

Permanent Affordability and Household Mobility: Technical Appendix

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Appendix A. Full text of the condensed sections

Each passage below is the full text of a section condensed in the report *Permanent Affordability and Household Mobility: What the Record Shows About Resident Ownership* (Maya Sahafi, Pathway to Equity, October 2026), so the condensed text can be checked against it and nothing is lost. The appendix keeps each topic under its own label, with its own cross-references; the report's sections 2 and 3 regroup the same topics by how well the record answers them, and sections 4 to 8 match the report's. Numbers such as 3.1 to 3.11 in this appendix (there is no 3.6) follow the report's earlier layout and are this appendix's own labels. The Oslo allocation passage and the passage on former owners who went on to own market-rate homes appear as their own passages only in the report, and the Santa Monica passage, here in section 8, sits in the report's section 3.2.

A. Summary

Permanently affordable resident ownership asks each household to give up part of its home's future appreciation so the next household can buy at an affordable price. This report asks whether that trade traps households or gives them a way up. It draws on United States (US) outcome studies and program records (published 2010 to 2024), public records from New York and Maryland, and the statutes and records of long-running cooperative housing systems in Zurich, Germany, Denmark, Sweden, Norway and Uruguay, plus a newer one in the Basque Country.

What this review adds. The US studies measure how households did inside individual programs. This review sets them beside more than a century of cooperative housing abroad to ask why some resale caps last and others give way, reads the studies against their own tables, and names three things none of them measures: whether households leave poverty, how owners fare against renters with rent stabilization and just-cause protection, and whether owners who stay chose to or could not leave.

Several studies compare program households with “matched” households: people outside the programs, chosen statistically to resemble them at the start in characteristics such as income, age, race, household size and location. Matching makes the groups alike on what was measured, not on what was not, so these comparisons show association, not cause.

The findings, briefly:

- **Why some price caps held and others gave way is not settled.** In Sweden, Norway and Denmark, caps on cooperative resale prices were lifted by government or loosened by members' own choices. Two explanations fit. The first is control: caps give way when the people they bind, or a government, can change them. The second is payoff: caps give way when members own a share they could sell for more once the cap is gone. The two cooperatives in Zurich and Germany whose century-long records were reviewed are a counterexample to control alone, not a test of it, and both also operate under outside rules; they fit the second, but how widely that holds was not measured. Their members can vote to change the rules, yet at these two, founded over a century ago, Altonaer Spar- und Bauverein (Hamburg, 1892) and Allgemeine Baugenossenschaft Zürich (ABZ; Zurich, 1916), departing members still get back only their share balance, with no claim on reserves. A handful of cases in different countries cannot settle the question.
- **Champlain shows a different design.** At Champlain Housing Trust in Vermont, members can vote to change the resale formula, but no change can reach an existing household's lease. Each household's cap is fixed when it buys.
- **Compared with ordinary renters, owners report more security, and the wealth figures are not directly comparable; the comparison that matters most is still missing.** A 2021 study matching 1,177 shared equity households with similar households in a national survey found owners gained about \$1,660 a year in housing wealth, against about \$16 a year in non-housing wealth for matched renters (a different measure) and about \$2,080 for matched unrestricted owners (not a statistically significant difference from the owners). A 2018 survey of land trust owners and renters drawn from the same local pool of households seeking to buy, in Minneapolis and Portland, found renters reported more financial hardship, less security and more moves, with effects the authors call large (56% to 145% of a standard deviation), and found land trust owners no worse off than market-rate owners on those measures. But nine in ten of those renters were recruited in Portland and were surveyed before Oregon adopted statewide rent stabilization and just-cause eviction protection (after the first year of a tenancy) in 2019. None of the studies reviewed measures exit from poverty, and none compares resident ownership with renting under those protections. Answering that requires a baseline recorded before households move in or buildings change hands.
- **Entering is associated with a higher-poverty neighborhood; the thin evidence on leaving points to a more favorable change than matched households saw.** A 2024 study of 4,656 households found that moving into a shared equity home was associated with higher-poverty neighborhoods compared with matched movers, while the 491 households tracked after leaving moved toward lower-poverty neighborhoods than matched movers did (about 10 points on a percentile-scale index). The leavers are a small group the authors call not fully representative, and the study measures neighborhoods, not household income.
- **The measured gains are real and modest.** At seven US programs studied by the Urban Institute, sellers' median returns beat the stock market and Treasury bonds at six, but the median appreciation kept ranged from about \$2,000 to \$17,000 at six sites and about \$42,500 at the seventh. Across 738 sales at 21 programs, 41% of them at one land trust, median wealth built was about \$14,000.
- **The cost to the first household is also real.** Where it could be computed, a buyer allowed to keep all appreciation would have earned 2.0 to 3.4 times the return, though under that alternative every later buyer would need a fresh public subsidy.
- **Stability is only partly answered: mostly good, but it varies by program.** In a self-reported survey of end-2010 loans, community land trust mortgages were in foreclosure at a fraction of the rate for all mortgage loans in a national industry survey (not a matched low-income group), and at three programs over 91% of buyers still owned a home five years after buying. Resold homes at all seven Urban Institute

programs stayed affordable to households well below area median income. But one of those seven, in King County, Washington, had seen 43 foreclosures by 2019, which its 2019 assessment puts at 5.8% of its portfolio, and a 2017 credit-bureau study found shared equity buyers fell behind on their mortgages at the same rate as matched buyers but more often had an account in collections (13.44% against 4.30%).

A. Section 2: Returns on a small stake

Buyers' small stakes grew quickly, beating stocks and bonds at six of seven programs, though the dollar amounts were small.

