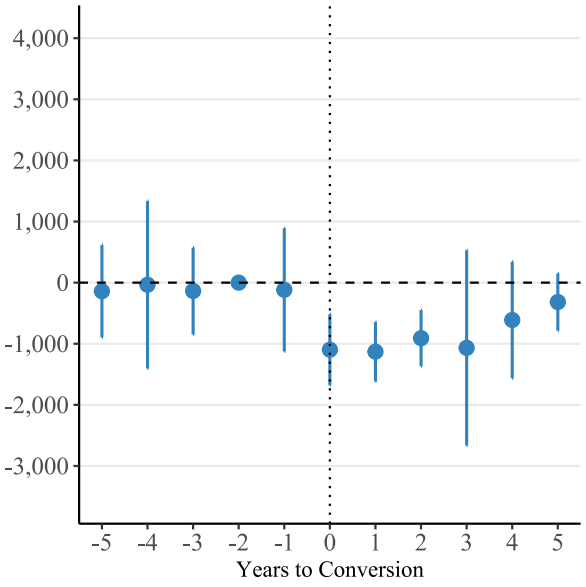
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from a Poisson regression version of Equation (1) for three development-level outcomes: the count of all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

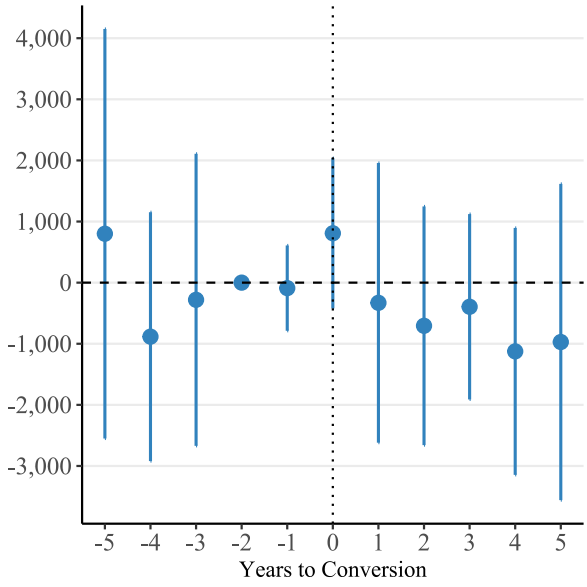
Figure 4: Event studies: Impact of RAD on annual household income by sample



(a) All households



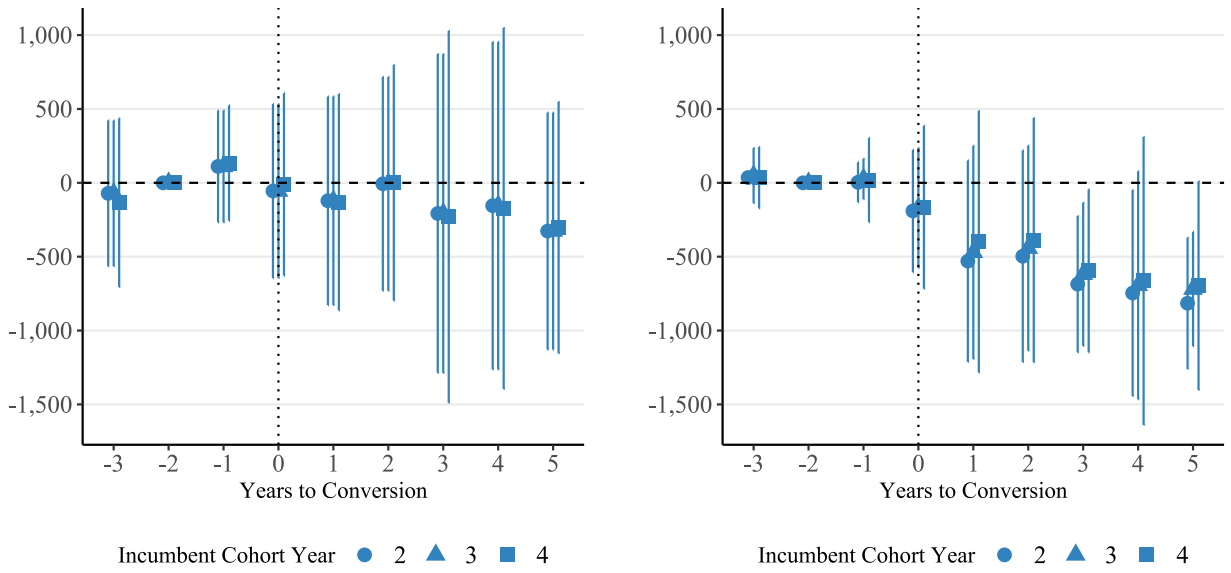
(b) Moves in



(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using annual household income as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure 5: Event studies: Impact of RAD on annual household income among incumbent households

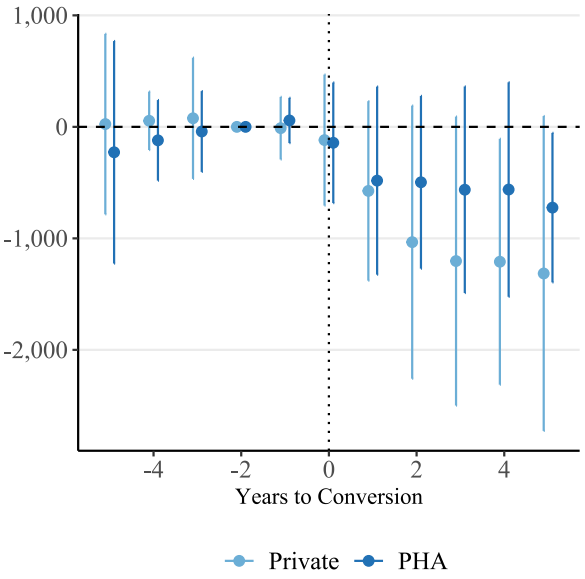


(a) Incumbents – stay for whole post period

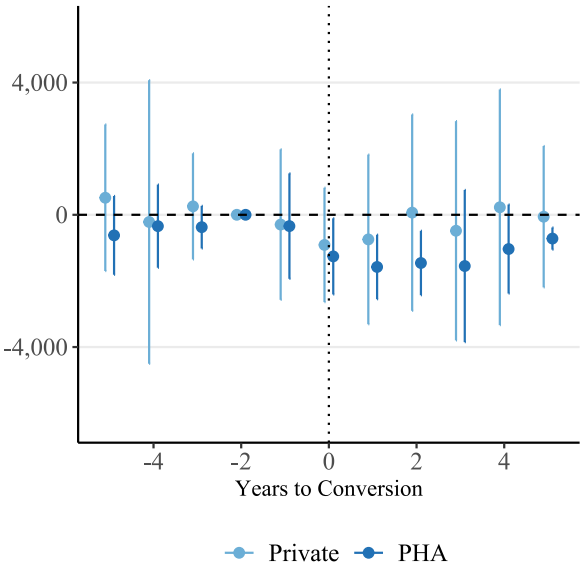
(b) Incumbents – remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using annual household income as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

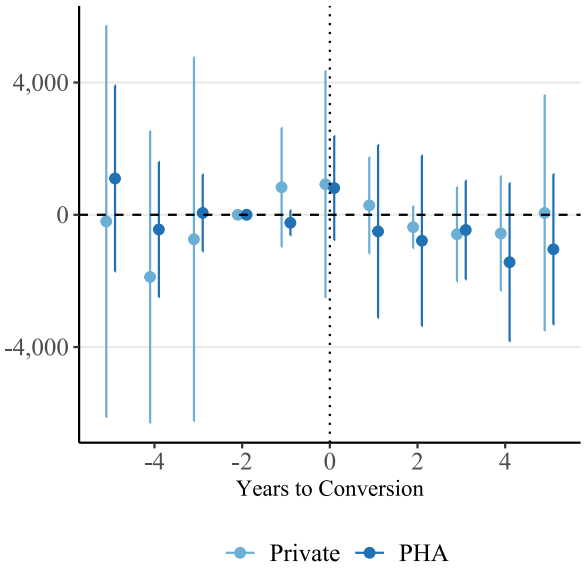
Figure 6: Event studies: Impact of RAD on annual household income by sample and controlling entity type



(a) All households



(b) Moves in



(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using annual household income as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). The sample is restricted developments for which all street addresses remain the same before and after conversion. Light blue refers to conversions controlled by a private entity and dark blue refers to conversions controlled by the PHA. Event year 0 corresponds to the year of RAD conversion.

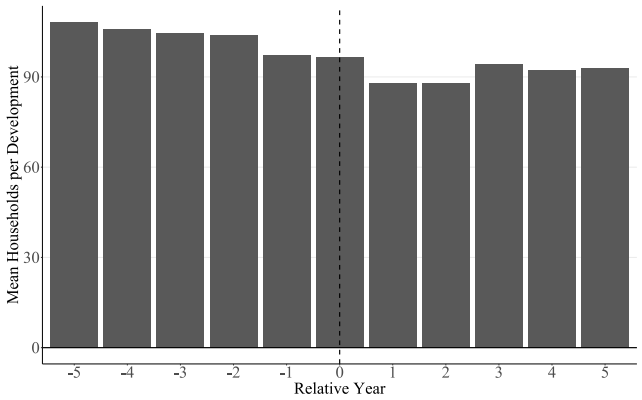
Table 3: The impact of RAD on move-out types among incumbent residents by horizon

	Status by End of Year 1			*Status by End of Year 5*		
	Annual Household Income	Household with Children	Black Household Head	Annual Household Income	Household with Children	Black Household Head
	(1)	(2)	(3)	(4)	(5)	(6)
Move Out with Other HUD Assistance x Treated	1,757.5**	0.043	0.025	52.6	-0.094***	0.051
	(446.1)	(0.034)	(0.047)	(748.8)	(0.019)	(0.036)
Move Out with No HUD Assistance x Treated	1,760.0***	0.041***	0.0009	263.2	0.003	0.057***
	(185.9)	(0.009)	(0.006)	(242.9)	(0.018)	(0.006)
Move Out with Voucher x Treated	531.3	-0.028	-0.033	859.3**	0.047	0.020
	(448.8)	(0.044)	(0.049)	(270.4)	(0.025)	(0.041)
Pre-Treatment Mean	13,143.3	0.308	0.498	13,143.3	0.308	0.498
Observations	93,575	93,527	93,357	72,611	72,574	72,446
R^2	0.009	0.021	0.012	0.009	0.019	0.014

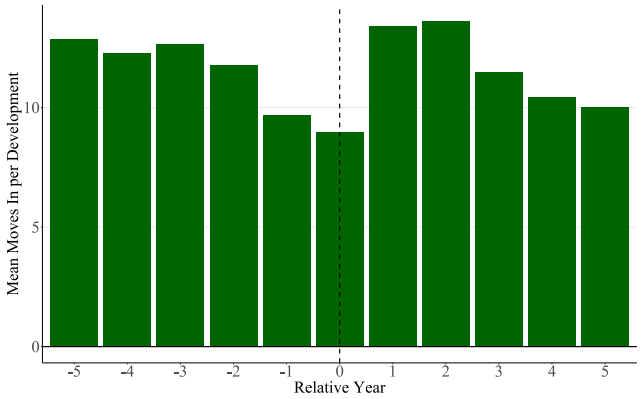
Note: The table reports estimates of δ^k from Equation (2). Columns (1)–(3) use the full sample of incumbent households present at RAD-converted developments in the year prior to conversion, with outcome variables measured in event year -1. Columns (4)–(6) restrict to incumbents who had not yet moved out by event year 2, with outcome variables measured in event year 5. The three outcomes are, in order: annual household income, an indicator for the presence of at least one child, and an indicator for whether the household head, co-head, or spouse is elderly or disabled as defined by HUD. The omitted move-out category is households who remain at the development in the event year in which the outcome is measured. Standard errors are clustered at the stack (conversion) level and reported in parentheses. The sample is restricted to RAD conversions where all building street addresses remain unchanged before and after conversion. Significance levels: ***: 0.01, **: 0.05, *: 0.1.

