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Locked Out: Drivers and Economic Implications of Declining Housing Affordability in Europe

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ABSTRACT: Amid sharp house price increases in some parts of Europe, housing affordability has again become one of the main concern of households. This paper conducts three complementary sets of analyses to shed light on the drivers and economic implications of declining housing affordability. First, using a structural VAR, we show that supply-side factors have become increasingly prominent drivers of house prices—a notable shift from the credit-driven price increases that preceded the Global Financial Crisis. Second, drawing on household-level EU-SILC data, we argue that the burden has fallen disproportionately on lower-income urban renters, who face both rising rents and diminishing prospects of transitioning to homeownership. This is especially true for financially more vulnerable renters who have seen their probability of becoming home owners fall by more than half since the pre-GFC period. Third, we provide new empirical evidence that the resulting widening of income and wealth gaps between owners and renters is compounded by the efficiency cost of reduced labor mobility, as high housing costs make it harder for workers to move to more productive locations – quantitively, housing affordability constraints might have led to around one million foregone moves within the EU over the past decade. The analyses underpin the policy recommendations to alleviate housing affordability challenges set out in the IMF's 2026 Euro Area consultation, including the need to focus on national measures to boost housing supply, with a complementary role for EU-level action.

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WORKING PAPERS

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Executive Summary

Housing affordability has again become a central economic and social challenge in Europe. Over the decade to 2025, house prices and rents rose faster than incomes in several EU countries, with pressures concentrated among low-income renters, and urban residents. This paper examines declining affordability through three lenses: the drivers behind recent house-price growth, the distributional impact on households from deteriorating housing affordability, and the implications for labor mobility and regional adjustment.

The analysis shows that Europe's recent house price appreciation differs from the pre-global financial crisis episode. Before the GFC, rising house prices were closely linked to credit growth and favorable financing conditions. A structural VAR decomposition shows that, by contrast, housing supply shocks have become a more important driver of real house prices in recent years. Labor shortages and financial constraints in the construction sector have contributed to these supply constraints, with labor shortages playing a larger role.

Resulting affordability pressures are highly uneven across space, housing tenure, income strata and the level of urbanization. Renters spend a larger share of disposable income on housing than owners, and low-income renters in cities face the highest burdens. Housing costs increase disposable income inequality, while the wealth gap between owners and renters has increased. Using longitudinal EU-SILC data, the paper finds that transitions from renting to homeownership have become less common over time, particularly in urban areas, further exacerbating the owner-renter divide. The decline has been especially steep among households without financial buffers, whose probability of entering homeownership has fallen to less than half the pre-GFC level.

Declining affordability also has adverse consequences for macroeconomic efficiency. Using regional data for German districts and European NUTS-1 regions, the paper finds that high housing costs contribute to reducing in-migration to regions experiencing positive labor-demand shocks. The effect is asymmetric: low affordability constrains entry into expanding regions but does not systematically affect exit from declining ones. The reason is that out-migration of declining regions could have offsetting effects—high housing costs can push some residents to leave but housing market frictions can prevent others from doing so. This suggests that housing affordability can weaken labor market adjustment and reduce the efficiency of labor allocation across regions, particularly in areas that are expanding. Back of the envelope calculations suggest that housing affordability constraints might have led to around one million foregone moves within the EU over the past decade.

The findings support the policy priorities discussed in the IMF's 2026 Euro Area consultation. Measures to expand housing supply at the national and subnational level should be prioritized, including easing land-use and permitting constraints, improving developers' access to finance, and addressing construction-sector labor shortages. Expanding social and affordable rental housing can help protect the most affected households. EU-level action can complement national policies by deepening the Single Market for construction services and improving housing-market data.