The Urban Institute's 2010 evaluation of seven programs is the most detailed multi-site study of seller returns and moves in this review (Temkin, Theodos and Price 2010). It covered three community land trusts (Champlain Housing Trust, Burlington, Vermont; Northern Communities Land Trust, Duluth, Minnesota; Thistle Community Housing, Boulder, Colorado), two limited-equity cooperatives (Dos Pinos, Davis, California; Wildwood Park Towne Houses, Atlanta, Georgia) and two deed-restriction programs (A Regional Coalition for Housing (ARCH), eastern King County, Washington; San Francisco's citywide inclusionary program).

Median internal rates of return (IRR) on the buyer's investment were 59.6% (King County, an estimate built on an assumed 5% down payment), 39.0% (Duluth), 30.8% (Burlington), 22.1% (Boulder), 14.1% (Atlanta), 11.3% (San Francisco) and 6.5% (Davis) (Table 8, p. 21). At six of seven sites those returns beat both a stock index fund and ten-year Treasury bonds held over the same periods. Davis was the exception, below both stocks (10.6%) and bonds (7.8%).

These percentages need care. The authors note that "a lower down payment results in a higher IRR," and down payments were small. The calculation excludes maintenance, realtor fees and transaction costs, and it also excludes benefits such as the mortgage interest deduction and rent savings (p. 20). The returns show that a small stake grew quickly. They do not show large wealth.

A. Section 2: Wealth compared with renters and other owners

Owners gained about 80% as much housing wealth a year as comparable unrestricted owners, a gap the authors call substantial but not statistically significant.

A 2021 study matched 1,177 shared equity households that bought and resold between 1997 and 2019 with similar households in the national Panel Study of Income Dynamics (matched on the household head's age and race or ethnicity, household income and size, purchase period, and state or metro median home value and income; Acolin, Ramiller, Walter, Thompson and Wang 2021, Table 3). The median shared equity owner gained \$1,657.7 a year in housing wealth, against \$2,079.5 for the median matched unrestricted owner, a difference the authors report as not statistically significant but, at about 20% of the matched unrestricted owners' gain, "substantial." Matched renters gained \$15.5 a year in wealth. The authors state that the matching method cannot show cause; the renter comparison sets owners' housing wealth against renters' non-housing wealth; the sample is sellers only; and the data come from Grounded Solutions Network's HomeKeeper database, with a Grounded Solutions Network researcher among the authors.

A. Section 2: Hardship and security compared with renters and market owners

Land trust owners reported much less hardship and insecurity than renters from the same pool of would-be buyers, and no significant difference from market-rate owners except more time and resources.

One study in this review surveys land trust owners alongside comparison groups (Schneider, Lennon and Saegert 2022). Between May and July 2018 the authors surveyed 216 owners at two large community land trusts (City of Lakes Community Land Trust, Minneapolis; Proud Ground, Portland, Oregon), 142 market-rate owners and 130 renters (Table 1). The comparison groups came from the same pipeline: clients of two homebuyer education agencies, whose classes are a prerequisite for a land trust home, and Proud Ground's wait list. Each organization's records from the time the household applied give a baseline. At application the three groups had similar incomes (means of about \$38,000 to \$42,000, in 2018 dollars), housing costs and share of area median income, though fewer land trust owners had been paying more than 30% of income for housing (21.6%, against about 32% in both other groups) (Table 3). Land trust owners and renters were also alike demographically. Market owners were younger, and less often Black (8.5% against 19.3%) or in households headed by women (43.3% against 69.3%).

The outcomes are self-reported: four on five-point scales, plus a count of moves. Adjusted for differences between the groups by augmented inverse probability weighting (AIPW), a method that models both who ends up in each tenure and the outcome, land trust owners reported, compared with renters (Table 6, all statistically significant):

- less financial hardship (0.60 points)
- more housing stability and security (1.07 points, about one standard deviation of renters' answers)
- fewer moves in the past five years (0.88 against 1.42 on average before adjustment, Table 4; still significant after it)
- a stronger sense of the house as a home (1.33 points)
- more time and resources for family, community activities and hobbies (0.81 points)

The authors put these effects at 56% to 145% of a standard deviation (p. 14). Against market-rate owners, after the same adjustment, there was no significant difference in financial hardship, stability, moves or sense of home (Table 5). Land trust owners reported more time and resources (0.31 points, about 40% of a standard deviation). The authors suggest this may reflect the land trusts' help with repairs and lenders, and note that land trust buyers may also give priority to nonfinancial goals (pp. 13, 15).

The study was funded by the National Science Foundation (grant 1559577), uses the authors' own survey linked to the organizations' records, and reports no conflict of interest. Its data do not come from HomeKeeper, so it is independent of the database behind most of the newer US evidence (section 7). Its limits are in section 3.10.

A. Section 2: Neighborhoods after leaving

Among the 491 households traced out of a program, leaving moved them about 10 points further up a low-poverty index than matched households moved; section 3.11 shows entry moved them down.

A 2024 study traced households' neighborhoods before, during and after shared equity ownership, using the HomeKeeper database (Ramiller, Acolin, Walter and Wang 2024). It compared 4,656 households entering shared equity homes at 58 programs, and 491 households observed both entering and leaving, with matched movers from the Panel Study of Income Dynamics (matched on household size, age, race, income, whether they moved after 2008, and the income and home values of their starting area), scoring neighborhoods on the Department of Housing and Urban Development's fair housing indices. When households left, the change in their neighborhood was about 10 points more favorable than matched households' on the department's low-poverty index (a percentile scale), whether the comparison was matched new owners or matched renters (Tables 6 and 7). The poverty result held when Champlain Housing Trust, the largest single source of records, was excluded. The authors conclude that shared equity tenure "may in fact broaden the potential residential trajectories" of households. Section 3.11 sets out what this measures and what it does not.

A. Section 2: Stability

Few land trust mortgages were in foreclosure in a national survey of end-2010 loans, though newer records show this varies by program.