A Appendix Figures

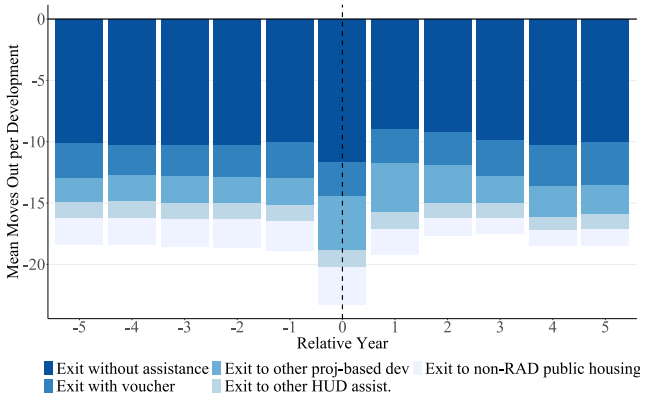
Figure A.1: Mean development-level counts of households, moves in, and moves out by year relative to conversion (restricted sample)



(a) Total households



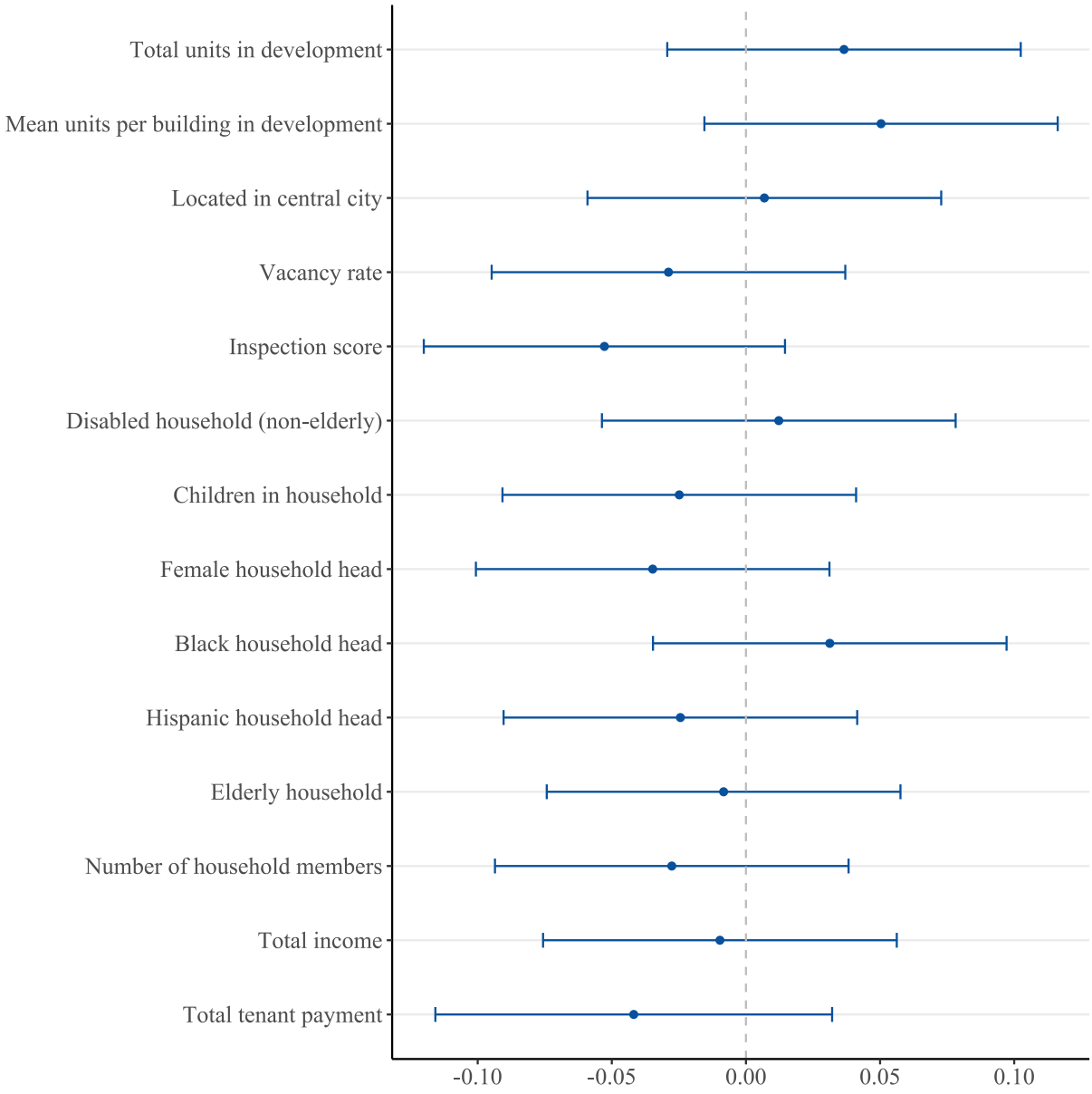
(b) Moves in



(c) Moves out

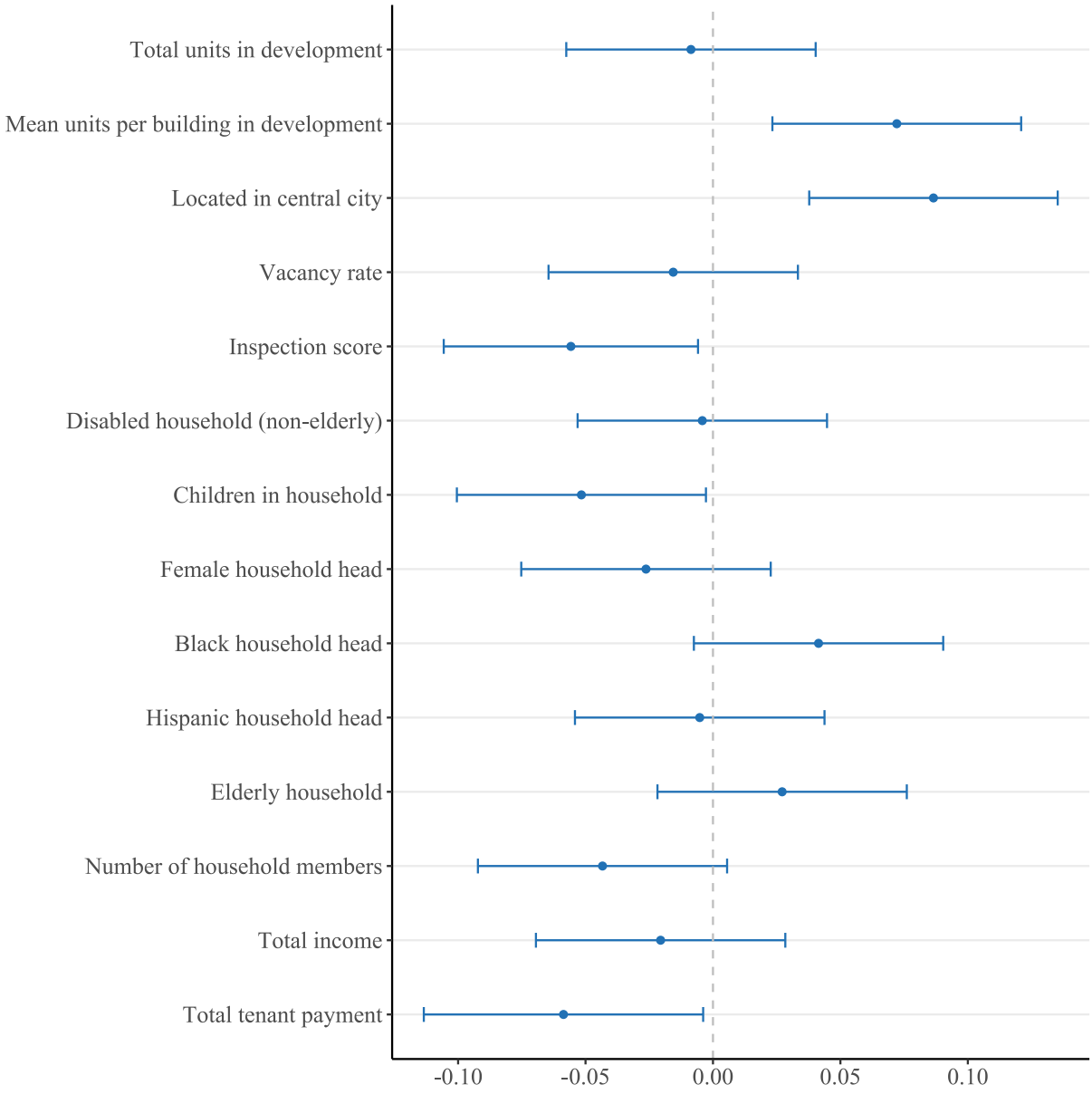
Note: The figure shows mean development-level counts of households (panel a), moves in (panel b), and moves out (panel c) by year relative to the closing year for the restricted sample of RAD conversions where all street addresses remain the same before and after conversion.