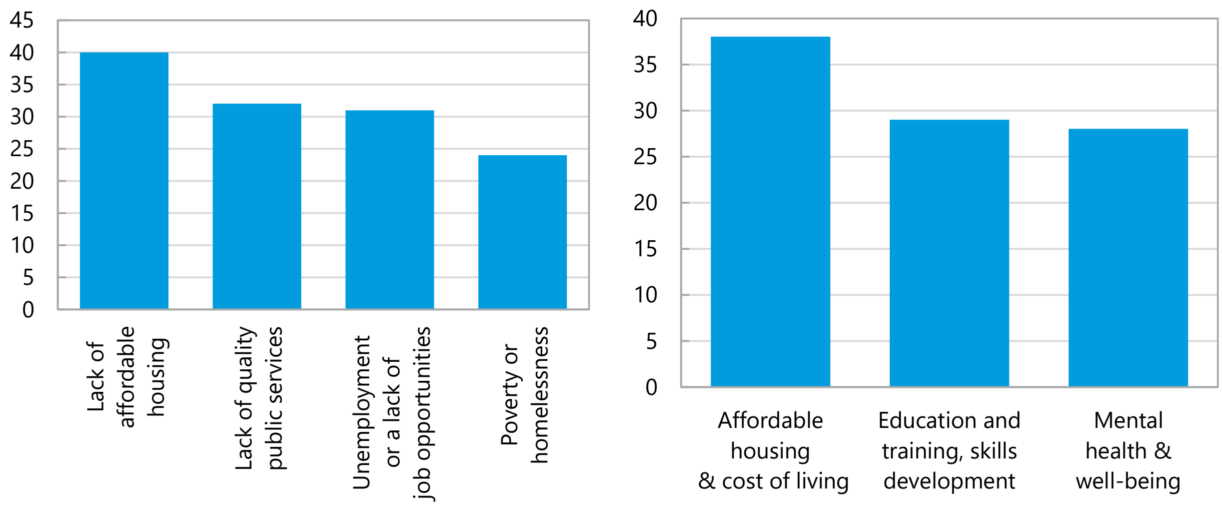
Introduction

Housing affordability has become one of the most pressing economic and social challenges in Europe. Over the decade to 2025, average house prices in the EU rose by more than 60 percent and rents by more than 20 percent (European Commission, 2025), outpacing income growth in many countries and stretching household budgets—especially for younger and lower-income households. The issue has also moved to the center of the policy debate: European citizens cite housing affordability as one of the most urgent concerns (Figure 1), and the European Commission's Affordable Housing Plan identifies a sizable structural housing supply gap (Box 1).

Figure 1. EU Survey: Issues and Priority Areas

1. Most Pressing Issues for Citizens (Percent identifying the issue as an "immediate and urgent problem"; as of June 2025)

2. Top Three Priority Areas for EU Support to Young People (Percent; as of February 2025)



Source: Eurobarometer.

The deterioration in housing affordability matters beyond the housing market itself. Housing is the largest consumption item for most households and the main asset for many owners. Rising housing costs therefore could have important distributional implications, widening the gap between owners and renters and amplifying disposable income inequality once housing costs are taken into account. Affordability pressures can also affect economic efficiency (e.g. Hallaert and Vassileva, 2026). When housing costs are high in productive regions, workers may be less able or willing to move to areas where labor demand is strong (Arulrajhan and others, 2026), weakening regional adjustment and limiting the ability of firms to attract workers.

This paper examines the drivers and economic implications of declining housing affordability in Europe over the past two decades. It addresses three main questions. First, what has driven the current house-price increases, and how does the episode differ from the pre-global financial crisis (GFC) one? Second, what are the microeconomic consequences of declining affordability, including for access to homeownership and inequality between owners and renters? Third, what are the macroeconomic consequences, with a particular focus on labor mobility and regional adjustment?

Conceptually, one can think about housing affordability as having at least three dimensions: the affordability of renting which depends on the relationship of monthly rental costs to disposable income; the affordability of owning which depends on the monthly costs of owning (often this includes mortgage payments) relative to disposable income; and finally the affordability of buying, which additionally depends on having sufficient liquid assets for a downpayment, access to credit, and other structural factors related to housing and credit markets. We discuss and study each of these dimensions.

The analysis proceeds in four steps. We first document a set of stylized facts on the evolution of house prices, construction activity, and housing costs in Europe. We show that Europe has experienced two major periods of house-price increases: one in the run-up to the global financial crisis and another since the mid-2015, especially after the pandemic. While the median level of real house prices has reached levels close to its pre-GFC peak, housing valuations are now more stretched in the upper tail of the cross-country distribution. At the same time, rental affordability has deteriorated most sharply for low-income renters, especially in cities.

