

RESEARCH REPORT

Housing supply constraints and the transmission of U.S. monetary policy

Mortgage rates affect transactions, construction, and rents through distinct channels. Evidence on lock-in and the building pipeline explains why weaker sales can coexist with tight markets and delayed supply responses.

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Abstract

Housing transmits monetary policy through assets, contracts, and physical production that adjust at different speeds. A mortgage-rate increase immediately changes the payments quoted to a new buyer. It need not change payments on an existing fixed-rate loan. It can discourage an owner from selling, reduce a builder's expected revenue, raise the cost of carrying land, and postpone an apartment development whose rents would otherwise add to supply several years later. A single house-price index cannot summarize those effects.

The American evidence examined here combines a dated construction release, research on mortgage lock-in, and the statistical treatment of shelter services. It supports two central distinctions. Fewer transactions do not necessarily mean that fewer homes exist, and a lower financing cost does not necessarily produce a proportional increase in new housing. The result depends on the local availability of developable sites, infrastructure, skilled labor, finance, and permissions, as well as on the demand stimulated by cheaper borrowing.

Transparent project and stock-flow accounts show how construction delays amplify financing costs and why the release of existing listings has a different effect from adding dwellings. Research on the response of buyers provides an important competing explanation to accounts focused exclusively on reluctant sellers. The policy implication is to evaluate monetary transmission and supply measures jointly, while retaining separate objectives, implementation horizons, and evidence standards.

Four prices and two markets

A home has an asset price, a stream of housing services, a financing cost, and recurring ownership expenses. These are related but distinct. The asset price capitalizes expected future services and resale value. Rent is the payment for current services. The mortgage payment combines interest with principal repayment. Insurance, maintenance, taxes, and utilities add costs whose movements need not follow mortgage rates. An affordability assessment changes materially according to which of these prices it includes.

There are also two interconnected markets: the market for the existing stock and the market for newly produced housing. Most transactions in existing homes transfer ownership of an asset without adding a dwelling. New construction increases the stock when the unit becomes usable, subject to demolition and conversion elsewhere. A reduction in existing-home sales can impair matching and mobility while leaving the total number of dwellings unchanged. A reduction in new completions affects the availability of housing services directly.

These distinctions explain why several apparently inconsistent observations can occur together. Higher mortgage rates may reduce sales and construction while owners with fixed contracts experience little immediate change in debt service. Rents may remain elevated because households displaced from ownership continue to need somewhere to live. House prices can resist adjustment when both sellers and buyers withdraw. None of those outcomes alone establishes the net effect of interest rates on the full cost of shelter.

The relevant research question is therefore how a financing change passes through participation, project viability, and the housing stock. That chain also determines the time horizon. New mortgage quotes can change within days. A household's decision to move may take months. Infrastructure and multifamily construction can require years. A policy assessed solely on its first-quarter effect on transactions will miss consequences that become visible only when the construction pipeline changes.

What the construction release can establish

The Census Bureau and HUD's [October 20, 2026 release for September](#) reports annualized rates of 1.400 million permits, 1.221 million starts, and 1.192 million completions. These are seasonally adjusted flow rates, not counts of the same project cohort. The reported monthly decline in starts has a confidence interval encompassing zero. The release therefore supports examination of the pipeline, while cautioning against interpreting one estimated monthly movement as a decisive change in direction.

A permit is an authorization, rather than a finished dwelling or an unconditional promise to build. A start marks a further production stage. A completion belongs to an earlier cohort whose financing and demand conditions may have differed substantially from those prevailing when the completion is reported. Comparing the three rates can identify questions for investigation, but subtracting permits from completions does not measure canceled projects. Cohort records and the stock of projects at each stage are needed for that calculation.

The release covers new privately owned housing within its specified survey framework. It does not constitute an inventory of every dwelling becoming available through conversion, rehabilitation, or changes in use. Unit counts also omit important variation in size, location, and quality. One additional apartment near employment

can provide a different service from one larger dwelling in a distant market, even though each adds one unit to a national count.