Figure A.2: Regression estimates of closing year on development characteristics at baseline (restricted sample)



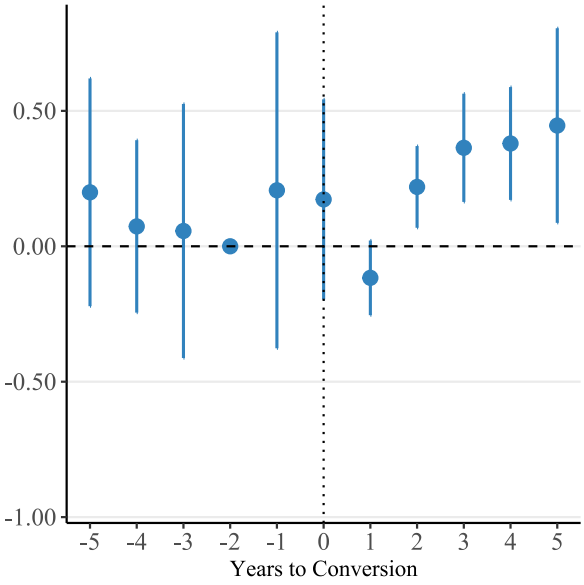
Note: The figure reports estimated coefficients and 95% confidence intervals for pairwise regressions of the RAD closing year on baseline (standardized) characteristics of developments in 2013 prior to any RAD conversions. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.3: Regression estimates of closing year on development characteristics at baseline (full sample)

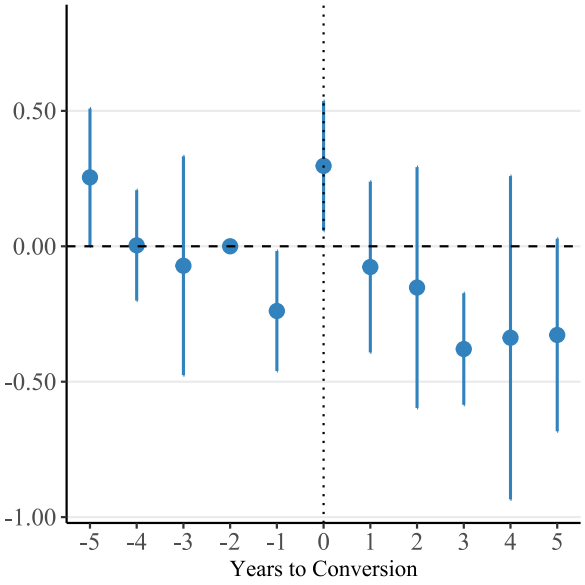


Note: The figure reports estimated coefficients and 95% confidence intervals for pairwise regressions of the RAD closing year on baseline (standardized) characteristics of developments in 2013 prior to any RAD conversions. The figure uses the unrestricted analysis sample.

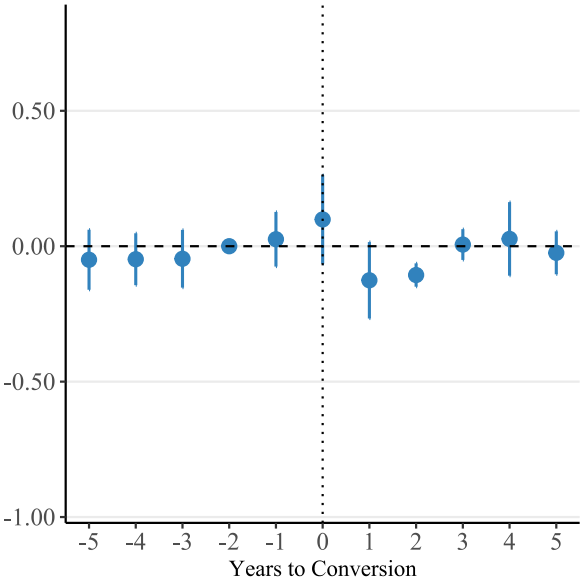
Figure A.4: Event studies: Impact of RAD on development-level move-out counts by type



(a) Moves out with Housing Choice Voucher



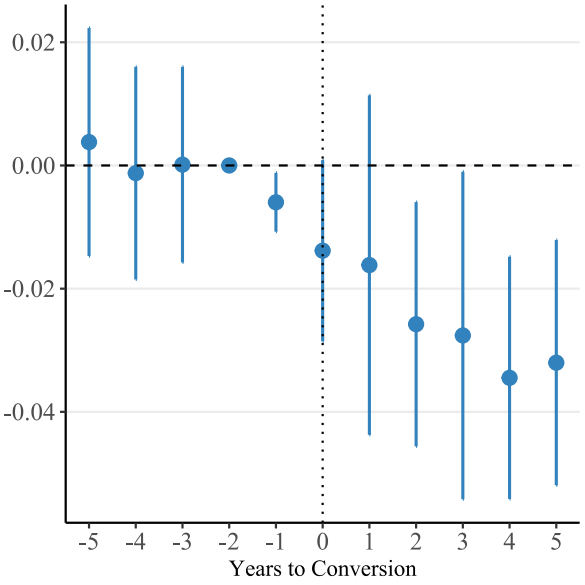
(b) Moves out with other HUD assistance



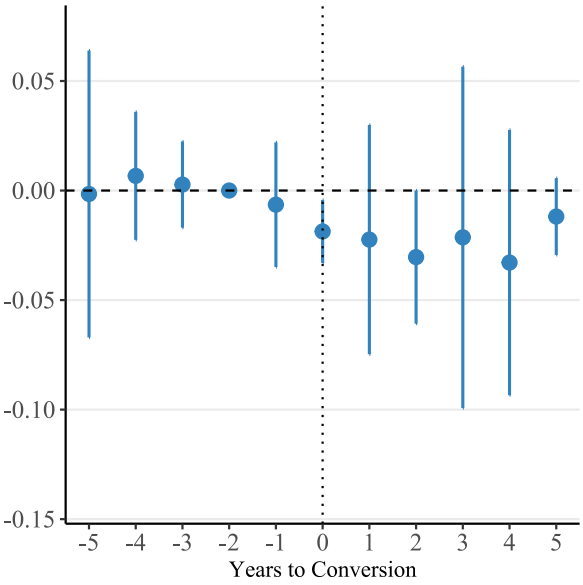
(c) Moves out with no HUD assistance

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from a Poisson regression version of Equation (1) for development-level move-out counts for three types of move out: Housing Choice Voucher (panel a), other HUD assistance (panel b), and no HUD assistance (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

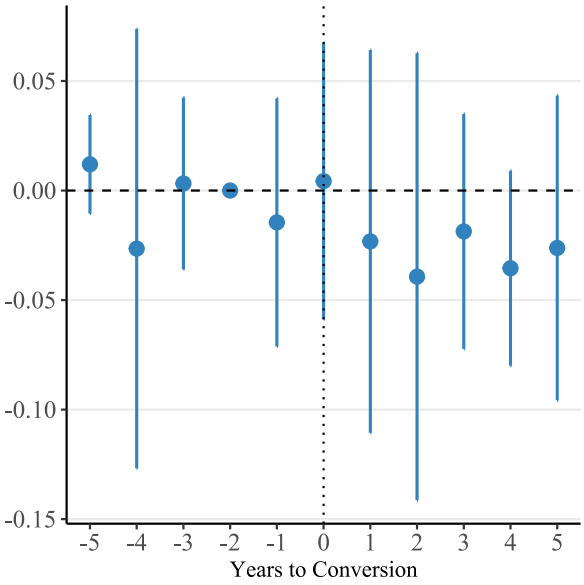
Figure A.5: Event studies: Impact of RAD on earning a positive wage by sample



(a) All households



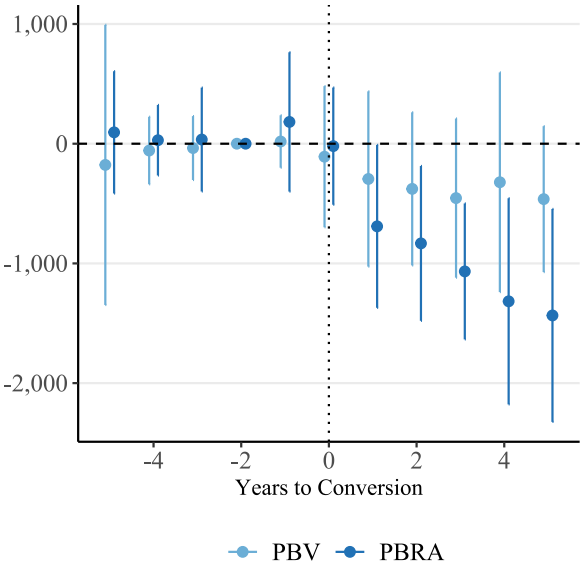
(b) Moves in



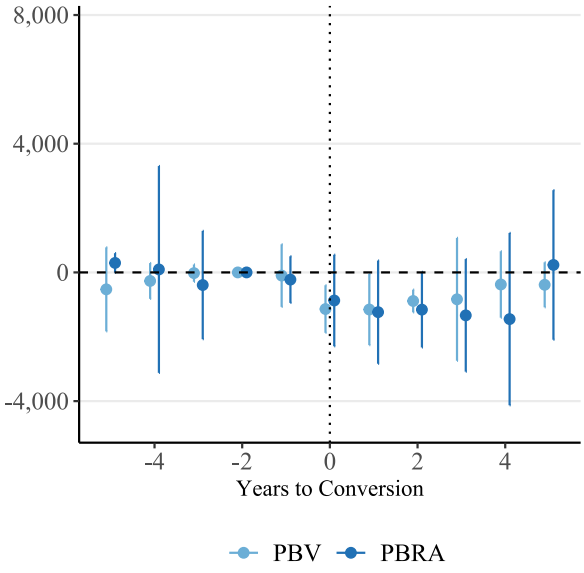
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for positive wage income as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

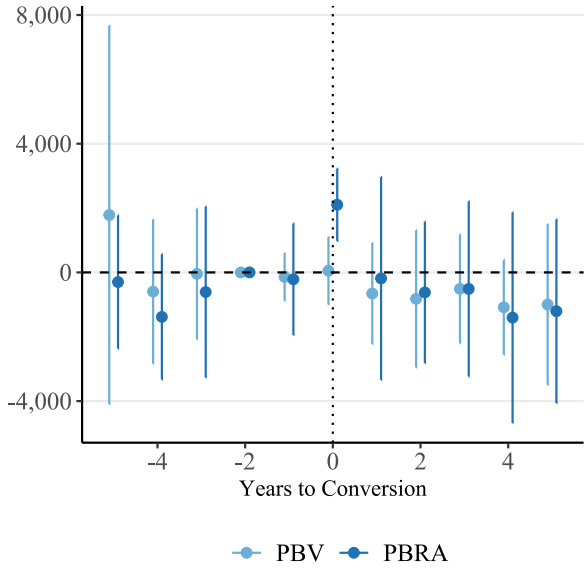
Figure A.6: Event studies: Impact of RAD on annual household income by sample and by conversion type



(a) All households



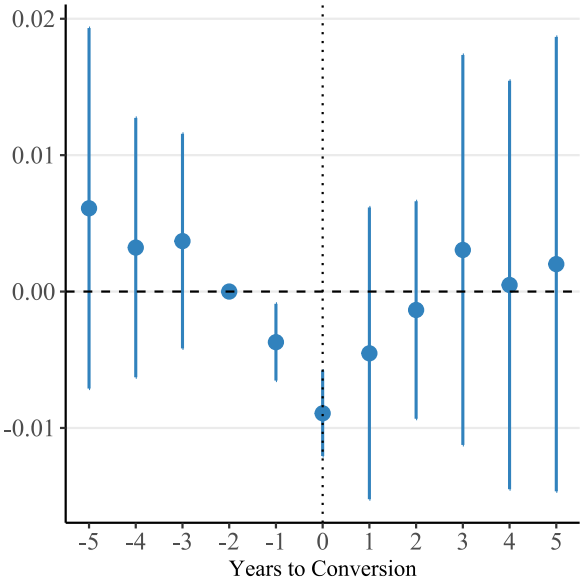
(b) Moves in



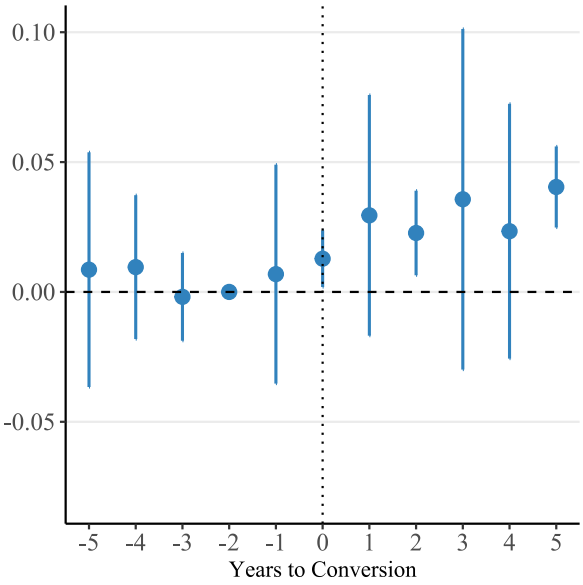
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using annual household income as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Dark blue refers to Project-Based Rental Assistance (PBRA) conversions, light blue refers to Project-Based Voucher (PBV) conversions. Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