One result in the record is security of tenure. At the end of 2010, 0.46% of community land trust mortgages reported in a national survey (13 of 2,816 loans, at 57 land trusts) were in foreclosure proceedings, against 4.63% for all mortgage loans in the Mortgage Bankers Association's National Delinquency Survey (Thaden 2011, Table 4). The comparison is to all loans at all incomes, not to a matched low-income group; the author notes the gap would likely be wider against low-income owners. Of 61 seriously delinquent land trust owners that year, 50 avoided foreclosure, and the paper associates this with land trusts intervening with lenders and owners, without isolating cause. Ten of those 50 left ownership all the same, selling to an income-eligible buyer or back to the land trust (printed p. 16). The survey is self-reported: 96 of 216 land trusts responded (44%), and 57 supplied the loan counts behind the 0.46% (printed pp. 3, 9).

Newer program records show stability is not uniform. A 2019 assessment of the King County program, one of the Urban Institute's seven sites, found "a total of 43 properties have experienced a foreclosure (5.8% of the portfolio)" since about 1993; 20 happened without notice to the program, "and in most cases where ARCH was notified, ARCH was unable to preserve affordability of these homes" (Jacobus and Maxwell 2019, p. 10). A 2017 Urban Institute study using credit-bureau data found shared equity buyers' serious mortgage delinquency the same as a matched comparison group of first-time buyers in the same metro areas who had not applied (matched on credit score, age, income and other credit-file measures; 2.2% and 2.2%), with no significant difference in foreclosure, but more likely to have an account in collections (13.44% against 4.30%) (Theodos et al. 2017, Table 6.4). In this report's reading, low foreclosure in land trusts may reflect intervention after default more than lower default.

The Urban study adds a second measure: "for the three sites where we have data, over 91 percent of buyers were still homeowners after five years, much higher than the national norm of 50 percent for first-time, low-income homeowners" (executive summary, printed p. v). The comparison figure is the authors'.

The longest single record in the Urban study points the same way. Champlain Housing Trust had 15 homes enter foreclosure between 1984 and 2009 (2.2%). Seven households lost their homes to completed foreclosure, and the trust bought back all seven, so no

home left the program (Urban Institute, Champlain case study, p. 20). The distinction matters: the program kept every unit, and seven families still lost their homes.

A. Section 2: Lower housing costs

In Zurich, nonprofit (cost-rent) housing, including the cooperatives where members give up appreciation entirely, rents for about 42% less a square meter than other rental housing, before adjusting for condition.

Where members give up appreciation entirely, lower monthly costs are associated with it instead. In Zurich's nonprofit cooperatives, members pay a monthly charge set at cost. In the City's 2024 survey, the median net rent in nonprofit (cost-rent) housing, a category that includes the cooperatives along with City, association and foundation housing let at cost, was 14.88 Swiss francs (CHF) per square meter a month, against CHF 25.53 in other rental housing (two- to four-room units), about 42% lower. The City's 2026 survey gives 42.2% (City of Zurich, rent statistics). The City notes that the comparison does not adjust for fit-out or condition. No source reviewed shows whether those savings become household wealth.

A. 3.1 The dollars are small

The wealth households keep is real but small, a few thousand to tens of thousands of dollars.

Median appreciation kept by sellers ranged from \$2,015 (Atlanta) to \$17,321 (San Francisco) at six of the seven Urban sites, and was \$42,524 at King County, in 2008 dollars (Table 7, p. 19). These figures are appreciation only; the return of the down payment and principal paid are counted separately.

A 2019 Lincoln Institute working paper, using 738 sales at 21 programs (41% of them at Champlain Housing Trust), found median wealth built of \$13,774, median principal repaid of \$8,500, and median net appreciation of \$3,323 (Wang, Cahen, Acolin and Walter 2019, Figures 26, 28 and 29; nominal dollars). These are separate medians and do not add to one total, but they suggest that in this dataset, paying down the mortgage mattered more than the home's rise in value.

A. 3.2 The household gives up much of the upside, by design

By design, the household gives up much of the upside, a half to over two-thirds of the return at four 2010 sites, and the most in rising markets.

The Urban study compared each program with a "traditional grant" in which the buyer keeps 100% of appreciation. The grant would have produced median returns of 61.1% against 30.8% at Burlington, 109.0% against 39.0% at Duluth, 75.5% against 22.1% at Boulder and 31.0% against 11.3% at San Francisco (Table 8). That is 2.0 to 3.4 times the restricted return. (The authors' text says "between 2 and 6 times"; the medians in their table give 2.0 to 3.4 times, and the text does not explain the upper figure.) The comparison is not appreciation alone: under the grant, the buyer would "pocket all of this subsidy and all of the capital gains" (p. 22), so every later buyer would need a fresh public subsidy. In this report's reading, that is the strongest single argument for the restriction.

The Wang paper shows the same gap over time. For homes sold during the 2001-2006 boom, median annual net appreciation was 1.9% for shared equity homes against 6.0% for the house price index in the same ZIP code. In the 2007-2012 bust the result reversed: 0.6% against -0.3% (Figure 27). For sales in the 2013-2018 recovery, median net appreciation was -\$898 (Figure 26). The benchmark is a ZIP-code index, not matched homes, and the shared equity figure is net of transaction costs and capital spending while the index is not, so the boom gap is likely somewhat smaller than shown and the bust reversal somewhat larger (the paper does not say it adjusted the benchmark; this is the report's reading).

Arguably, the strongest case against permanent affordability follows directly: households that enter with little wealth give up the most exactly in the places and periods where gains are largest.

A. 3.3 Affordability can leak even with a formula

A weak resale formula or a hot market can price the next buyer out anyway.

Resale formulas do not always keep homes affordable. At King County, 66% of resales required at least 10% more real income than the original sale (Urban, Table 5, p. 15; an estimate resting on an assumed 5% down payment and 6.0% mortgage, because the program did not supply loan data). San Francisco's formula tied resale prices to interest rates, and some owners resold below what they paid while city home prices rose "nearly 10 percent annually between 2000 and 2007" (p. 21). The authors conclude that outcomes "are not related to the type of shared equity model"; the resale formula and local housing market conditions matter more (p. 33).