We then quantify the drivers of euro area house prices using a structural Bayesian VAR with sign and narrative restrictions. The model decomposes real house price movements into contributions from housing supply, housing demand, monetary policy, and credit supply shocks. This allows us to compare the engines of the pre-GFC and pandemic-era house price increases. The results point to a shift. The pre-GFC episode was strongly associated with credit supply shocks, supported by robust demand and favorable financing conditions (Mian and Sufi, 2009; Favara and Imbs, 2015; Jorda and others, 2015). By contrast, the more recent house price appreciation appears much less credit-driven and instead housing supply shocks have become a sizable contributor to real house price growth, suggesting that constrained supply has become more prevalent for recent price increases.

To understand what lies behind these supply constraints, we relate the structural housing supply shocks from the VAR to observable constraints in the construction sector. Using data from the European Commission's construction survey, our results suggest that both financial constraints and labor shortages have contributed to the tightening of housing supply, with the latter playing a larger role. This finding is indicative of scarring effects from the post-GFC construction bust: in countries where construction activity contracted most sharply after the crisis, the construction workforce has aged faster than the workforce overall, pointing to a thinner and less elastic labor pool.

The paper then turns to the distributional consequences of declining affordability. Using EU-SILC microdata, we document that renters have become less likely to transition into homeownership. This drop has been particularly pronounced in cities and for household which self-declare not being able to withstand financial shocks. This suggests that worsening affordability is not only raising current housing cost burdens but also weakening access to the main form of wealth accumulation for many households. Housing costs also raise measured inequality: disposable income inequality is higher once housing costs are deducted, and the rise in house prices has widened the wealth gap between owners and renters (Dustman and others, 2018).

Finally, we examine the macroeconomic implications of high housing costs for labor mobility. Building on the work of Blanchard and Katz (1992), we study how regional labor markets adjust to labor demand shocks through employment, labor market participation, and migration. The analysis uses two complementary datasets: German districts and European NUTS-1 regions. The results show that housing affordability matters for regional adjustment. Inward migration following a positive labor demand shock is significantly stronger when housing is affordable. When housing is less affordable, workers migration to regions where there are better job opportunities is less responsive, which can weaken labor market adjustment and constrain growth in high-demand areas.

The paper connects to three broad strands of the literature. The first uses structural VARs to identify the macro-financial drivers of house prices. Methodologically, we employ sign- (Uhlig, 2005) and narrative-restrictions (Antolín-Díaz and Rubio-Ramírez, 2018) in the identification of structural shocks. This sign-restriction identification approach is well suited to housing applications, where house prices, credit, interest rates, and construction activity move jointly and recursive restrictions are difficult to justify. Existing work has used related approaches to study the role of monetary policy, credit conditions, and housing-market shocks in driving house prices and broader macro-financial fluctuations (Iacoviello, 2005; Nocera and Roma, 2017; Ben-David and others, 2025). One of the key challenges in this literature is separating monetary policy and credit supply shocks, which can produce similar movements in house prices, mortgage credit, and borrowing costs. This is because monetary policy can affect housing through bank lending conditions, while credit supply shocks directly shift the availability of mortgage credit (Maddaloni and Peydró, 2011; Ciccarelli and others, 2015). We therefore complement sign restrictions with narrative restrictions around major ECB policy episodes and the pre-GFC credit boom.

The second strand examines the distributional implications of housing costs and house-price increases. Housing expenditures can substantially change measured inequality once disposable income is evaluated net of housing costs, as shown by Dustmann and others (2018). Related work for Europe documents that affordability pressures are particularly acute among low-income private renters (Dewilde, 2018), while a separate literature shows that access to homeownership has become more difficult for younger and more economically vulnerable households (Lersch and Dewilde, 2015; Lennartz and others, 2016). Previous IMF work similarly finds that rental affordability pressures in Europe are concentrated among low-income, young, and urban households (Elfayoumi and others, 2021). We contribute to this strand by documenting how declining affordability affects low-income renters, transitions into homeownership—especially in cities and for financially vulnerable households—and the income and wealth gaps between owners and renters.