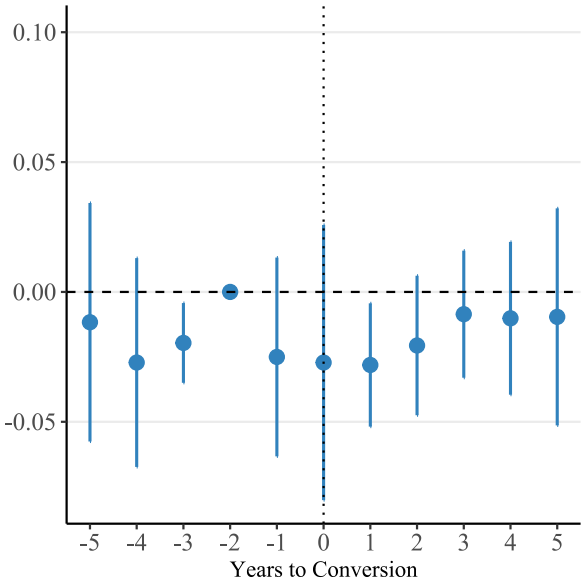
Figure A.7: Event studies: Impact of RAD on the share of households with children by sample



(a) All households



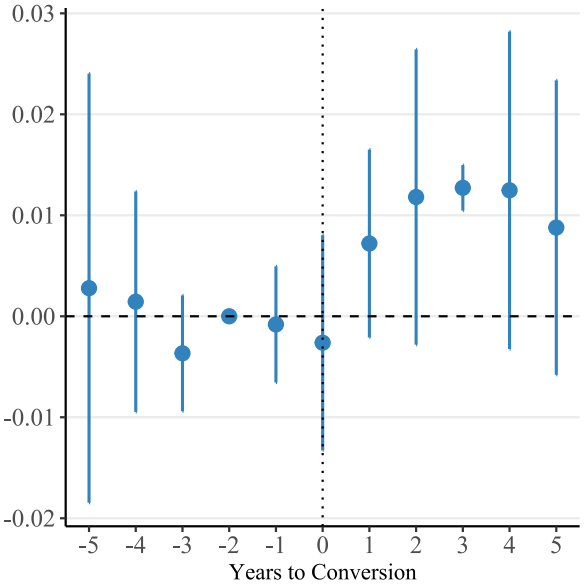
(b) Moves in



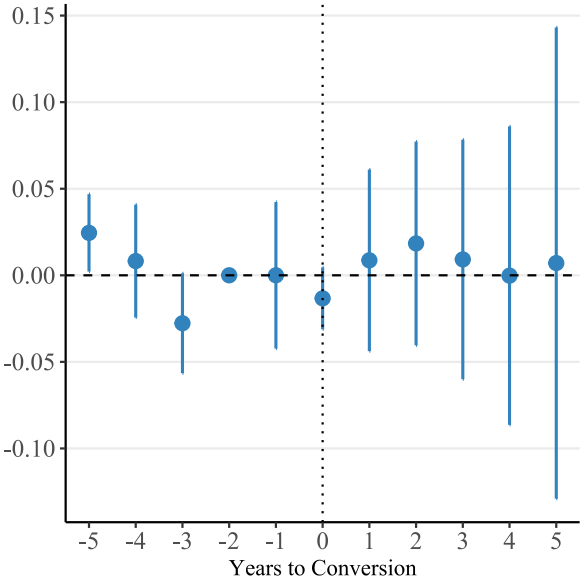
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for the presence of children in the household as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

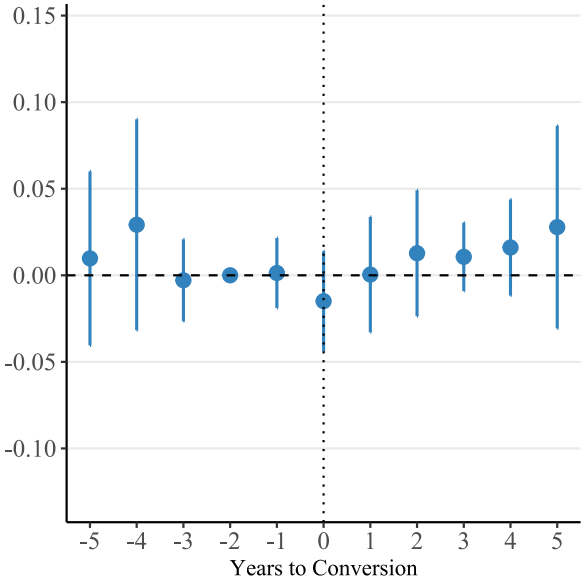
Figure A.8: Event studies: Impact of RAD on the share of disabled (non-elderly) households by sample



(a) All households



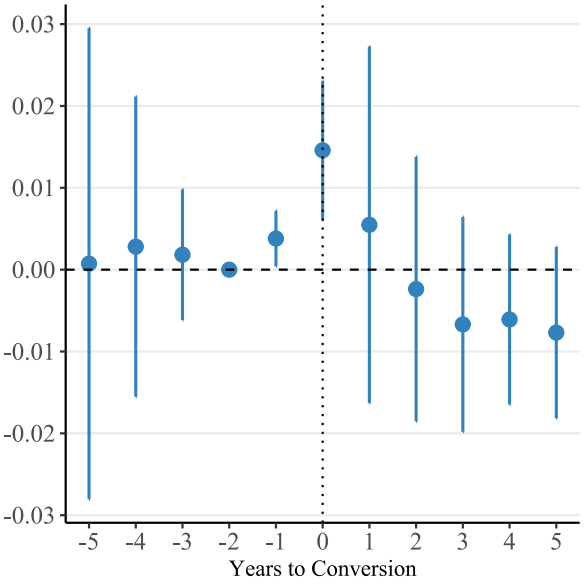
(b) Moves in



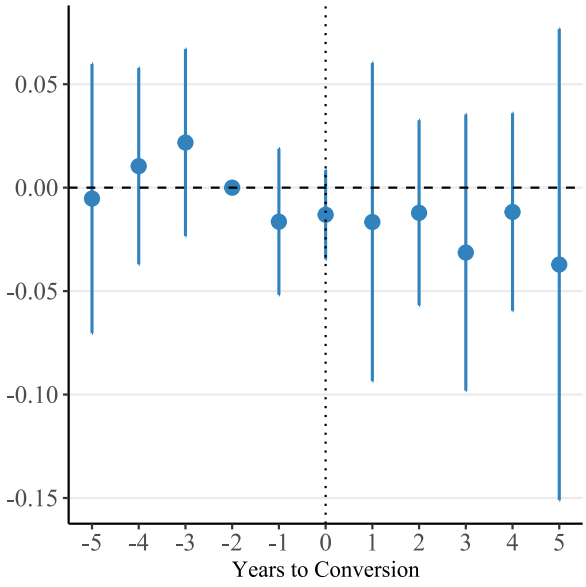
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for whether the household head, co-head, or spouse is disabled and non-elderly as defined by HUD as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

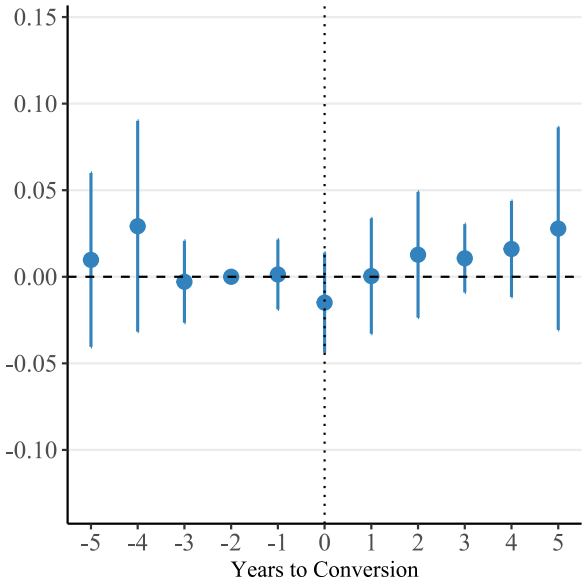
Figure A.9: Event studies: Impact of RAD on the share of elderly households by sample



(a) All households



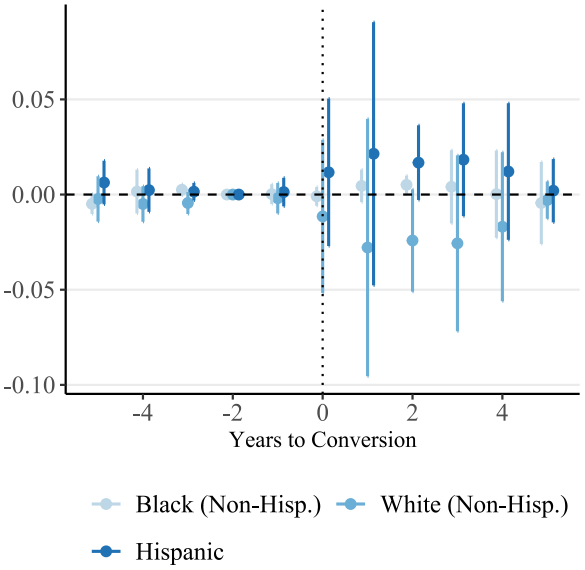
(b) Moves in



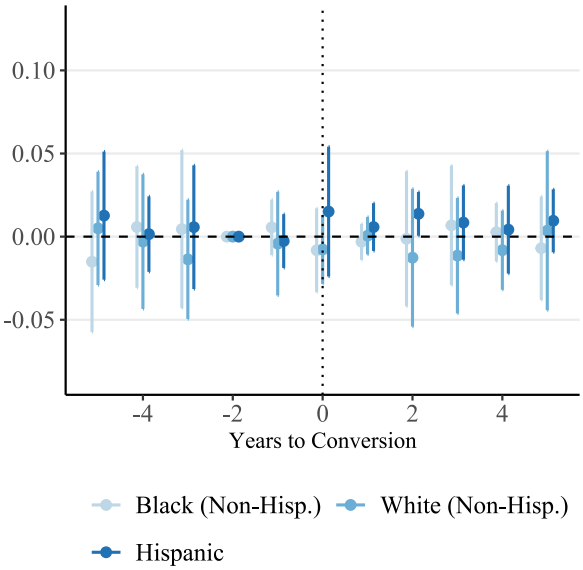
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for whether the household head, co-head, or spouse is elderly as defined by HUD (>=62) as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