Newer records update both cases. At King County, a 2019 assessment modeled 469 of 698 homes (67%) as having lost affordability, including 362 of the 416 homes (87%) first sold outside 2006-2009 (Jacobus and Maxwell 2019, p. 8). In San Francisco, a 2020 Turner Center study found 90% of below-market-rate sellers gained, an average \$61,000 nominal before selling costs, against \$612,000 for comparable market-rate condominiums; controlling for tenure and unit age, their appreciation was about 24% less (Reid and Wilcox 2020, p. 8). The 2010 picture of San Francisco owners reselling below what they paid is out of date.

A. 3.4 When the gap widens, caps change: one pattern, more than one explanation

In several countries, caps loosened as market prices pulled away; why some held and others did not is not settled.

Several long-running systems loosened their resale caps as the gap between the capped price and the open market widened. More than one explanation fits the same cases, and this review cannot decide between them.

- **Sweden.** A wartime law controlled cooperative resale prices from 1942. It was extended repeatedly and lapsed on 31 December 1968. The 1971 cooperative housing act left price limits to each association's bylaws, stating that no public control of transfer prices was proposed (Government bill Prop. 1971:12; Prop. 1975/76:180). Under current law a forced sale bypasses any bylaw price cap (Bostadsrättslag 1991:614, chapter 2, section 7). No owners voted; the state let its own law lapse.

- **Norway.** Municipal price caps on cooperative resales were enforced through the building societies' queues. OBOS, the Oslo cooperative building society founded in 1929, records the pressures: sellers moving up felt they received "disproportionately little" (translated) for their old unit beside a free owner-occupied market, a good family unit in Oslo often took twenty years of membership, and loopholes undermined the rules' legitimacy (OBOS history series). A new government lifted controls on share apartments and free-standing cooperatives on 1 September 1982; a June 1988 compromise removed most of the remaining regulation; 13,500 homes stayed regulated until 1995 (the Norwegian Federation of Cooperative Housing Associations, NBBL). The ministry summarizes, in translation: "in practice dismantled in the 1980s; the formal dismantling happened in the 1990s" (Ot.prp. nr. 30 (2002-2003), section 3.2). Between 1983 and 1987 house prices rose 86% in nominal terms, then fell about 30% from 1988 to 1992 (Norges Bank historical series).
- **Denmark: a mixed case.** The statutory price ceiling on cooperative (andel) resales still stands. It is calculated from the association's property value, and associations may value the property by one of four permitted methods, one of them an appraiser's valuation of the property as a rental property (Cooperative Housing Act section 5, consolidated act LBK 1281/2020, as amended by Law 330/2024). The share of cooperative units sold from associations using that appraisal rose from 30% in early 2015 to 76% in the third quarter of 2023 (Statistics Denmark, 30 November 2023; 78.4% in the revised live table). The same release gives the context: public valuations of cooperatives were frozen at their 2012 level, far below current values. The analyst gives two probable reasons for the shift: raising borrowing capacity and raising members' maximum sale prices. In 2024 the state added an indexed public valuation as a fourth method.

Two explanations. The first is control: where the people a cap binds, or a government, can change it, it drifts. The second is payoff, meaning what members stand to gain: where a member holds a share whose price the cap suppresses, as in Denmark, Sweden and Norway, removing the cap is a personal windfall, and pressure builds; where a member gets only share capital back at face value, as in Zurich and German cooperatives, there is little to gain. Those cooperatives are limited-equity resident ownership with the limit set at face value: the members own and govern the building collectively, while each member's share is repaid at face value with no appreciation. No member can gain from a higher resale price, which may explain their durability as well as, or better than, who holds the vote.

The two cooperatives whose century-long records were reviewed are a counterexample to control alone, not a test of it, and both also operate under outside rules; payoff is not tested directly.

- Member votes have held at the two cooperatives whose century-long records were reviewed. Zurich cooperatives' locks can be changed by members, by four-fifths of votes cast at ABZ and four-fifths of all members at Familienheim-Genossenschaft Zürich (FGZ), and German cooperatives can dissolve on a three-quarters vote; two reviewed here, Altonaer Spar- und Bauverein (1892) and ABZ (1916), have operated for over a century (section 4). German cooperatives also lost their federal nonprofit housing status when the Nonprofit Housing Act was repealed by the Tax Reform Act 1990, adopted in June 1988 (German Bundestag research service, WD 7-006/13); cooperatives renting only to members kept a corporate tax exemption (Corporation Tax Act section 5(1)(10)). Since then their locks have rested on their own statutes.
- Outside holders have not always held. Norway's and Sweden's caps were public rules, outside any member vote, and governments removed them.

- The longest single record in the Urban Institute study is a mixed lock, not an outside one. Champlain Housing Trust's board is one-third resident members, and its resale formula can be amended only by two-thirds of the board and then two-thirds of the members voting at a special meeting, a membership that includes the homeowners the formula binds (Champlain Housing Trust bylaws, amended January 2024, Article on the limited appreciation formula; board page). Any amendment "shall not affect or impair any agreement involving a limited appreciation formula which is in effect on the date of the Amendment," so each household's cap is fixed in its own lease and a vote can change terms only for future buyers. The trust itself allowed 15 condominiums, of about 450 homes, to leave its portfolio between 1984 and 2009 (a separate group from the 15 homes that entered foreclosure, section 2), "mainly due to issues of marketability" (Champlain case study, p. 2). The bylaws read here date from the trust's 2006 formation; the rules under its predecessor, which covers most of that record, were not read.

A. 3.5 Time-limited restrictions lose most of their stock

In Montgomery County, Maryland, about two-thirds of price-controlled homes had left control by 2002; in New York, 93 Mitchell-Lama developments have dissolved.

Some restrictions were built to end.