The third strand studies regional labor market adjustment to local labor-demand shocks. The benchmark framework is the one in Blanchard and Katz (1992), who show that, in response to labor demand shocks, migration is the main long-run adjustment margin across US states. Decressin and Fatás (1995) apply a similar framework to Europe and find a more limited role for migration, with adjustment taking place mainly through labor force participation, especially in the short run. More recent work suggests that these US-Europe differences may have narrowed, reflecting both greater European integration and weaker interstate migration responses in the US (Beyer and Smets, 2015; Dao and others, 2017). The literature shows that housing frictions can weaken regional adjustment by limiting migration toward expanding or high-productivity areas (Saks, 2008; Hsieh and Moretti, 2019; Ganong and Shoag, 2017). We build on this literature and examine whether local housing affordability weakens migration responses to labor-demand shocks in Europe, and whether this effect differs between regions experiencing positive (expanding) vs negative (contracting) labor demand shocks.

The findings in this paper have implications for the policy debate on housing affordability in Europe, as discussed in the IMF's 2026 Euro Area staff report. The shift from a credit-driven pre-GFC boom to a more supply-constrained post-pandemic episode points to the need to increase housing supply responsiveness, including by easing land-use and permitting bottlenecks, improving developers' access to finance, and addressing construction-sector labor shortages. Where shortages are most acute, expanding affordable and social rental housing can help address the pressures faced by low-income urban renters, especially as transitions into homeownership have weakened. Finally, the evidence that low affordability weakens in-migration to expanding regions suggests that housing policy also matters for labor mobility and regional adjustment.

The remainder of this paper proceeds as follows. Section II presents stylized facts on house price and housing affordability developments in the EU to set the stage for the subsequent analysis. Section III analyzes the drivers of house prices over the past three decades. Section IV and V then explore the consequences of housing affordability pressures, focusing on distributional consequences and labor mobility. Section VI concludes.

Box 1. The European Affordable Housing Action Plan

On 16 December 2025, the European Commission presented the European Affordable Housing Plan. The Commission estimates that the EU will need more than two million homes per year relative to the EUR 1.6 million built currently to match housing demand. Delivering those extra housing units would cost about EUR 150 billion annually. The Plan seeks to address these needs by combining EU-level financing, regulatory initiatives, technical assistance, data and monitoring tools, and enhanced coordination across levels of government, while recognizing that housing policy remains primarily a national, regional, and local competence. In addition to specific policy initiatives, the Plan sets out to strengthen cooperation among EU institutions, member states, regional and local authorities, public financial institutions, and other stakeholders through governance and coordination mechanisms.

The Plan is organized around four complementary pillars that address different dimensions of housing affordability challenges:

Pillar I: Boosting housing supply. The pillar focuses on addressing structural constraints that limit housing construction. Measures target construction-sector productivity and innovations, including through industrialized and offsite construction methods, digitalization, skills development; simplifying planning, zoning, and permitting procedures through a future housing simplification package; and promoting affordable, sustainable, and high-quality housing through initiatives linked to the New European Bauhaus and the European Strategy for Housing Construction. The pillar also emphasizes the more efficient use of existing housing stock, including renovation, and repurposing vacant buildings.

Pillar II: Mobilizing investment. The pillar seeks to increase both public and private financing for affordable housing. The Commission builds on roughly 43 billion euros already mobilized under existing EU programs and adds a new Pan-European Housing Investment Platform with the European Investment Bank, national and regional banks, and other financial institutions. For this Platform, the Commission projects raising around 10 billion euros through InvestEU in 2026-2027, plus an additional EUR 1.5 billion in housing-related proposals submitted by member states and regions to reprogram existing Cohesion Policy Funds under the Mid-Term review. This is paired with revised State aid rules allowing faster, public support for affordable (not just social) housing.