This matters for monetary analysis because national changes can be dominated by regions where supply is relatively responsive. A contraction in starts in those regions may coexist with little building in the most constrained markets. Aggregate construction can therefore decline without an equivalent change in the geographic availability of housing. A serious transmission study should retain metropolitan or local detail and distinguish single-family and multifamily projects rather than impose one national elasticity on all development.

Mortgage lock-in changes participation

A fixed-rate borrower who moves often has to replace favorable financing with a new contract at the prevailing rate. That replacement cost can discourage a sale even when the owner would prefer another location or a different dwelling. The existing mortgage consequently affects the supply of listings and the household's demand for a replacement home. Treating the household solely as a potential seller captures only half of the decision.

The Federal Housing Finance Agency's [March 2024 research summary](#) reports a substantial estimated reduction in sales among fixed-rate mortgage holders during the 2022-2023 rate increase. Its original summary estimates 1.33 million prevented transactions between the second quarter of 2022 and the fourth quarter of 2023. That is a model-based historical counterfactual, rather than an observed count of permanently unavailable homes. Later versions of the underlying paper update the period; this report does not combine their estimates with the original summary.

The mechanism can preserve a household's current cash flow while reducing mobility. An owner may remain in a home that is too large, too small, or far from a more productive job because the value of the existing mortgage offsets the benefit of moving. A lower sale rate can thus reflect a distortion in matching rather than an increase in satisfaction. The economic cost depends on the alternatives forgone, which cannot be inferred from transaction volume alone.

A cash buyer, an owner without a mortgage, and a first-time buyer face different choices. Cash buyers have an opportunity cost of funds but no existing loan coupon to surrender. An outright owner can sell without replacing subsidized contractual financing. A first-time buyer may benefit from additional listings while still struggling to meet a down payment and monthly payment. The distribution of mortgage vintages and tenure types is therefore central to local transmission.

Lock-in also evolves. Principal amortization reduces the balance to which the favorable rate applies. Life events can induce a move despite the cost. Some owners may rent out the existing property rather than sell, changing tenure without adding to the physical stock. A study that assumes all affected owners behave identically will overstate the permanence of the barrier and miss the channels through which households adapt.

Why cheaper mortgages need not loosen the market

A [July 2026 Philadelphia Fed working paper](#) explicitly considers buyers and sellers together. Its transaction-based survival estimates are combined with a search-and-matching model. The authors find that lower rates can attract buyers more strongly than they release sellers, increasing transactions without reducing market tightness. The analysis does not provide a quantified counterfactual house-price forecast. Its model-based finding is a useful challenge to the inference that reversing lock-in necessarily improves purchase affordability.

The economic distinction is straightforward. Additional sellers improve the choice set available to buyers, holding buyer participation constant. But a mortgage-rate reduction also increases purchasing power and can induce households to enter the market. If the number of active buyers rises more quickly than listings, competition may intensify. Sales volume and market tightness can then increase together. An assessment based only on the change in listings will misstate the equilibrium result.

This does not imply that lower rates cannot improve welfare. A buyer may prefer a larger payment capacity even if part is capitalized into prices. An existing owner may gain mobility. Builders may respond over time by adding units. The distribution of those gains depends on ownership, tenure, and local supply response. The absence of an immediate price decline is not evidence that a financing change has no benefit; it is evidence that price alone is an incomplete outcome measure.

The competing research interpretations arise partly from differences in models and counterfactuals. A calculation that releases sellers while holding demand fixed answers a different question from one that reduces mortgage rates for everyone. A study of mortgage holders has a different population from a study of all potential market participants. Research should state whether it estimates a partial response, an equilibrium outcome, or a calibrated scenario before comparing numerical effects across papers.

Payment capacity and price capitalization

A fixed-budget calculation illustrates why the effect on a new buyer is ambiguous even when mortgage rates fall. Consider a fully amortizing, fixed-rate loan with an initial principal of \$320,000 and 360 monthly payments. At an assumed annual nominal rate of 7%, with monthly interest equal to that rate divided by twelve, the monthly principal-and-interest payment is approximately \$2,129. At 5%, the payment on the same principal is approximately \$1,718. The decline improves cash flow substantially if the buyer can acquire the same property at the same price and borrow the same amount.