- **Montgomery County, Maryland.** The county's inclusionary program originally controlled sale prices for five years, then ten. Of 11,210 moderately priced units produced from 1976 to 2002, 3,909 were still under price control in 2002, about 35%. Of those, 1,545 were owned by the county housing authority and nonprofits; privately owned units still under control were 2,374, about 21% of all units produced (Montgomery County Council, 2004, p. 3-3; the table's columns, 2,374 and 1,545, sum to 3,919, not the 3,909 total it prints, and the percentages here use its printed figures). Rental controls ran five years, then ten from 1981, and were extended to 20 years in 1989; more than 2,000 rental units lost their then ten-year controls in the 1990s (pp. 7-1, 1-4). The county's review also found that post-control units "remain more affordable than similar units initially sold at market rates," and it recommended a 99-year control period combined with an equity trust fund, so owners could still build wealth (p. 1-3). Since 1 April 2005, for-sale control runs 30 years and renews on each sale within the period (Montgomery County Department of Housing and Community Affairs).
- **New York, Mitchell-Lama.** Exit was designed in: housing companies may voluntarily dissolve after twenty years by prepaying their mortgage. Ninety-three of the 269 state-supervised developments built, about 31,700 of over 105,000 apartments, have done so (New York State Homes and Community Renewal); city-supervised buyouts are additional, and the state's page does not say how many of the 93 were cooperatives and how many rental companies, whose owners, not residents, chose to leave. For cooperatives, the state then tightened the lock: in December 2021 it required 80% of dwelling units to approve a dissolution (Private Housing Finance Law section 35-a, Chapter 749 of 2021, amended by Chapter 167 of 2022), and in 2023 the city's Department of Housing Preservation and Development (HPD) implemented the change, raising the city threshold from two-thirds to 80% and barring a new vote for five years after a failed one (HPD Notice of Adoption, 2023).

A. 3.7 In New York’s HDFC cooperatives, problems surfaced where no one was monitoring

In New York’s HDFC cooperatives, most had no agency monitor, and the agency reports high-priced sales and illegal subletting among them; some land trusts learned of foreclosures too late.

New York’s housing development fund corporation (HDFC) cooperatives show what a missing monitor looks like. In 2016 HPD reported that of 1,048 HDFC cooperatives it had approved, 207 had regulatory agreements with the agency and “the other 841 Coops have no HPD oversight pursuant to an RA” (a regulatory agreement) (HPD presentation, 2016). The same presentation lists “high priced sales,” “illegal subletting” and “mismanagement” among HDFC cooperatives, and notes that in buildings without regulatory agreements the agency often learned of problems too late. HPD proposed a 40-year regulatory agreement in response.

Shareholders’ representatives objected to its terms. The HDFC Coalition’s steering and policy committees asked that the proposal “be rejected in its entirety,” arguing that lowering buyer income limits from 165% to 120% of area median income, with sale prices set at 110%, “would reduce shareholder equity by design” (HDFC Coalition letter to HPD, 6 February 2018). How that dispute ended could not be verified.

Among 13 community land trust foreclosures completed during 2010 (a different count from the 13 loans in foreclosure proceedings at year end), three land trusts reported that the lender or servicer had not notified them in time to intervene (Thaden 2011, p. 15).

A. 3.8 Lock-in is unresolved

No study can yet tell staying by choice from being unable to leave.

The two multi-program US studies read mobility differently. Wang et al. report an average annual move rate of 2.6% among shared equity owners from 1995 to 2017, against 6.9% for all US homeowners (not matched by income), and read it as stability (Figure 30). The Urban study found annual move rates of 5.5% to 8.6%, found that owners were not “moving at substantially lower rates than other first-time homebuyers,” and saw no evidence they were “stuck in place” (p. 30). The 2018 survey found land trust owners had moved less in the previous five years than market-rate owners, but the gap was no longer significant once the groups were balanced on age and other factors (Schneider et al. 2022, Table 5); it counts past moves, not whether owners could leave. A low move rate cannot distinguish choosing to stay from being unable to leave. The 2024 neighborhood study can follow households’ later neighborhoods only once they leave (section 3.11). No study reviewed tests this directly.

A. 3.9 Who produced the evidence

The evidence comes mostly from programs that keep good records, likely the better-run ones.

The Urban Institute study was submitted to NCB Capital Impact (NCB stands for National Cooperative Bank), which selected the programs jointly with the Urban Institute, requiring at least 40 resales and “adequate and accessible records”; it was funded by the Ford and Surdna Foundations (Temkin, Theodos and Price 2010, pp. ii and 4). The Wang paper’s lead author is research manager at Grounded Solutions Network,

the national shared equity network; its data come from Grounded Solutions Network's own HomeKeeper database; and it was produced with the Lincoln Institute of Land Policy and Freddie Mac (Wang et al. 2019, title page and acknowledgments). The 2024 neighborhood study also uses HomeKeeper data, with Grounded Solutions Network's research manager among its authors (Ramiller et al. 2024, author information). In this report's reading, none of these is disqualifying. Together they mean the evidence describes programs that keep good records, which are likely the better-run ones.

A. 3.10 The survey compares owners with renters who lacked state protection, at one point in time

Most renters in the 2018 survey were in Portland, surveyed before Oregon's 2019 law limited rent increases and no-cause evictions, which may flatter the comparison with owning.

The 2018 survey (section 2) is the only renter comparison in this review on security and hardship, and its limits matter as much as its effect sizes.