Pillar III. Enabling immediate support while driving reforms. The pillar aims to address housing pressures with longer-term reforms intended to improve housing market functioning. Measures include a legislative initiative on regulating short-term rentals in housing-stressed areas, stronger housing market monitoring and data collection, support for reforms through the European Semester and technical assistance, and work with member states on planning, taxation, and social housing policies. The objective is to alleviate immediate pressures while addressing underlying structural drivers of affordability challenges.

Pillar IV. Protecting the most affected. The final pillar focuses on groups disproportionately affected by housing affordability pressures, including young people, students, low-income households, vulnerable groups, and people experiencing homelessness. Planned interventions cover student housing and innovative accommodation models, assessment of a guarantee scheme to reduce security-deposit requirements, initiatives to strengthen social housing and housing-led approaches to homelessness, backed by a forthcoming Council Recommendation against housing exclusion.

Implementation will be supported through a new European Housing Alliance, to be set up in 2026, and the EU's first Housing Summit in 2026, with a progress report due before the end of the current Commission's mandate.

Stylized Facts

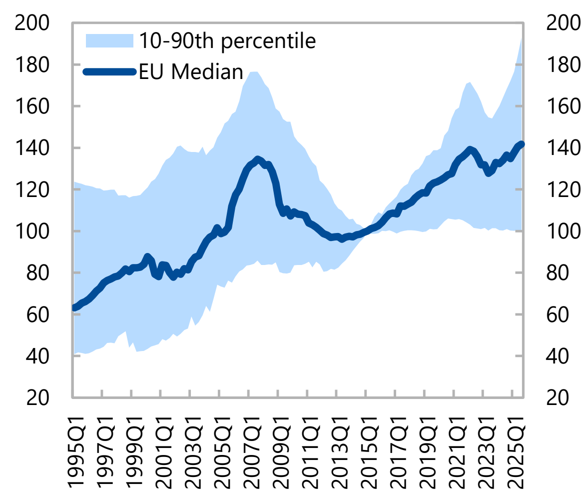
This section documents six stylized facts that motivate the analyses in the remainder of the paper. They point to an important distinction between the macro environment during the two housing episodes of pronounced house price growth which the EU has experienced since the mid-1990s, with the pre-GFC episode accompanied by rapid credit growth, whereas the recent years are more closely associated with constrained housing supply. The resulting housing affordability challenge has been uneven across countries, concentrated especially among low-income renters and most acute in cities.

House prices in the EU: Two Major Expansionary Episodes

Fact 1. Europe has experienced two episodes of pronounced house price growth since the turn of the century.

Real house prices in Europe have undergone through two major expansionary episodes: the run-up to the GFC and the pandemic-era upswing (Figure 2). The latter was interrupted by the sharp monetary policy tightening, which temporarily cooled prices; they have since recovered and resumed their upward trajectory initiated around 2015. At the EU median, real house prices have climbed back close to their pre-GFC peak. However, this aggregate picture hides cross-country heterogeneity: since 2015, real house prices at the upper end of the cross-country distribution have nearly doubled, while those at the lower end have remained broadly unchanged. In international comparison, median EU house price appreciation has been relatively moderate compared to those advanced economies with the highest growth rates, but individual EU countries have seen some of the steepest increases (Box 2).

Figure 2. European Union: Real House Prices (Index, 2015=100)



Sources: BIS; Eurostat; and IMF staff calculations.