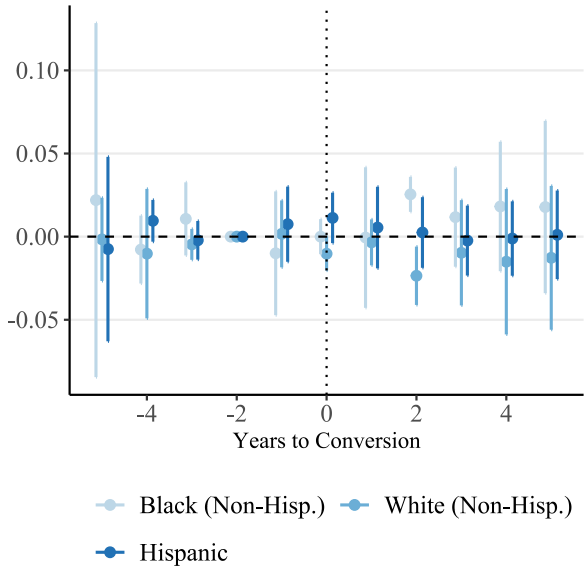
Figure A.10: Event studies: Impact of RAD on race/ethnicity by sample



(a) All households



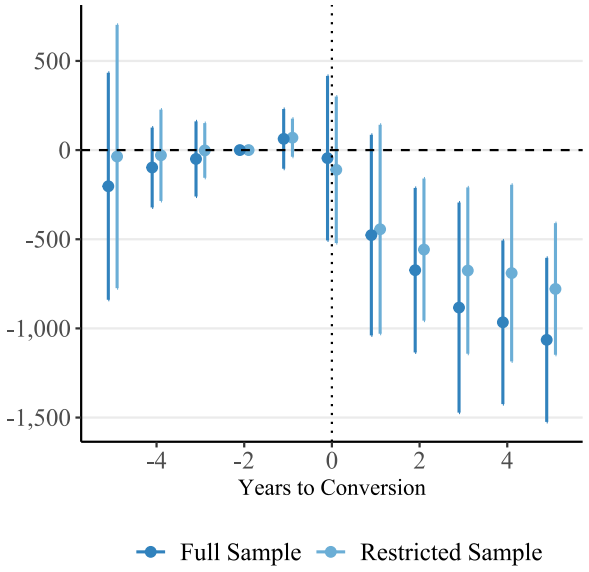
(b) Moves in



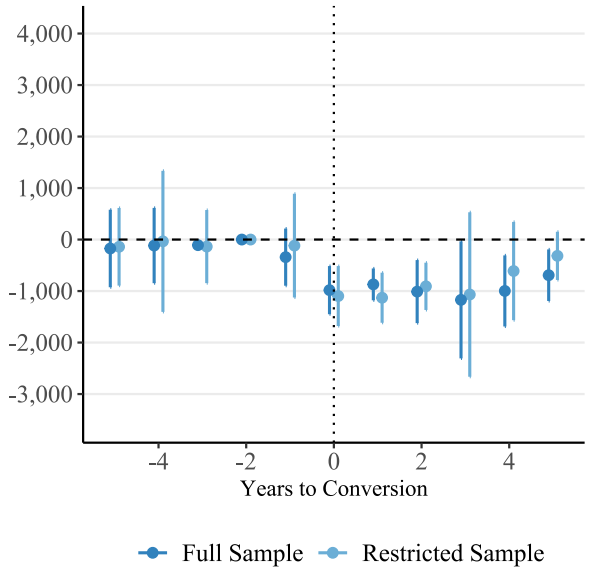
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using indicator variables for race/ethnicity as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

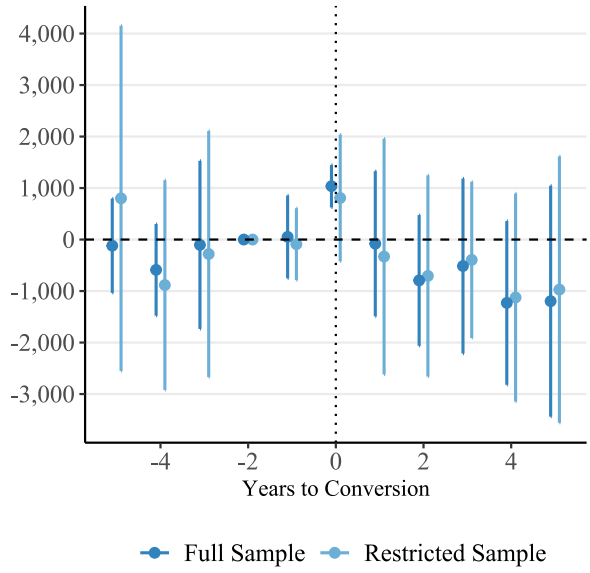
Figure A.11: Event studies: Impact of RAD on annual household income by sample (full and restricted sample)



(a) All households



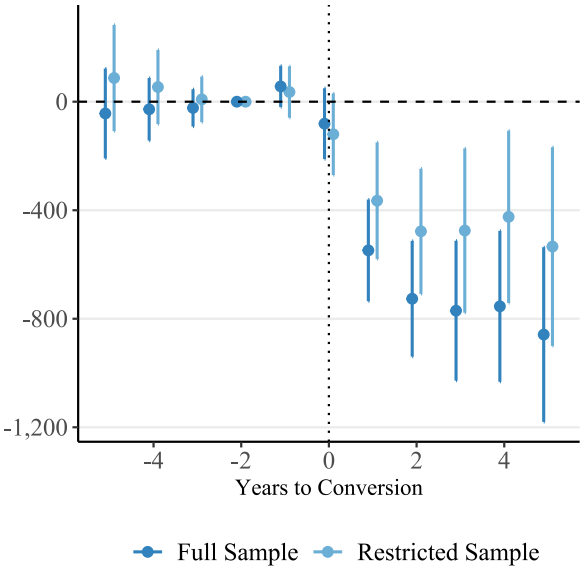
(b) Moves in



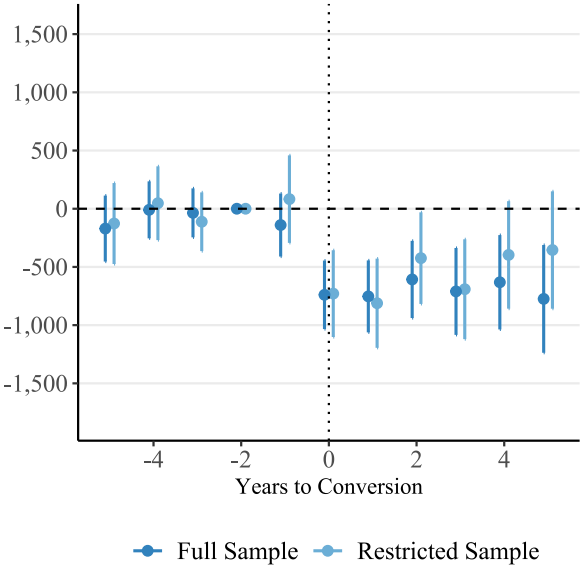
(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using annual household income as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). Event year 0 corresponds to the year of RAD conversion. Dark blue refers to the full sample of RAD-converted developments, light blue refers to the restricted sample, which is limited to RAD-converted developments for which all street addresses remain the same before and after conversion.

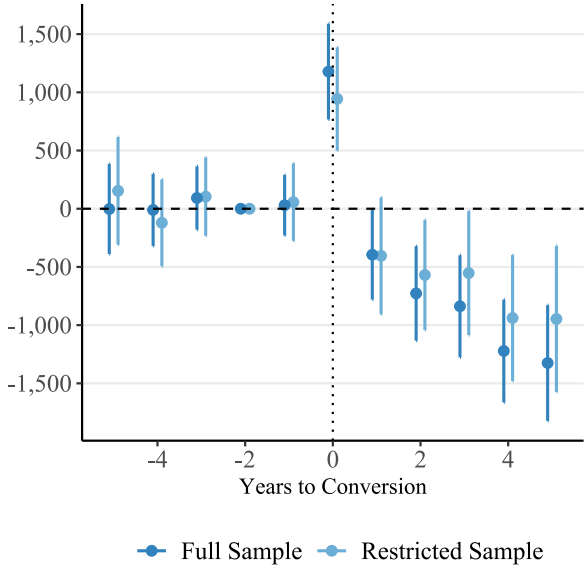
Figure A.12: Event studies (Sun and Abraham, 2021): Impact of RAD on annual household income by sample (full and restricted sample)



(a) All households



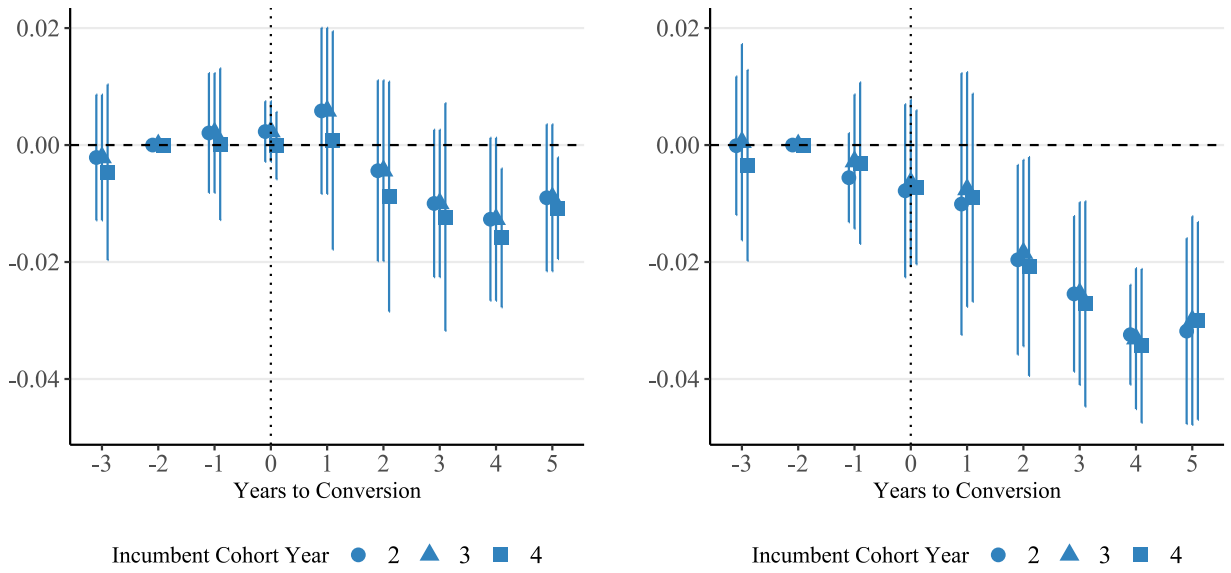
(b) Moves in



(c) Moves out

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) following Sun and Abraham (2021) and using annual household income as an outcome for three samples of households: all households (panel a), moves in (panel b), and moves out (panel c). RAD conversions between 2021 and 2023 are used as the comparison group. Event year 0 corresponds to the year of RAD conversion. Dark blue refers to the full sample of RAD-converted developments, light blue refers to the restricted sample, which is limited to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.13: Event studies: Impact of RAD on earning a positive wage among incumbent households