The calculation uses the standard annuity expression: payment equals principal multiplied by the monthly interest rate, divided by one minus the discount factor over the number of payments. It excludes points, fees, mortgage insurance, property tax, homeowners' insurance, and maintenance. The rates are chosen to illustrate sensitivity rather than describe an offer available at the cutoff. A payment comparison should state these omissions because several excluded expenses can change independently and absorb part of the improvement.

At the lower assumed rate, keeping the original payment of approximately \$2,129 would support a principal of about \$396,600. That is approximately one quarter more borrowing capacity, not a forecast of a one-quarter house-price increase. Supply response, down-payment constraints, income, expectations, and the behavior of other buyers determine how much additional capacity is used. Nonetheless, the calculation shows why lower rates create a demand response that cannot be ignored when assessing seller lock-in.

Down payments can remain binding even when debt service improves. Suppose the original \$320,000 loan financed four fifths of a \$400,000 purchase, with an \$80,000 down payment. If the purchase price rose to \$450,000 while the same loan-to-value ratio were maintained, required cash would rise to \$90,000. A household with adequate monthly income but limited savings might still be excluded. A change in payment affordability and a change in access are therefore separate outcomes, particularly for first-time buyers without proceeds from an existing home.

For an existing owner, the relevant comparison also includes the old loan balance. Selling a property and buying an identically priced replacement does not necessarily mean borrowing an identical amount, because accumulated equity can be transferred. Buying a larger property introduces an additional financing requirement. An estimate of lock-in based on replacing the full original purchase loan can consequently exaggerate the cost for a household that has amortized substantial principal, while understating the cost of a household seeking to move into a more expensive market.

A useful household analysis holds constant the service being purchased and then makes each change explicit: price, equity contribution, principal, interest rate, term, recurring costs, and moving expenses. It should distinguish the financial value of retaining a favorable loan from the value of the dwelling itself. Only then can the cost of staying be compared with the benefits of moving for employment, family needs, accessibility, or other reasons.

This framework also disciplines distributional claims. Incumbent owners can gain from asset appreciation while prospective buyers face a larger cash requirement. Renters may benefit later if construction expands but experience little immediate relief. An aggregate affordability index can summarize a specified median household's purchase calculation; it cannot describe the full distribution of these gains and burdens. Evaluating the channels separately is essential when a policy changes purchasing power faster than the physical stock can adjust.

A project account for construction finance

The monetary channel for a builder begins before a buyer signs a mortgage. Land acquisition, site preparation, approvals, and construction require capital. Interest paid while those costs are carried affects the minimum price or rent that can support the project. Delays increase that burden and may reduce the number of feasible projects even when final demand remains strong. A fully approved site and a speculative parcel awaiting infrastructure therefore respond differently to the same financing change.

Consider a hypothetical development whose real construction and land outlays total \$20 million. Assume, for transparency, that financing exposure averages \$10 million over a two-year development period and carries a

simple annual financing cost of 6%. Carrying cost is \$1.2 million. At 9%, with the same average exposure and timing, it is \$1.8 million. The additional \$600,000 is a cost of carrying the project, before taxes, fees, and equity compensation. These assumptions illustrate a mechanism; they are not a quotation for an American development loan.

Now retain the 6% rate but extend the period from two to three years with the same average exposure. Carrying cost also rises to \$1.8 million. A one-year delay can therefore have the same carrying-cost effect in this constructed example as the three-percentage-point rate increase. In a real project, exposure changes through time, so dated draw schedules are needed. The example establishes why predictable approvals and coordinated infrastructure can matter for monetary sensitivity rather than merely for administrative convenience.

Hypothetical development	Average financed exposure	Years	Simple annual cost	Carrying cost
Initial schedule	\$10 million	2	6%	\$1.2 million
Higher financing cost	\$10 million	2	9%	\$1.8 million
Delayed schedule	\$10 million	3	6%	\$1.8 million

The calculation is average exposure multiplied by years and the assumed annual rate. It omits compounding and changes in the draw profile deliberately. If delay occurs before most construction spending, its cost may be smaller than shown; if it occurs after a large completed investment awaits connection or occupancy approval, it may be larger. The sequence of spending is essential to convert a plausible financing narrative into an estimate.