- **The Portland renters had no state rent cap or just-cause protection.** Of the 130 renters, 94 came from Proud Ground's wait list, and 90.8% were recruited in Portland (Tables 1 and 3). In open-ended answers, Portland renters described fear and experience of eviction from rising rents and sales to investors (p. 15). The survey ran before Oregon's Senate Bill 608 of 2019. The legislature's staff summary of that bill describes the prior state law: either party could end a month-to-month tenancy without cause on 30 days' notice "(although some localities, like Portland, have different notice requirements)," and there were no limits on rent increases after the first year. The bill ended no-cause terminations after the first year of occupancy and capped annual increases at 7% above inflation, effective on passage (Oregon Legislative Policy and Research Office, SB 608 staff measure summary, February 2019). The paper does not report whether any renters held vouchers or lived in subsidized units, and Portland's own city tenant rules in 2018, and Minnesota's rules for the Minneapolis renters, were not checked for this report. For the Portland renters, the gap is a gap against renters without the state rent cap and just-cause protection that this report's section 8 (the open research question) asks about.
- **The authors' answer to the wealth critique rests on that comparison.** They acknowledge that land trusts limit wealth for the households most in need of it, and answer that these households "are likely to have been renters if not for CLT [community land trust] homeownership" (p. 16). That holds against the renters they surveyed. It does not address a protected lease as the alternative.
- **It is a snapshot of current residents.** The survey is cross-sectional: households that left or lost a land trust home were not surveyed, and the outcomes are self-reported at one time, with no measure of wealth, income after purchase, foreclosure or poverty. The sample was not random (each organization emailed its own clients), and it covers two large, established land trusts. The authors list being cross-sectional, being observational, possibly omitting factors such as wealth and credit history, and the two-site limit themselves (p. 15). The supplementary appendices show the statistical checks passing within their reach: after weighting, every measured difference between the groups was under 0.1 of a standard deviation (the largest, 0.096, for age in the renter comparison), and the authors' test for hidden selection found none for any outcome (p-values from 0.17 to 0.98). Both checks use only the factors the survey measured, and a test that fails to find hidden bias does not show there is none (Appendices A and B). The authors also note that land trust rental homes were not

studied and “may be as effective as owned properties in providing housing stability and affordability” (p. 15), which bears directly on the renter comparison.

- **It is openly normative.** The paper frames land trusts as social housing and recommends that local governments prioritize federal housing funds for land trusts and other permanently affordable models (pp. 6, 17). That is a stated position, not a sponsorship tie, and the methods are reported in enough detail to check.

A. 3.11 Entry is associated with a higher-poverty neighborhood, and the evidence on leaving is thin

Entering a program is linked to a higher-poverty neighborhood, and the evidence on leaving is thin.

- **Moving in.** Entering a shared equity home was associated with a larger drop on the low-poverty index than matched households experienced: 7.1 points against new owners and 4.9 against renters (Ramiller et al. 2024, Tables 4 and 5), and with a higher chance of moving into the highest-poverty tenth of neighborhoods. The authors attribute this to where programs can afford land and where their funding requires them to work.
- **Leaving rests on a small group.** The after-exit results come from 491 households: of 2,210 exit records, only 696 had an address that could be placed in a census tract. Those households were smaller, less likely to include children or seniors, and lower-income than households entering, and the authors call them “not perfectly representative.” In the before-and-after comparison, exits also brought less access to jobs and transit (Figure 1b); against matched new owners, the one other significant opportunity-index exit effect was higher transportation costs (Table 6). A measure of children’s later earnings in the new neighborhood improved, but not significantly.
- **The discussion reaches further than the tables.** The authors write that leavers reached neighborhoods with “comparatively higher school quality and access to jobs.” In their matched models, neither changed significantly on exit (Tables 6 and 7). School quality did rise in their before-and-after comparison (Figure 1b), but job proximity fell.
- **It measures places, not households.** The study does not show that leavers’ incomes rose or that they left poverty. The neighborhood indices are fixed in time, so a neighborhood that changed during a household’s stay is scored as it was, a limit the authors state. Who wanted to leave and could not is not observed.

A. 4. The design spectrum

The long-running systems reviewed sort along one axis: how much of the home’s value the household keeps, against how durable the affordability is for the next household.

Model	What the household keeps	Affordability for the next household	Record
Zurich nonprofit cooperatives (e.g., ABZ, founded 1916, and FGZ)	Share capital back at face value; no share of the building’s value (ABZ statutes Art. 10)	Designed to last. City-supported providers must pay at least 1% of building insurance value a year into a renewal fund (City	Strong affordability; the benefit is lower rent, and whether it becomes wealth is not shown

Model	What the household keeps	Affordability for the next household	Record
German housing cooperatives (e.g., Altonaer Spar- und Bauverein, 1892)	Share balance within six months of leaving, no claim on reserves (Cooperatives Act section 73)	regulation AS 841.170, Art. 14); ABZ's fund was CHF 210.5 million at the end of 2025. ABZ's and FGZ's statutes send any surplus on dissolution to the City for nonprofit housing, and changing that needs a four-fifths vote Long-lived (Altonaer since 1892; durability across the sector not measured in the sources reviewed), but a three-quarters vote can dissolve a cooperative, and surplus is split among members unless the statutes lock it (sections 78, 91)	The asset lock is a choice in each cooperative's statutes, not a legal default
Mietshäuser Syndikat (Germany, founded 1992)	Residents' association holds the building; no individual equity	Each house company has two shareholders, the residents' association and the Syndikat; a sale needs both (Syndikat)	A sale veto held outside the residents' vote; no documented case of the veto being used was found
Uruguay mutual-aid cooperatives (Uruguayan Federation of Mutual Aid Housing Cooperatives, FUCVAM, founded 1970)	Labor or savings plus principal paid, refunded at appraised share value less debts, less 10% (justified exit) or 25% (unjustified) in the first ten years; paid half within 12 months, the rest within 48 (Law 18.407, Arts. 137-139)	Members may not rent or assign units (Art. 136). A 1983 decree forcing cooperatives with state mortgage bank loans into individual ownership was repealed in 1986 (Decree-Law 15.501; Law 15.853)	Sweat equity is the wealth channel; a payment conflict from 2019 produced a February 2025 restructuring agreement