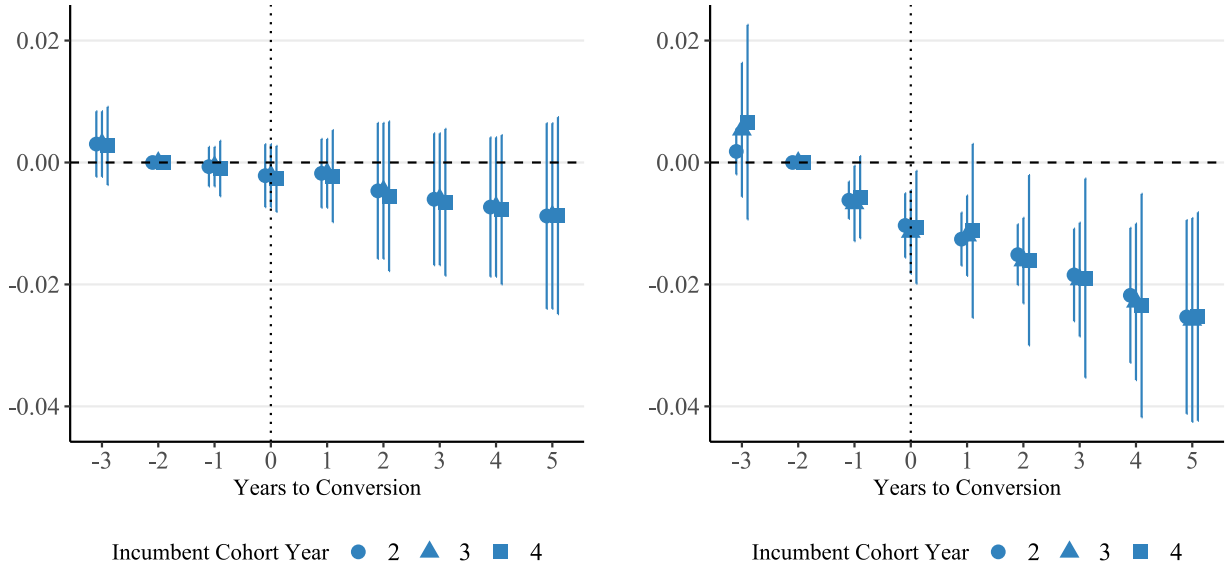


(a) Incumbents — stay for whole post period

(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for positive wage income as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.14: Event studies: Impact of RAD on the share of households with children among incumbent households

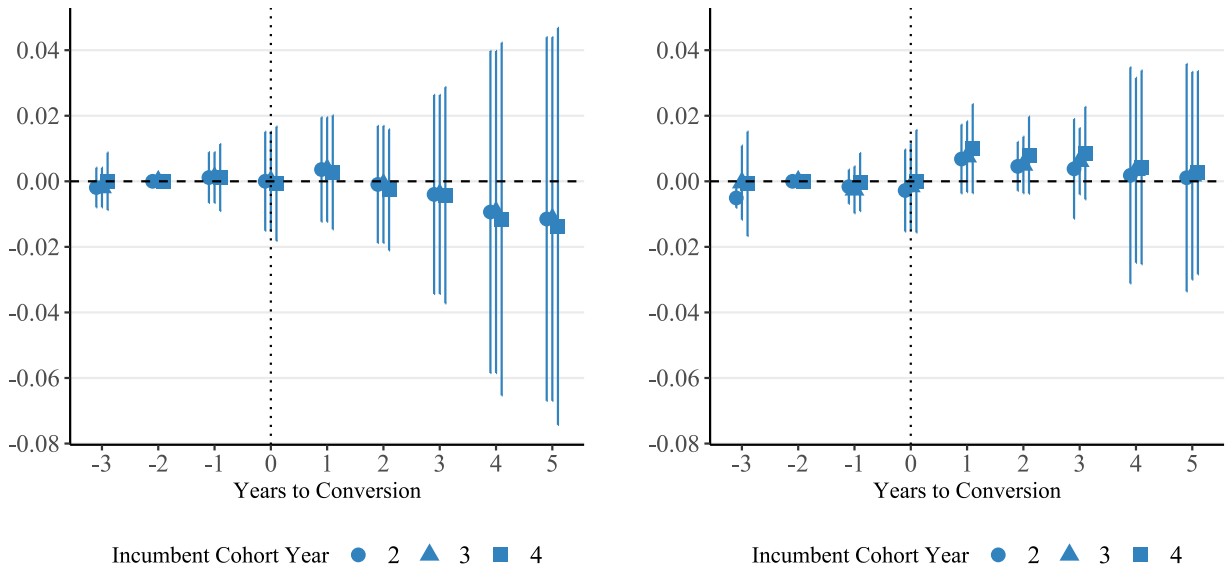


(a) Incumbents — stay for whole post period

(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for the presence of children in the household as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.15: Event studies: Impact of RAD on the share of disabled (non-elderly) households among incumbent households

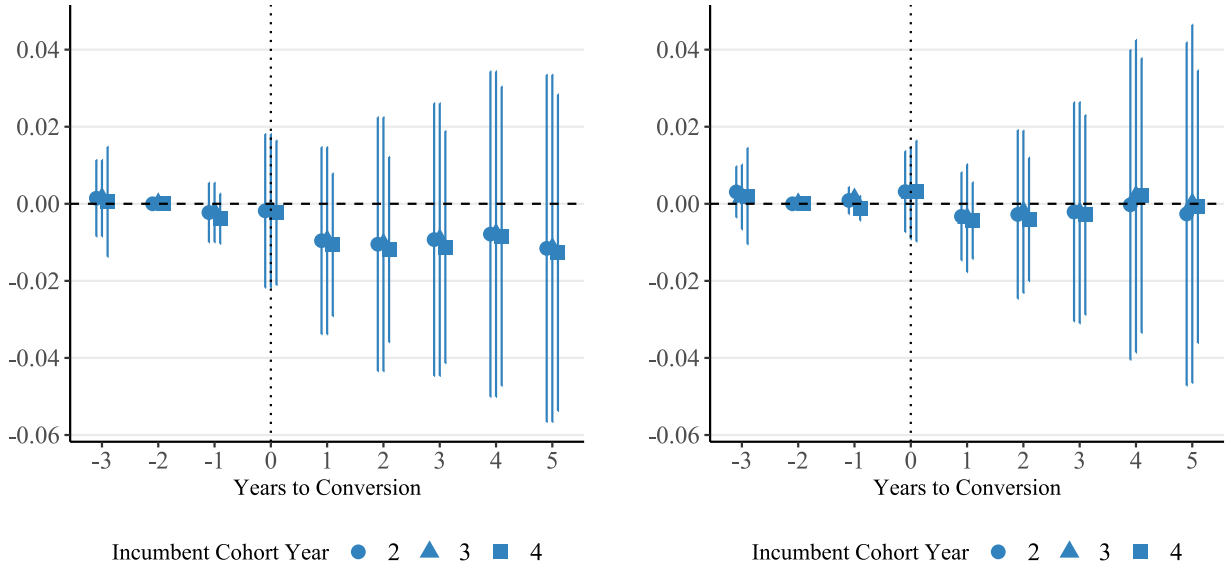


(a) Incumbents — stay for whole post period

(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for whether the household head, co-head, or spouse is disabled and non-elderly as defined by HUD as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.16: Event studies: Impact of RAD on the share of elderly households among incumbent households

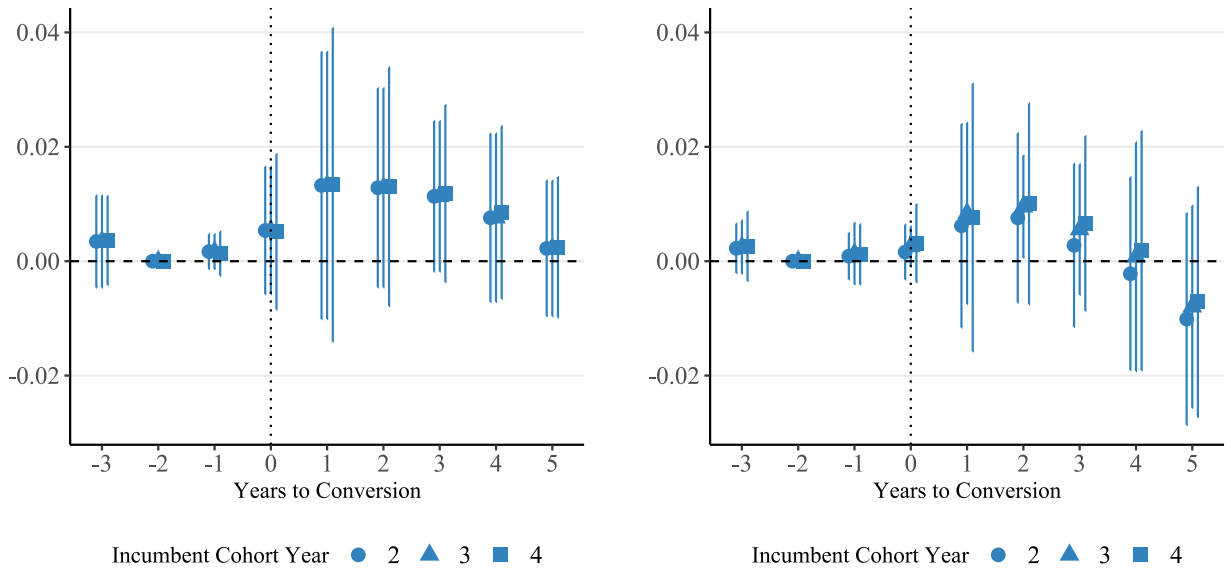


(a) Incumbents — stay for whole post period

(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for whether the household head, co-head, or spouse is elderly as defined by HUD (>=62) as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.17: Event studies: Impact of RAD on the share of Black households among incumbent households

