

Housing policy needs to take vacancy chains seriously

Housing is a durable good: when you're done using a home, someone else can re-use it. This simple fact has wide-ranging implications for housing policy, because when we build new housing, we free up old housing. This occurs through a process called *vacancy chains*. The idea is intuitive: when person A moves into a new building, they vacate their previous unit; person B moves into that unit, freeing up *their* old home for person C, and so on. (Crabs do the same thing when [trading shells](#).) Hence, an expensive new market-rate building can trigger a chain of move-ins and move-outs that ultimately frees up cheap, old housing.

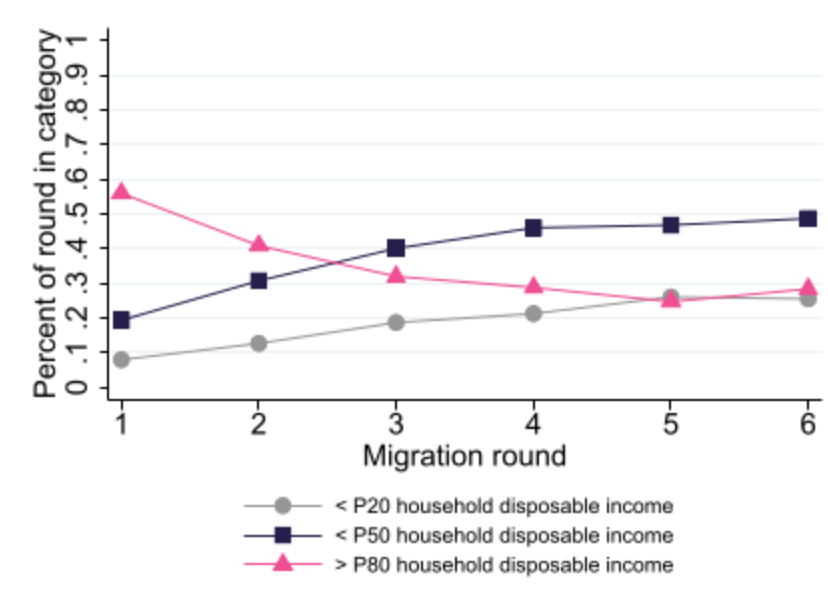
New market-rate housing is often derided for not being affordable to the average person, but this misses the indirect benefits that arise through vacancy chains. To see those benefits, we have to look beyond the rich residents moving into the new building, to the homes those residents used to live in and the people moving in there (and continue iterating to trace out the complete chain). In a very real sense, building fancy new apartments can create affordable housing elsewhere in the city. Hence, blocking new market-rate housing prevents vacancy chains from occurring, and effectively removes naturally-occurring affordable housing from the market.

Vacancy chains occur when locals upgrade their housing situation, moving into a new building and vacating their previous unit. Think of young professionals getting a higher-paid job. When the previous unit is not vacated, as when an adult child moves out of their parents' home, then the chain ends. And when someone moves into a new building from out-of-town, they still create a vacancy, but in their original city. (This shows how housing policy is fundamentally regional, but that's another story.) And we now have good empirical evidence showing how vacancy chains work in practice.

The vacancy chain literature

Bratu et al. (2023) ([published](#), [working paper](#)) studies vacancy chains in Finland using data on all residents over 2009-2019. They look at chains created by new multi-family buildings built near the Helsinki central business district. Because they can link individuals to housing units, they can trace out the exact vacancy chain.

In the first round of the chain, 20% of movers have incomes below the median. But by the fourth round, 50% of movers have below-median income (see Figure 3a, reproduced below). This shows that new market-rate buildings that are unaffordable for the poor do indirectly free up other housing that is affordable. The fraction of chains with a link in a below-median-income neighborhood is 66%; this means that building 100 new market-rate units will create 66 units in below-median-income neighborhoods.



(a) Income

They also study the vacancy chains created by rent-controlled social housing. As you'd expect, these chains reach below-median-income neighborhoods more quickly, since the first movers are more likely to be low-income.