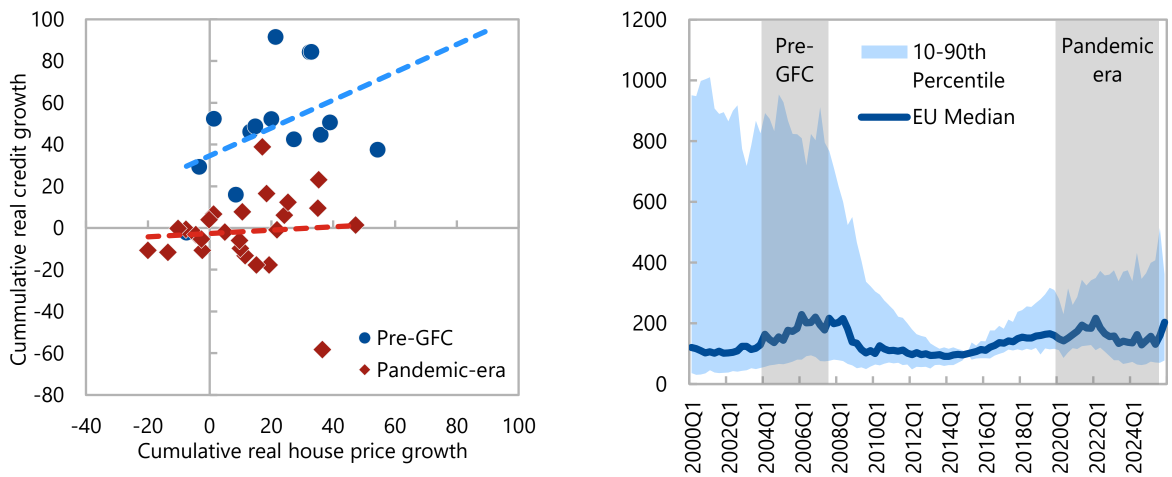
Fact 2. The two house price upswings differ notably in terms of the behavior of housing credit and construction activity.

One key difference between the two episodes is the role of credit and construction activity. Before the GFC, real house price growth was closely associated with real mortgage credit growth across countries (Figure 3.1). This link is much weaker in the recent episode. Instead, construction activity remains subdued: building permits collapsed after the GFC and, despite recovering from post-crisis lows, have not reached pre-GFC levels in many countries (Figure 3.2). Cross-country dispersion in permits also remains well below its pre-GFC range, indicating that the recent price upswing has taken place against a backdrop of more subdued construction activity.

Figure 3. Credit and Construction Activity

1. Real Credit and House Price Growth[1]
(Percent)

2. EU Building Permits[2]
(Index of building permit units, 2015=100)



Sources: BIS; European Central Bank; Eurostat; and IMF staff calculations.
[1]Pre-GFC period is defined as the change 2004Q1-2007Q2; Pandemic-era is defined as the change 2020Q1-2025Q3 (or latest available).
[2]Shaded areas denote the pre-GFC period (2004Q1-2007Q2) and the pandemic-era (2020Q1-2025Q3).

Housing affordability in the EU: Not all under the same roof

Housing affordability developments have been highly heterogenous across countries, and differ between urban and more rural areas, between owners and renters, and by income level.

Fact 3. Housing affordability worsened noticeably in select countries but not everywhere

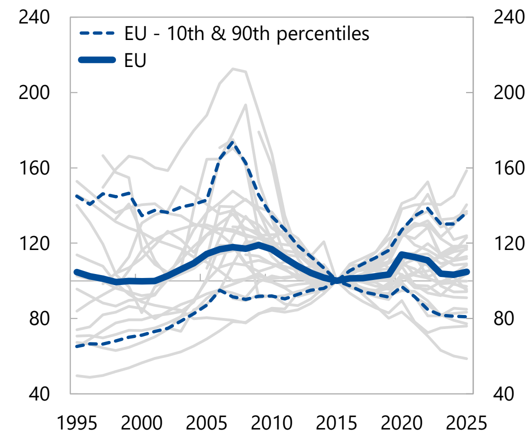
The EU average house-price-to-income ratio has remained broadly stable over the past decade (Figure 4). While some countries have seen only limited changes—or even improvements—in affordability, others have experienced sharp increases in house prices relative to incomes. In international comparison, several EU countries are now among the economies with the most stretched house-price-to-income ratios (Box 2).[1]

[1] As mentioned in the introduction, housing affordability has several dimensions. Interesting metrics for owners or prospective buyers to complement house price-to-income statistics are repayment-burden or borrowing-capacity measures.

Fact 4. Renters on average spend more on housing costs than owners

Across Europe, renters at market prices spend a substantially larger share of disposable income on housing than homeowners, including owners with mortgages (Figure 5.2). This tenure gap has persisted over time. Renters at reduced rates face lower burdens than market renters but the gap has narrowed somewhat over the past 15 years. Across Europe owning remains the main form of housing tenure but cross-country differences in tenure structure are large, with outright ownership still widespread in some Central, Eastern, and Southern European countries (Figure 5.1).[2]

Figure 4. EU27: Price to Income Ratio (Index, 2010=100)



Sources: BIS; Haver Analytics; and IMF staff calculations.
Note: Gray lines represent all other EU27 countries in the BIS sample. The EU index is a population weighted average of the EU countries.