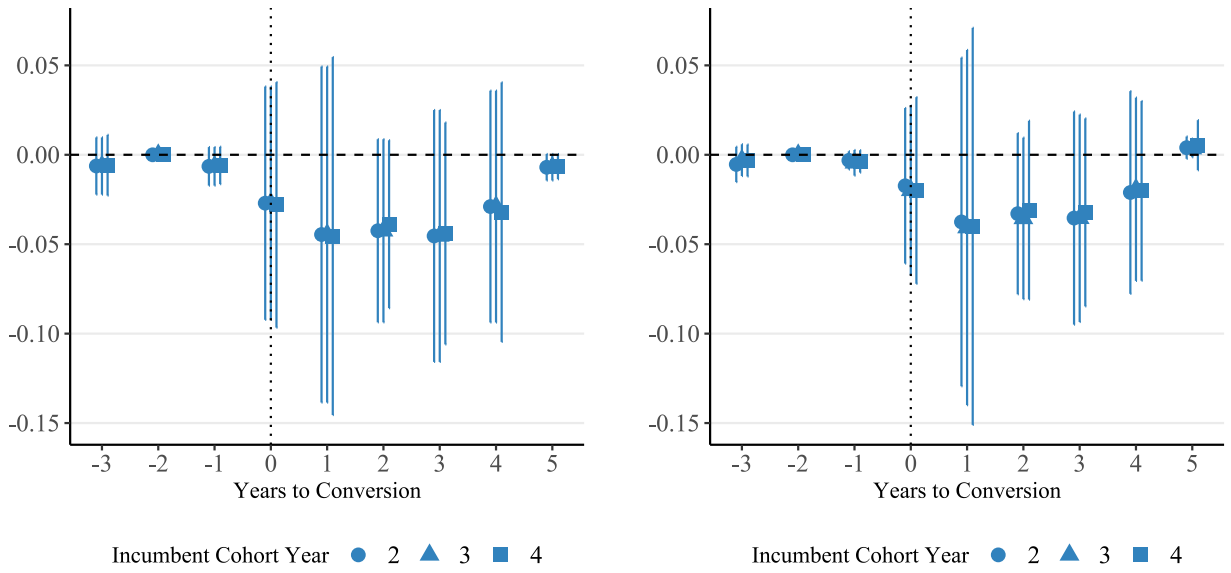


(a) Incumbents — stay for whole post period

(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for Black head of household as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.18: Event studies: Impact of RAD on the share of non-Hispanic white households among incumbent households

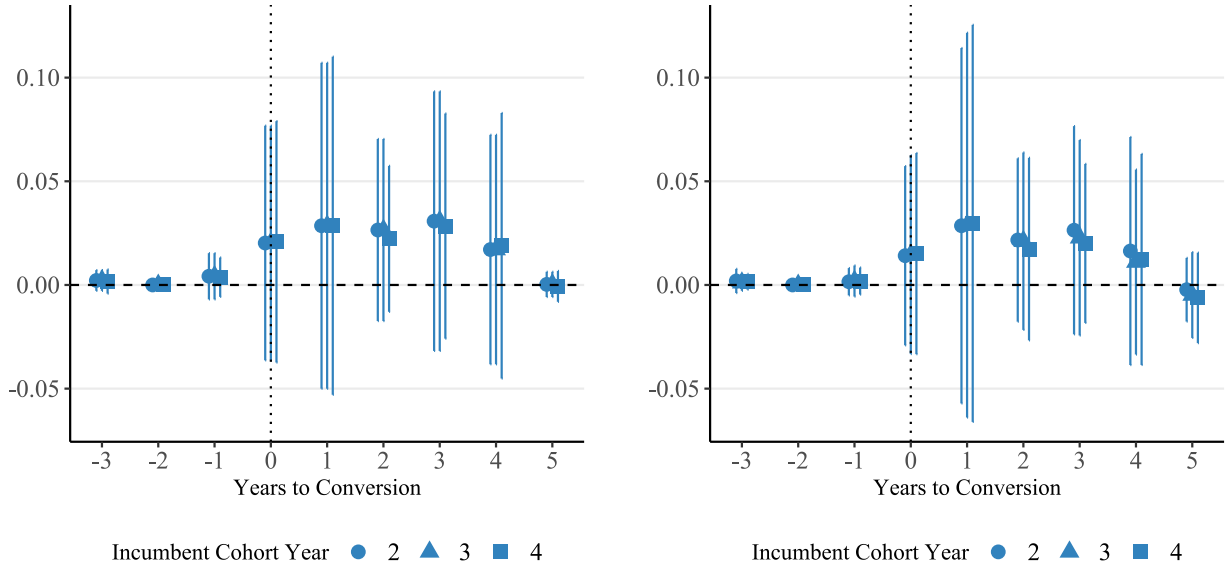


(a) Incumbents — stay for whole post period

(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for non-Hispanic white head of household as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.19: Event studies: Impact of RAD on the share of Hispanic households among incumbent households

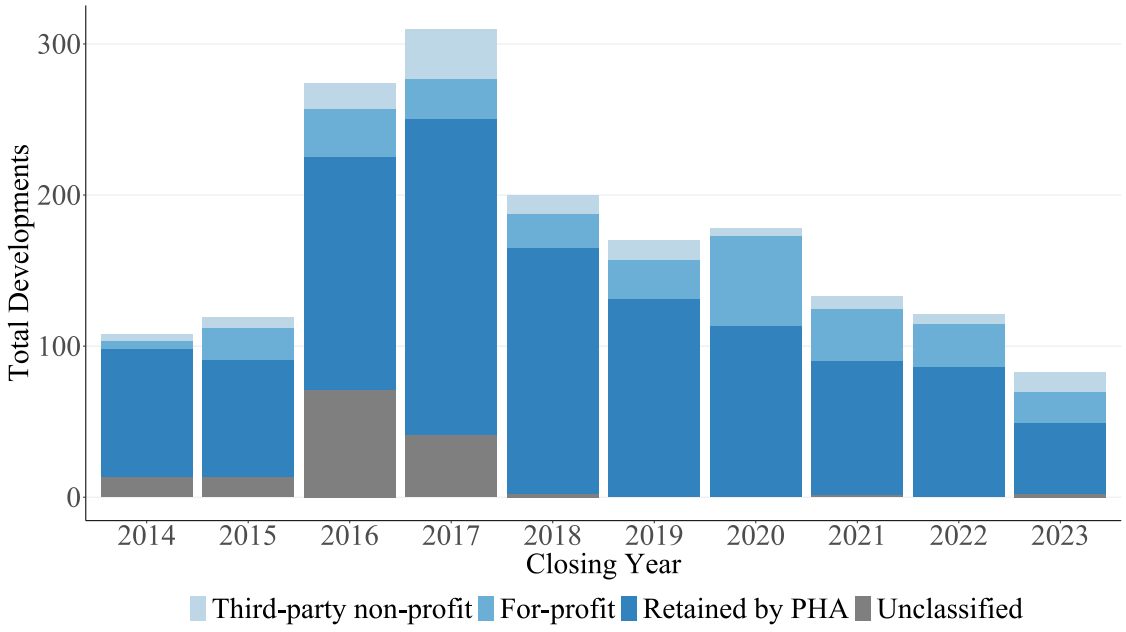


(a) Incumbents — stay for whole post period

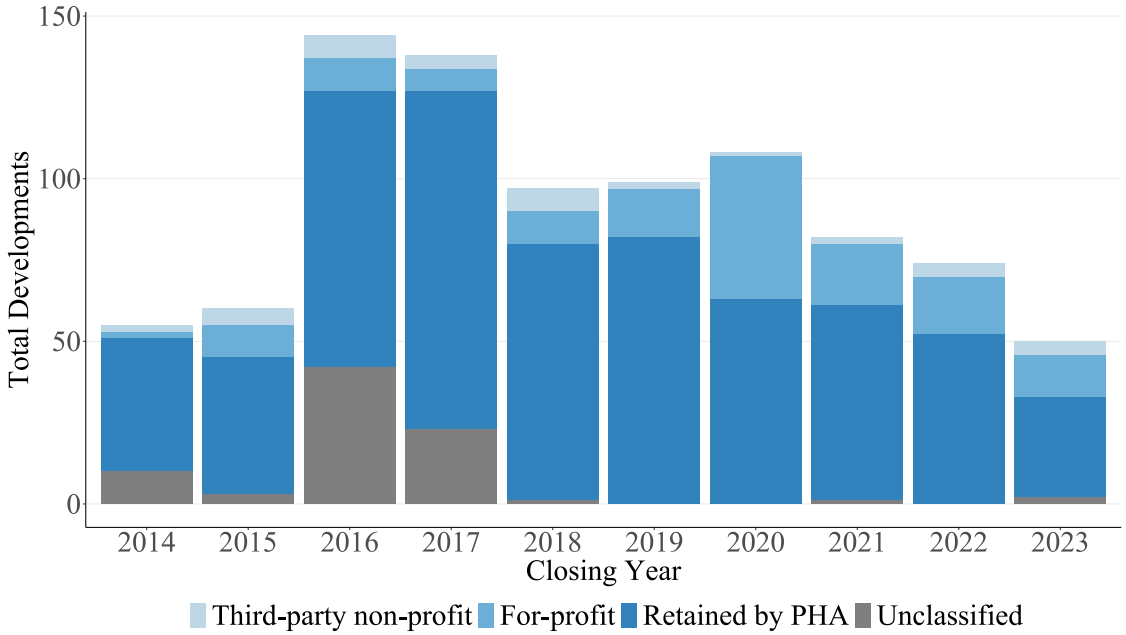
(b) Incumbents — remaining over time

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using an indicator variable for Hispanic head of household as an outcome for two samples of incumbent households: incumbents who do not move during the event study window (panel a) and incumbents who remain over time as some households move out (panel b). We define incumbent households as households living at the development 2, 3, or 4 years before RAD conversion. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Figure A.20: Number of RAD-converted developments by closing year and controlling entity type



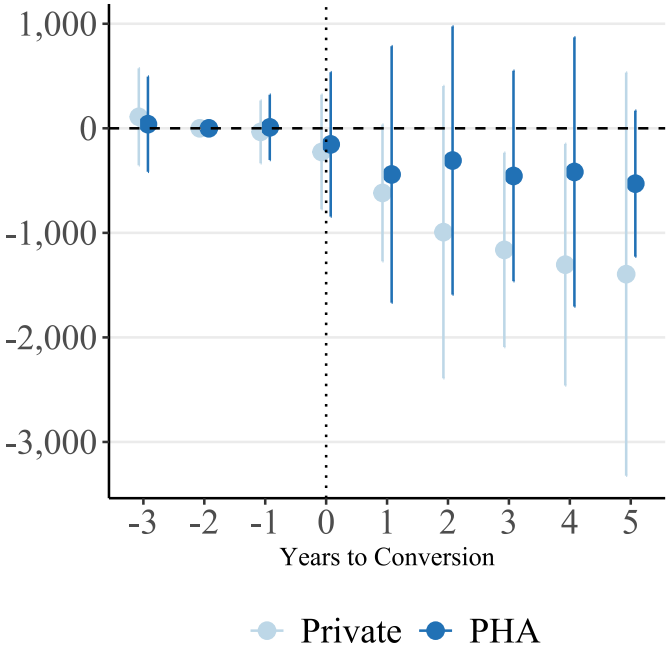
(a) Full sample (N = 1,696)



(b) Restricted sample (N = 907)

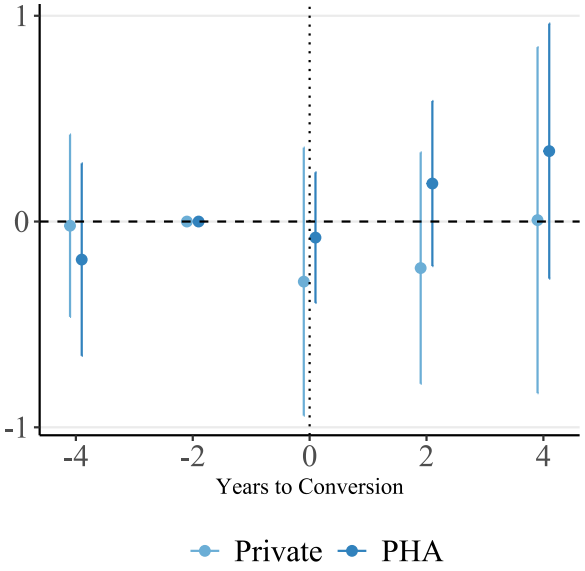
Note: The figure shows the number of RAD conversions by closing year and controlling entity type for the full sample of all RAD conversions (panel a) and the restricted sample of RAD conversions where all street addresses remain the same before and after conversion (panel b).