Model	What the household keeps	Affordability for the next household	Record
Basque right-of-use cooperatives (e.g., Bizikide, San Sebastián)	Capital back when replaced by a new member (Basque Cooperatives Law 11/2019, Arts. 118.4, 119.6)	Built on a 75-year surface right on public land (Basque Government, April 2026)	Too new to judge; handover was planned for September 2026 (not confirmed at publication)
US community land trusts, formula resale	A share of appreciation (about 25%, scaled by the buyer's investment share, at Champlain and Thistle; 30% at Northern Communities) plus principal (Urban 2010, resale formula discussion)	Preserved in most cases; leaks with weak formulas	Modest gains; low foreclosure in a national survey, varying by program; graduation on small samples
Danish andel cooperatives	Capped, but members pick the valuation method	Drifted toward appraised value as members chose that method, after the public valuation was frozen at 2012 levels	A statutory cap bent by valuation choice
Swedish and Norwegian cooperatives today	No statutory cap; bylaw price provisions remain legally possible (Sweden: Bostadsrättslag chapter 2, section 7; Norway: burettslagslova sections 4-4, 7-12, with the affected owners' consent)	Current market pricing not checked against a statistics source	Public price control removed by the state

A. 5. What the evidence suggests to test

These are design questions the record raises. They are propositions to test, not findings.

1. **An indexed share of appreciation large enough not to feel confiscatory.** Norway's cap lost legitimacy partly because sellers felt they received "disproportionately little." Formulas can be stress-tested against a boom (King County) and a market where restricted homes gained far less in dollars than market-rate ones (\$61,000 against \$612,000; about 24% less in appreciation after controls) (San Francisco) before adoption.
2. **Amortizing, fixed-rate financing as a main wealth engine.** In the Wang data, median principal repaid exceeded median net appreciation. Denmark's 2022 ministry

committee report points the other way for interest-rate swaps and interest-only loans taken on high valuations.

3. **A planned route to unrestricted ownership.** Where surveyed, most sellers who answered went on to market-rate ownership. Whether counseling and a structured exit raise that share is testable.
4. **Which lock designs last, and why.** The cases in section 3.4 fit at least two explanations: who controls the cap, and whether members hold a tradable share the cap suppresses. A useful test would compare designs side by side: member-voted locks with only face-value capital at stake (Zurich, Germany), land trusts whose formula members may amend but only for future buyers (Champlain), outside vetoes (the Mietshäuser Syndikat), and public rules (Norway, Sweden), including whether each has a legitimate way to revise its formula. Champlain's rule that an amendment cannot reach an existing lease, so each household's cap is fixed when it buys, is a different design and may be the feature most worth testing.
5. **Allocation by published need-based rules rather than seniority.**
6. **Permanent, funded monitoring.** In the HDFC and land trust records, problems surfaced where no one was monitoring, or monitors learned too late. What monitoring costs per home per year is not documented in the sources reviewed.
7. **Owner support as a measured benefit.** The one advantage land trust owners reported over market-rate owners, more time and resources for life outside the home, is one the survey's authors tentatively attribute to land trusts' help with repairs and lenders and, more broadly, to permanent affordability, resident control and staff support, while noting that land trust buyers may simply give priority to nonfinancial goals (Schneider et al. 2022, pp. 13, 15). Whether stewardship support produces the effect is testable.

Other tools remain open: a time-limited restriction, a subsidy that recaptures only its own amount, or secure rental with strong tenant protections. Montgomery County's record shows what a time-limited restriction costs the next household. Whether a protected lease serves a household better than resident ownership is the comparison no study reviewed has made, and it is the one Pathway to Equity wants measured (section 8).

A. 6. Who else is in the field

This report draws on the work of many organizations, and Pathway to Equity is one participant among them. In the United States: Grounded Solutions Network, the national network for community land trusts, inclusionary housing and shared equity homeownership, which maintains the HomeKeeper data system; the Urban Institute and the Lincoln Institute of Land Policy, which produced the outcome studies, and researchers at the City University of New York Graduate Center and Georgia State University, who ran the owner and renter survey; ROC USA, launched in 2008 to make resident ownership of manufactured home communities viable nationwide; and public agencies in New York and Montgomery County whose records are cited here. Abroad: Wohnbaugenossenschaften Zürich and the Zurich cooperatives, the Mietshäuser Syndikat, NBBL and OBOS in Norway, and FUCVAM in Uruguay. The list is not exhaustive; it names only organizations whose work this report draws on.

A. 7. Methods and limits

What was read. US outcome studies (Urban Institute 2010, cross-site report and four site case studies; Thaden 2011 and 2010; Urban Institute 2017; Wang et al. 2019; Acolin et al. 2021; Schneider, Lennon and Saegert 2022, read in full on 6 October 2026 from the publisher's copy the lead author sent; Ramiller et al. 2024, read in full the same day from

the authors' manuscript in PubMed Central) and program records through 2024 (King County 2019; San Francisco 2020); New York statute, agency records and advocacy correspondence; Montgomery County's 2004 program review; and statutes, ministry documents, statistics releases and organizations' own records for Zurich, Germany, Denmark, Sweden, Norway, Uruguay and the Basque Country. Every figure was checked at its primary source on 29 September 2026, the sources listed in the report as 4e to 4i on 6 October 2026, and 4j and 29 on 21 October 2026.

How the research was done. Maya Sahafi framed the question and directed the work. Source-finding, reading and drafting were carried out with an artificial intelligence (AI) research assistant. Every figure, date and quotation was then checked against its primary source, with the table or page recorded, in a claim-by-claim ledger available on request. Separate AI review passes checked the draft against the ledger and against the sources. The judgments in the report, including what to include and how to frame it, are the author's.

Pathway to Equity's stake. Pathway to Equity has a stake in the answer to this report's question. Its mission is pathways out of poverty through permanently affordable resident ownership, and none of the studies in this review measures exit from poverty. The sources were drawn from its own earlier reading, as described below. Readers should weigh the report with that in mind, as report section 2.3 asks them to weigh the studies it reviews.