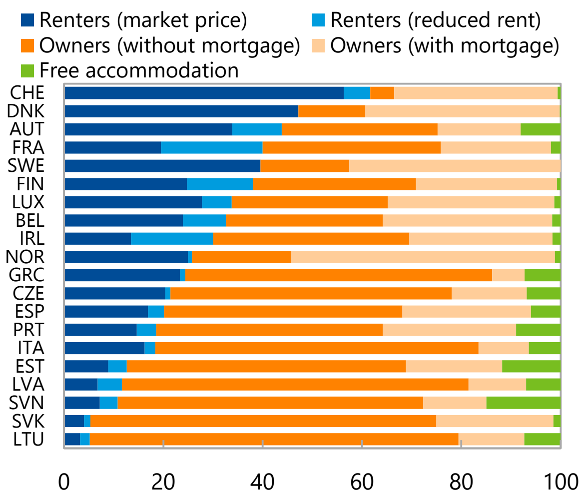
Fact 5. Housing affordability challenges are most acute for low-income renters in urban areas.

Low-income renters face the highest housing cost burdens, especially in cities. In every country, renters in the lowest income quintile spend a much larger share of disposable income on rent than higher-income renters (Figure 6.1). Low-income renters typically spend around 35-45 percent of disposable income on rent - placing many of them in the range commonly considered overburdened, compared with roughly 10-18 percent for renters in the highest income quintile. The pressures on low-income renters are particularly acute in urban areas and have also increased over time: for lower-income renters in cities, the median rent-to-income ratio reached 53 percent in 2022-24, up from an already high 46 percent in 2006-07 (Figure 6.2). Thus, the broadly stable median affordability measures hide larger differences across income groups and locations.

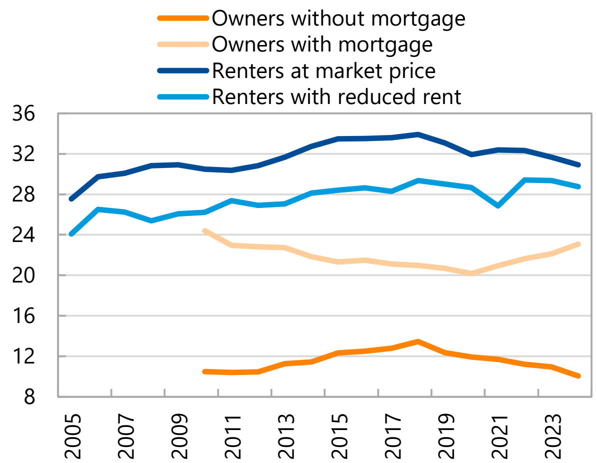
[2] Housing costs are measured using a broad definition that includes utilities, taxes, and regular maintenance and repairs. For homeowners, they also include mortgage interest and principal repayments; for renters, they include rental payments.

Figure 5. Renters Versus Owners

1. Tenure Structure Across Countries[1]
(Percent of households, 2024)



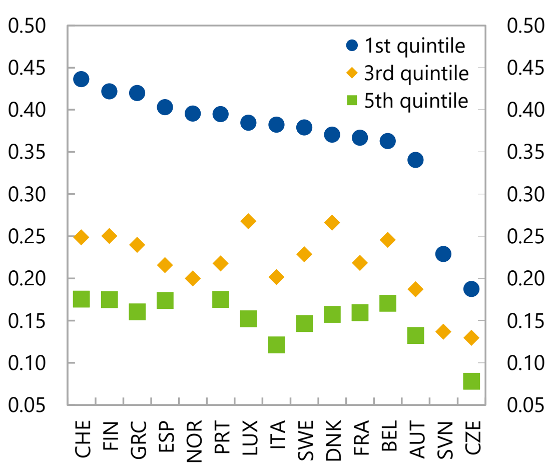
2. Median Housing Cost to Disposable Income[2]
(Percent)