Mast (2023) ([published](#), [working paper](#)) was the first to study vacancy chains, using US data. Because his data is at the building level, tracing the chain is a bit fuzzier. But the results are similar: after six rounds, 40% of new residents are from below-median-income neighborhoods. Mast runs a simulation to compare to the no-construction scenario, where the new building was not built (in contrast, Bratu et al. compare to *before* the new building was built). He finds that building 100 units of new market-rate housing frees up 45-70 units in below-median-income neighborhoods. (Since Mast has neighborhood-level income data, it could be the case that richer people are moving out of poorer neighborhoods; with household-level data, Bratu et al. are able to compare both approaches, showing that Mast's results are slightly overstated.)

Kindström and Liang (2023) ([working paper](#)) repeats the vacancy chain analysis for Sweden, using data on all residents over 1990-2017, and tells the same story: while people moving into the new building are richer, the poorest quartile becomes the largest group of in-movers by the first round of vacancies (see Figure 5). Even when looking at new buildings that are initially occupied by rich people, the poorest quartile makes up 40% of movers into these buildings by the later rounds of the chain (Figure 7).

Taking vacancy chains seriously

So if we accept that new market-rate housing can create old, cheap housing through vacancy chains, how would our approach to housing policy be different?

First, housing forecasts need to account for affordable homes created indirectly by vacancy chains. For example, this Urban Institute [report](#) forecasts that the Seattle metro area will need 640,000 new homes by 2044, with only 500,000 being projected under the status quo. Since half of those new homes need to be affordable to below-median-income households, the shortfall in affordable homes is even larger.

They argue that transit-oriented upzoning will need to be part of the solution, and estimate that it could create 50,000 new units over 10 years. But they are skeptical that this housing will be affordable to families with low incomes. If we take the vacancy chain estimates seriously (one market-rate unit creates ~0.6 affordable units), then this upzoning would free up an additional 30,000 affordable homes. This would not completely close the gap, but it would put a substantial dent in the problem. (This also suggests the need for more research: how do vacancy chains work in large-scale upzonings? Would chains be shorter, because there is more in-migration and household formation? If so, the effects could be smaller.)

Second, we should explicitly consider affordable homes created through vacancy chains when evaluating the costs and benefits of a proposed building. For example, a [recent project](#) in Vancouver had 524 market-rate rental homes (with a daycare and no displacement). Taking vacancy chains seriously means counting the ~300 affordable units freed up as one of the benefits of the development. We could even list those 300 homes as one of the properties of the development:

- 524 secured market rental units; **and 300 affordable units created off-site by vacancy chains**
- Commercial space at grade and on level 2;
- A 37-space child care facility;
- A floor space ratio (FSR) of 8.46;
- A floor area of 41,271 sq. m (444,241 sq. ft.);
- Building heights of 100.1 m (328 ft.) (east tower) and 99.1 m (325 ft.) (west tower) [with additional height for a rooftop amenity space]; and
- 372 vehicle parking spaces and 1,151 bicycle parking spaces.

When we ignore vacancy chains, we undercount the benefits of new housing, leading us to build too little.

Third, vacancy chains should influence how we think about inclusionary zoning and density bonuses. A common scenario is where a developer is allowed to build a market-rate duplex, or a fourplex with one affordable unit. But if a duplex creates one affordable unit through vacancy chains, then shouldn't developers automatically be allowed to build fourplexes? In other words, we should reward developers for providing affordable housing both when it is on-site and when it is off-site. (And if a fourplex creates two affordable units, shouldn't developers be allowed to build sixplexes? If more housing is better, why should we limit housing?)

Vacancy chains capture just one angle of the benefits of housing supply. New housing creates affordable homes when locals vacate their previous unit. But when newcomers move into the city, new housing *protects* affordable homes, by absorbing demand and preventing those

newcomers from competing for the existing housing stock. Solving the housing shortage will require properly accounting for both the creative and protective effects of new housing.