How the sources were chosen. This is a targeted review, not a systematic one. The US studies are the multi-program outcome studies of shared equity homeownership that Pathway to Equity's prior research had identified; the international systems were chosen because they have run for decades under a permanent or long-term cap. No database search was run, and studies outside this set were not screened. California ownership programs beyond the San Francisco and Davis sites, and US tenant-to-cooperative conversion programs other than New York's, are outside this review's scope. Section 8 cites one Santa Monica rental study as context for the open question, not as reviewed evidence.

Age and independence of the US evidence. The core US outcome studies date from 2010 to 2024, and their data run from 1984 to 2019. A targeted search on 29 September 2026 found the newer studies and program records cited above; it found no post-2019 measure of graduation to unrestricted ownership and none of exit from poverty. Most of the newer multi-program evidence draws on one database, Grounded Solutions Network's HomeKeeper, and shares a Grounded Solutions Network researcher as author, so those studies do not confirm one another independently. The 2022 survey by Schneider, Lennon and Saegert draws on the authors' own survey linked to the organizations' records, not HomeKeeper; its fieldwork dates from 2018.

Access limits. The Norwegian ministry bill was read from the Internet Archive's copy of the ministry page, because the live site blocks automated reading. The Mortgage Bankers Association survey behind Thaden's comparison rate is subscription-only, so that figure has no second source. For most US study figures no independent second source exists; the site case studies share authors and data with the cross-site report. Figures from scanned documents were read from page images, and the Uruguayan ministry resolution by optical character recognition; the report cites only its date and terms. Quotations from Norwegian, Danish and German sources are translations and marked as such.

What the studies measure. Rates of return, appreciation kept, principal paid, foreclosure and delinquency, move rates, whether movers bought market-rate homes, neighborhood poverty before, during and after shared equity ownership, and, in the 2022 survey, self-

reported financial hardship, security and sense of home.

What they do not measure. None of the studies reviewed measures exit from poverty. The Urban study records buyer income only at purchase, with no follow-up of income or poverty status; the Wang paper measures affordability, wealth built, moves and neighborhood scores; the Thaden papers measure delinquency and foreclosure; the 2022 survey records income only at application and measures perceptions at one point in time. This is a statement about the studies in this review, not a claim that no such study exists anywhere.

Sponsorship and selection. The two multi-program US studies were produced with organizations that support shared equity homeownership (section 3.9), and both draw on programs with good records. Survivorship is a further limit: the land trusts and cooperatives whose records exist are, by and large, the ones that lasted.

Jurisdictions. The international systems differ from the US in law, finance and scale. They are included for what their durability records show about who controls a cap, not as models to transplant.

Not verified. How the HDFC regulatory agreement dispute ended; whether the Mietshäuser Syndikat's veto has ever blocked a sale; whether Bizikide's own bylaws follow the statutory repayment rule; whether Uruguay's payment conflict fully ended after the 2025 agreement.

A. 8. The open research question

Against ordinary renters, a 2021 matched study found shared equity owners gained housing wealth while matched renters gained little non-housing wealth (not directly comparable measures), and a 2018 survey found land trust owners reported much less hardship and insecurity than renters drawn from the same local pool of households seeking to buy (section 2), with the limits their authors state. The evidence leaves the question that matters most unanswered: **do households that move into resident ownership end up better off than comparable households that remain renters with rent stabilization and just-cause eviction protection, and does either route lead out of poverty?**

Answering it would mean measuring household outcomes (income, savings, debt, housing cost, stability, later homeownership) against a comparison group, starting from a baseline recorded before households move in or buildings change hands. Without that baseline, a later study can describe residents but cannot say what resident ownership changed. The 2018 survey shows part of the method: comparison groups drawn from the same application pipeline, with each household's records from the time it applied. It surveyed households once, after they were housed; following the same households over time, with a protected-renter comparison group, is the step that remains. A systematic review of community-led housing and health in countries in the Organisation for Economic Co-operation and Development (OECD), published 2009 to 2022, reached a parallel conclusion: of 45 studies and reports, most on cohousing, only three followed residents over time, most relied on self-reported data, and the authors call for "larger scale longitudinal studies" with objective measures that also track residential moves (McClatchey, McClymont, Griffin and Carmichael 2025, pp. 47-49).

The nearest evidence on the protected-renter side is qualitative. In 2021 Lauren Everett interviewed 30 tenants in Santa Monica's rent-controlled housing, which carries just-cause eviction protection, all with household incomes under \$100,000 and at least three

years in their homes (Everett 2022, pp. 64-68, 91). Twenty-six said they felt at home (p. 234). Participants described predictable rent letting them save, retire, change careers and, for several, save to buy property outside the Los Angeles area (pp. 219-224); a third tied spending time and money on upkeep or upgrades to the stability rent control gave them (p. 225). Just over a third had faced a direct threat to their tenancy or knew of one against a neighbor, and a similar share feared displacement, which they attributed to landlords, the rental market and policy loopholes (pp. 235-236). The study is not comparative, by the author's own statement; its participants were self-selected and about three-quarters women; and the author, a tenant organizer, states her position openly (pp. 56-61, 260-262). It also shows a limit for the next household. Under California's vacancy decontrol, rents reset to market on each new tenancy, and the share of Santa Monica's controlled units affordable to low-income households fell from 84% before 1999 to 4.2% in 2020 (Santa Monica Rent Control Board, *2020 Annual Report*, p. 21, Figure 20; also reported in Everett 2022, p. 90). Under vacancy decontrol, the protection follows the sitting household, while a resale restriction follows the unit. In this report's reading, the fall is consistent with the state's vacancy decontrol, though the sources do not separate that from other causes, and the limit on who is protected comes from state law, not from rent control as such: where vacancy decontrol does not apply, as in Santa Monica before 1999, rent control also follows the unit.