Developers also face uncertain sale prices and rents. Lower borrowing costs can improve the financing side while a weaker employment outlook reduces expected revenue. A canceled project need not indicate that credit was unavailable; the expected return may no longer justify its risk. Conversely, a project with strong expected rents can remain unfinanceable if lenders doubt completion, lease-up, or access to essential services. Project-level evidence must separate these conditions.

Permissions, infrastructure, and the residual value of land

A local rule affects supply through the set of feasible projects, their cost, and the time required to deliver them. Height restrictions, minimum lot sizes, parking requirements, and procedural delays can change those margins. However, a finding that high-price areas have stricter rules does not by itself identify the causal effect of any particular restriction. High demand can lead both to rising prices and to political pressure for tighter controls. Natural constraints and infrastructure capacity can confound the comparison.

In a [September 2026 discussion of shelter costs](#), Governor Michael Barr identifies land-use rules, construction productivity, industry capacity, and input costs as interacting supply factors. He also notes that estimated national housing shortages vary substantially with methodology. The speech is a statement of policy analysis,

not a single experimentally identified shortage count. Its value here is to establish the institutional range of constraints that a local investigation must distinguish.

Permission to build more densely can increase the value of a site because it supports a larger stream of sale or rental receipts. Part of a reform's expected gain may therefore be capitalized into land prices before construction occurs. That does not nullify the supply benefit. It means that project economics, landowner gains, and eventual rents are different outcomes. A subsidy to the purchaser of scarce land may be captured differently from a reform that enables additional units on that land.

Infrastructure can remain binding after zoning changes. Water, sewerage, electricity connections, transport access, schools, and emergency services have their own financing and delivery schedules. A nominal increase in allowable units creates little near-term capacity if those services cannot support occupation. The empirical unit should be a deliverable site or project, rather than simply the number of parcels receiving a new designation. Otherwise, the measured policy treatment is detached from the capacity it was intended to create.

Reform may also change expectations before output. A clearer approval path can reduce the risk premium required by investors, expand bidding for sites, or induce a developer to acquire options. Those responses can precede starts and completions by years. Evaluation should distinguish evidence that the investment opportunity set changed from evidence that households already received more housing services. Both can matter, but they support different claims about timing and effectiveness.

Rental supply, lease adjustment, and the inflation measure

A household priced out of ownership may remain in rental housing, while a would-be seller may convert a dwelling into a rental. The net effect on rental supply and demand depends on both decisions. It also depends on whether owners retain vacant homes, whether short-term rentals expand, and whether new apartments are completed. Ownership and rental markets cannot be analyzed as sealed compartments: tenure changes redistribute a common physical stock and alter the services available to different households.

BLS's [shelter measurement explanation](#) distinguishes the housing asset from its consumption service. Owners' equivalent rent measures an imputed rental service, rather than house-purchase prices or mortgage payments. Price observations come from rental units, collected in rotating panels at six-month intervals. This design and the persistence of existing leases help explain why a change in advertised rents on newly signed contracts need not immediately produce the same change in the CPI shelter indexes.

Three comparisons are consequently useful. New-lease rents reveal current pricing for households entering or moving within the market. Continuing rents capture the costs borne by incumbent tenants. The CPI aims to represent a broader consumption basket, with quality and sampling adjustments. Divergence between those measures is an analytical question rather than automatic evidence that one is wrong. Each has a different population, timing, and purpose.

A financing change can also affect landlords differently according to contract structure. A property with long-term fixed debt and stable occupancy may have limited immediate refinancing pressure. A recently acquired building with a near-term maturity may require higher receipts, additional equity, or a sale. That pressure does not guarantee an ability to raise rents: tenants' alternatives and local demand constrain pricing. Cost increases and rent increases should therefore not be assumed to match mechanically.

New rental development adds another lag. A reduction in financing costs may revive a project today but affect occupied supply only after approvals, building, and lease-up. Using contemporaneous rent inflation to judge that financing channel can produce the wrong conclusion. A coherent analysis follows separate cohorts of projects, records their expected completion dates, and evaluates rent outcomes after supply becomes usable. It also accounts for competing developments reaching the market at the same time.