Figure A.21: Event studies: Impact of RAD on annual household income among incumbent households remaining over time by controlling entity

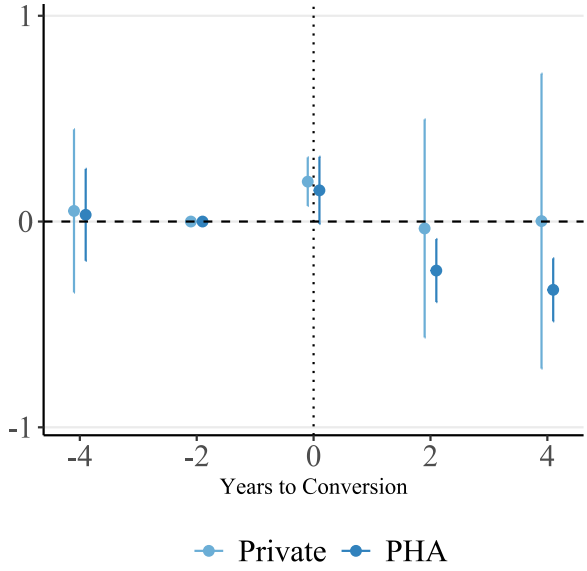


Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) using annual household income as an outcome for the sample of incumbent households who remain over time as some households move out. We define incumbent households as households living at the development 4 years before RAD conversion. The sample is restricted developments for which all street addresses remain the same before and after conversion. Light blue refers to conversions controlled by a private entity and dark blue refers to conversions controlled by the PHA. Event year 0 corresponds to the year of RAD conversion.

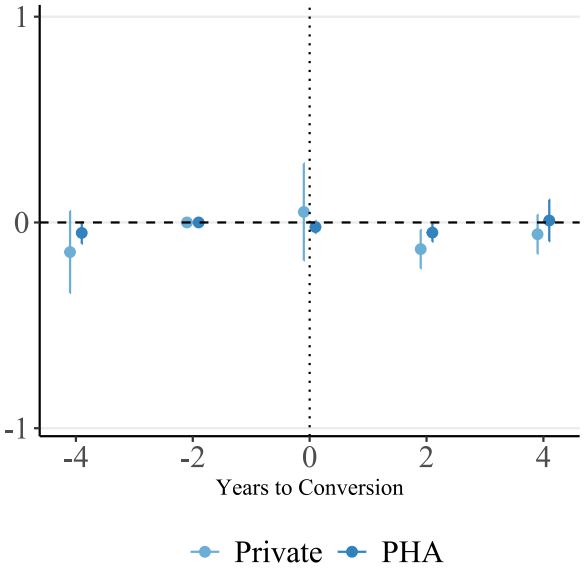
Figure A.22: Event studies: Impact of RAD on development-level move-out counts by move-out type and controlling entity type



(a) Moves out with Housing Choice Voucher



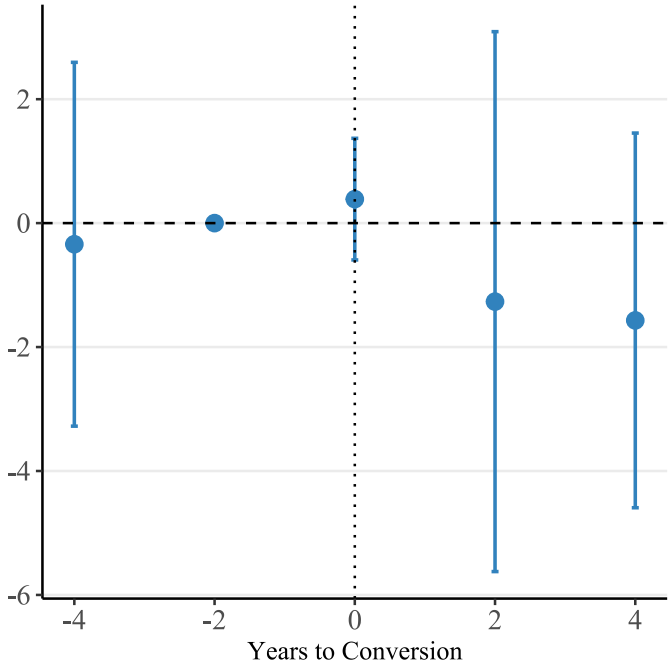
(b) Moves out with other HUD assistance



(c) Moves out with no HUD assistance

Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from a Poisson regression version of Equation (1) for development-level move-out counts for three types of move out: Housing Choice Voucher (panel a), other HUD assistance (panel b), and no HUD assistance (panel c). The sample is restricted developments for which all street addresses remain the same before and after conversion. Light blue refers to conversions controlled by a private entity and dark blue refers to conversions controlled by the PHA. Event year 0 corresponds to the year of RAD conversion. Event year 0 corresponds to the year of RAD conversion.

Figure A.23: Event study: The impact of RAD on the poverty rate of destination neighborhoods of households exiting with Housing Choice Vouchers



Note: The figure reports point estimates and 95% confidence intervals of β^{τ} from Equation (1) restricting the sample to households exiting with vouchers and using the destination Census tract's poverty rate as an outcome. The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

B Appendix Tables

Table B.1: Mean household characteristics by HUD program in 2013

	Section 9 - Public Housing (Sample PHAs)	Section 8 - HCV or PBV (Sample PHAs)	Section 8 - PBRA (Sample Counties)
Disabled household member	20.5	26.4	15.6
Children in household	39.7	47.6	28.9
Female household head	74.6	80.8	73.2
Black household head	56.0	55.1	44.8
Hispanic household head	22.9	15.3	15.7
Elderly household head with children	1.4	1.2	0.7
Number of household members	2.2	2.4	1.7
Total income	14,844.2	13,812.3	11,987.3
Total tenant payment	360.8	328.4	274.6

Note: The table reports mean household characteristics by program type in 2013, which is the baseline year before any RAD conversions are closed. The Section 9 public housing group contains all public housing residents living in sample PHAs, with the sample defined as PHAs that later have RAD conversions and thus are included in the analysis. The first Section 8 group includes Housing Choice Voucher (HCV) and project-based voucher (PBV) households in these same PHAs. The second Section 8 group includes Project-Based Rental Assistance (PBRA) households in sample counties, defined as counties that later have RAD conversions (since PBRA conversions do not have an associated PHA).

Table B.2: Mean characteristics of RAD-converted developments at baseline by closing year (restricted sample)

	Closed 2014-2017	Closed 2018-2023
Panel A: Development Characteristics		
Mean units per building in development	44.4	50.9
Located in central city	70.7	73.0
Vacancy rate	5.2	4.8
Inspection score	86.6	84.5
Panel B: Household Characteristics		
Disabled household member	22.0	23.9
Children in household	35.6	33.3
Female household head	72.0	69.9
Black household head	49.6	50.5
Hispanic household head	17.5	15.9
Elderly household head with children	0.9	0.9
Number of household members	2.0	1.9
Total income	12,870.0	12,674.9
Total tenant payment	312.3	297.0
Panel C: Tract Characteristics		
Poverty rate	27.8	31.6
Median household income	39,542.4	33,330.2
Percent Black	28.6	34.2
Percent Hispanic	21.2	18.2
Percent Non-Hispanic White	43.2	42.3
Percent less than high school education	21.4	22.7
Median home value (2013 dollars)	188,091.9	169,390.9
Median gross rent (2013 dollars)	822.3	734.3
Median year built	1,968.1	1,962.9
Percent owner occupied	42.6	39.2
Percent vacant	12.6	13.5

Note: The table reports mean 2013 characteristics of developments (panel A) and households living in those developments (panel B), and 2010 characteristics of the surrounding Census tracts (panel C) for the group of developments that closed (converted) between 2014-2017 (column 1) and 2018-2023 (column 2). The sample is restricted to RAD-converted developments for which all street addresses remain the same before and after conversion.

Table B.3: Mean characteristics of RAD-converted developments at baseline by closing year (full sample)

	Closed 2014-2017	Closed 2018-2023
Panel A: Development Characteristics		
Mean units per building in development	25.0	32.4
Located in central city	66.3	74.4
Vacancy rate	6.4	6.8
Inspection score	84.7	82.6
Panel B: Household Characteristics		
Disabled household member	20.3	22.0
Children in household	46.4	43.1
Female household head	77.2	75.8
Black household head	55.4	57.1
Hispanic household head	15.8	15.0
Elderly household head with children	1.2	1.1
Number of household members	2.3	2.2
Total income	13,335.6	12,954.5
Total tenant payment	317.1	297.0
Panel C: Tract Characteristics		
Poverty rate	29.7	34.2
Median household income	38,180.9	32,105.6
Percent Black	32.8	38.3
Percent Hispanic	19.3	18.4
Percent Non-Hispanic White	41.4	38.4
Percent less than high school education	22.2	23.7
Median home value (2013 dollars)	179,789.8	155,346.4
Median gross rent (2013 dollars)	799.9	721.1
Median year built	1,968.2	1,962.2
Percent owner occupied	43.6	40.0
Percent vacant	13.2	14.0

Note: The table reports mean 2013 characteristics of developments (panel A) and households living in those developments (panel B), and 2010 characteristics of the surrounding Census tracts (panel C) for the group of developments that closed (converted) between 2014-2017 (column 1) and 2018-2023 (column 2). The table uses the unrestricted sample of RAD conversions.

Table B.4: Mean county characteristics of converted developments by controlling entity type in 2013

Controlling Entity Type	Total Conversions	County Poverty Rate (%)	County Median Household Income ($)
PHA	1405	17.2	51,582.7
Private Entity	555	18.8	50,554.9
Unclassified	157	16.4	53,574.7

Note: This table reports the mean county characteristics of converted developments by controlling entity type, as well as the number of conversions of each controlling entity type.

Table B.5: Destination tract poverty rates relative to origin for incumbent voucher users

Total Voucher Moves	% Changed Tract	Tract Poverty Rate $\uparrow$ 5pp	Tract Poverty Rate $\downarrow$ 5pp	Tract Poverty Rate Within 5pp
7338	93.3	18.8	56.5	17.6

Note: The table reports the total number of voucher-assisted moves among incumbent residents following RAD conversion, along with characteristics of the destination Census tract relative to the Census tract of the origin development. The sample consists of incumbent households present at the development in the year prior to conversion.