The stock-flow account and its interpretation

An illustrative local housing market begins with 100,000 usable dwellings. During a year, 2,000 new dwellings are completed, 500 are demolished or permanently removed, and 300 are added through conversion. The closing stock is 101,800. Existing-home sales of 6,000 transfer ownership within that stock; they do not raise it to 107,800. These numbers are invented for accounting clarity and should not be read as a profile of any American metropolitan area.

Now suppose higher mortgage rates reduce existing-home transactions to 4,000 but leave completions unchanged during the first year because projects were already advanced. The physical stock still reaches 101,800. Matching worsens if fewer households move to preferred homes, but measured housing quantity has not fallen. In the following year, a contraction in earlier starts may reduce completions. That is a distinct production effect with a different lag and potential policy response.

Vacancies matter because not every dwelling is occupied continuously. Some vacancy supports moving, renovation, and the matching of households to suitable units. A vacant unit unavailable for occupation is not equivalent to one offered for rent in the desired location. National vacant-unit totals therefore cannot simply be subtracted from an estimated housing shortage. The relevant availability depends on condition, tenure, geography, price, and the reason the unit is vacant.

Household formation introduces another adjustment. Adults may share housing longer when rents are high, so the observed number of households is partly an outcome of housing conditions. Defining shortage solely relative to observed households can understate suppressed demand. Defining it relative to a historical formation rate embeds assumptions about preferences, income, and demography. Both approaches can be informative if those assumptions are stated. Neither yields a uniquely observed national deficit independent of a counterfactual.

The stock account provides a discipline for policy claims. A program can improve access by adding usable dwellings, by returning unavailable units to use, or by improving matching within the existing stock. Financial assistance can alter who occupies a unit and who pays for it. Those changes may be valuable, but they should

not all be recorded as additional supply. Clear outcome definitions prevent repeated counting of the same dwelling across financing, permitting, and completion announcements.

Supply elasticity changes the burden of demand support

Consider two hypothetical local markets with the same initial housing expenditure and an identical increase in purchasing power. In one, serviced land is available and additional builders can enter. In the other, the number of permitted dwellings is effectively fixed over the evaluation horizon. In the responsive market, part of the additional demand can induce construction. In the constrained market, a larger share is likely to be capitalized into prices or rents. The comparison describes a mechanism, not a calibrated estimate of either market.

This has direct implications for mortgage subsidies, tax preferences, or down-payment assistance. A recipient can gain even when market prices rise, particularly if assistance improves access to a desired location or overcomes an initial liquidity barrier. The aggregate effect nevertheless depends on how many additional units become available and on the burden imposed on households without assistance. Program participation should be evaluated together with local prices, construction, and distribution rather than through recipient purchases alone.

The horizon changes the conclusion. A market may be inelastic over six months because existing projects are fixed, but more responsive over five years after infrastructure investment and entry. An assistance program introduced before supply reform may initially raise bidding pressure while future supply expands. That sequence is not necessarily a policy failure, but its transitional effects should be recognized. Promising immediate affordability gains from a distant completion pipeline obscures who bears the interim cost.

Expectations complicate measurement further. Developers may accelerate or postpone applications in anticipation of a rule change. Landowners may withhold sites while waiting for higher future values. Households may advance purchases before eligibility expires. An apparent surge in activity can reflect timing shifts rather than a sustained increase. Evaluation requires several pre- and post-policy periods and evidence on final delivery, not simply the quarter with the largest administrative response.

Identifying a local supply effect

A comparison of reforming and nonreforming jurisdictions needs a credible account of why reform occurred. A city facing unusually strong demand may liberalize building rules, while another may do so after prolonged decline. Their subsequent construction cannot be compared without accounting for those prior trajectories. A useful design tests preexisting trends, examines similar neighboring areas, and records concurrent changes in infrastructure, taxes, construction costs, and financing conditions.

Local spillovers are particularly important. Building more in one jurisdiction may attract households from nearby areas, reduce rent pressure elsewhere, or redirect a developer's scarce workers from another project. A narrow boundary can therefore count relocated construction as wholly additional. Conversely, ignoring

benefits to neighboring markets can understate a reform's effect. The geographic unit should reflect commuting, development, and housing-search patterns rather than merely the authority that enacted the rule.

The policy treatment itself must be observed accurately. A legal entitlement, a discretionary approval, a completed permit, and a connected site are different stages. Researchers should identify whether the reform altered allowable density, approval time, fees, or uncertainty, and whether developers actually used the provision. An unenforced or economically irrelevant rule change may have little effect even if its wording appears substantial. Process records and project characteristics are essential complements to aggregate unit totals.

Competing explanations should be tested directly where possible. Falling rents following a reform may reflect weaker employment rather than increased supply. Rising construction may reflect a national fall in financing costs. A reduction in average unit size can increase counts without an equivalent increase in housing space. Quality, location, and occupancy measures help distinguish these mechanisms. The aim is an estimate tied to a defined margin, not an all-purpose claim that every restriction has the same effect.

Coordinating policies with different responsibilities

Monetary policy influences aggregate financial conditions and demand. Local and state decisions determine many permissions and infrastructure conditions governing housing production. Federal programs can affect finance, income support, and specified development incentives. These authorities operate through different instruments and cannot substitute fully for one another. A research framework should identify the constraint each can change rather than assign the entire affordability problem to the institution most visible in current debate.

For a local authority, reducing avoidable delays can lower carrying costs and uncertainty without requiring a prediction of the next interest-rate decision. The relevant outcomes include time from application to permission, permission to start, and completion to occupation, alongside quality and infrastructure standards. A quicker administrative decision is useful if it removes a real bottleneck; it is less consequential if water capacity or project economics remains binding. Performance measures should follow the full sequence.

For developers and investors, scenario analysis should distinguish the financing of construction from buyers' financing and from permanent financing of a rental property. The three can move differently. A project may receive construction credit yet fail to achieve the expected sale price or lease-up. Risk management should connect each stage's exposure to its corresponding cash flow and exit condition. A general statement that rates are favorable is insufficient for a multiyear commitment.

For housing assistance, the distributional objective should be explicit. Protecting a vulnerable tenant from displacement is a different task from increasing long-run supply. The first may require prompt support; the second requires deliverable sites and construction capacity. A program can pursue both, but should report the outcomes separately. Counting every supported household as an additional housing unit would conflate access with production and overstate the effect on the stock.

Findings and limits

The American housing system transmits monetary changes unevenly because the stock is durable, mortgage contracts differ by vintage, and new supply requires time. Lock-in provides a convincing mechanism for reduced transactions among affected owners. It does not establish that lower rates, by themselves, will make purchase markets less tight. Buyer participation, local supply response, and the distinction between existing listings and new units determine the broader result.

The numerical development and stock accounts in this report are transparent hypothetical examples. The construction observations refer to the October 20 release and retain its sampling qualifications. The FHFA figures are identified with the original March 2024 summary, while the Philadelphia study is a separate 2026 working paper. Their different populations, methods, and counterfactuals preclude a direct comparison of headline estimates as if they measured the same parameter.

The evidence supports a practical standard for policy analysis: trace a financing change through participation, a deliverable project, and the services households actually receive. State where the chain is observed and where it is modeled. That standard improves decisions about housing even when the future path of interest rates, house prices, and migration remains uncertain.

Related research

- [Monetary transmission under different financial structures](#) compares repricing across financial systems.
- [Bank credit and the financing gap of smaller American firms](#) examines collateral and lender constraints affecting business finance.

Source addresses

The links below retain the source addresses cited in the analysis. References should be read within their stated periods and scope.

<https://www.census.gov/construction/nrc/pdf/newresconst.pdf>

<https://www.fhfa.gov/research/papers/wp2403>

<https://www.philadelphiafed.org/-/media/FRBP/Assets/working-papers/2026/wp26-33.pdf>

<https://www.federalreserve.gov/newsevents/speech/barr20260923a.htm>

<https://www.bls.gov/cpi/factsheets/owners-equivalent-rent-and-rent.htm>