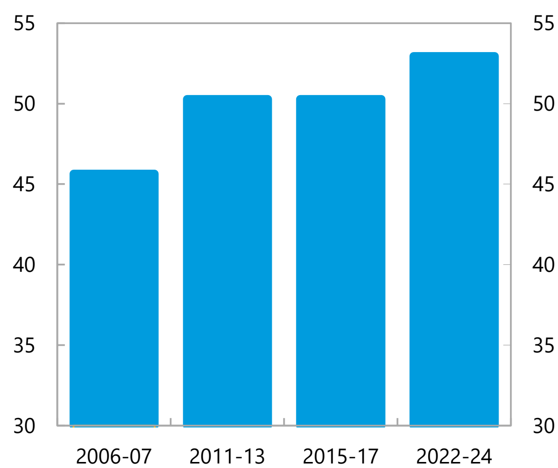
Sources: EU-SILC; and IMF staff calculations.
[1]For Denmark and Sweden, EU-SILC does not accurately capture the share of tenants in subsidized rental housing. In Denmark, EU-SILC does not distinguish between market-rate and social renters, with all tenants classified as market-rate renters (see OECD 2020c). In Sweden, very few respondents to EU-SILC select the subsidized housing option (Salvi del Pero and others 2016).
[2]Housing costs are based on a wide definition—which includes the cost of utilities, taxes, and regular maintenance and repairs. For homeowners it includes principal repayments and mortgage interest payments, while for renters it includes rental payments. The sample covers Austria. Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland.

Figure 6. Rental Affordability

1. Median Share of Disposable Income Spent on Rent Costs for Tenants Renting at Market Price
(Percent, 2024 or latest year)



2. Median Rent to Income in the Bottom Quintile in Cities[1]
(Percent)

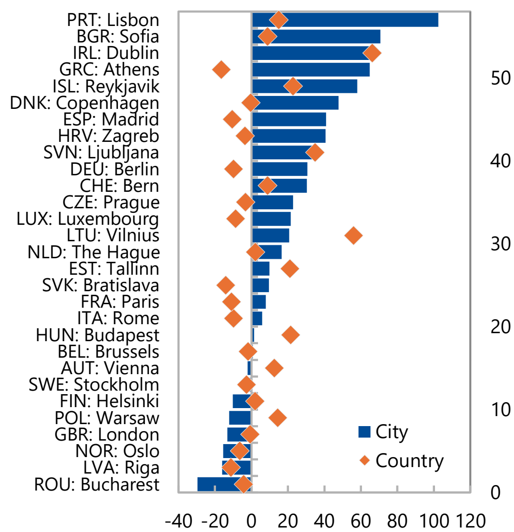


Sources: EU-SILC; and IMF staff calculations.
[1]The median is a weighted average of 15 countries.

Fact 6. Capital cities and some coastal areas are the main pressure points.

Rental pressures have been concentrated in major cities and selected hotspots. This gap is particularly large in several capitals and large urban areas. Lisbon, Sofia, Dublin, and Athens as well as coastal tourist hotspots, stand out in this respect (Figure 7 and Box 3).

Figure 7. Real Rental Price Growth in Selected Counties and Cities (Percent, 2013 to 2025)



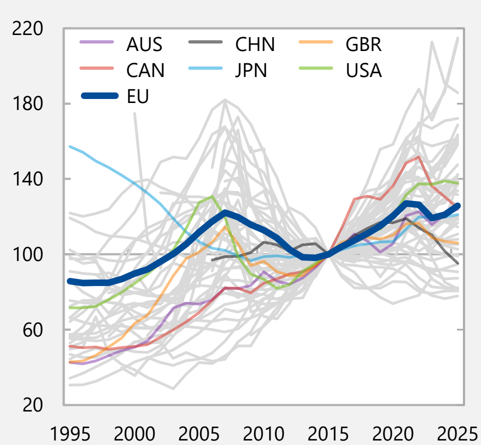
Sources: Eurostat; national statistics offices; OECD; and IMF staff calculations.

Box 2. European Housing Developments in International Comparison

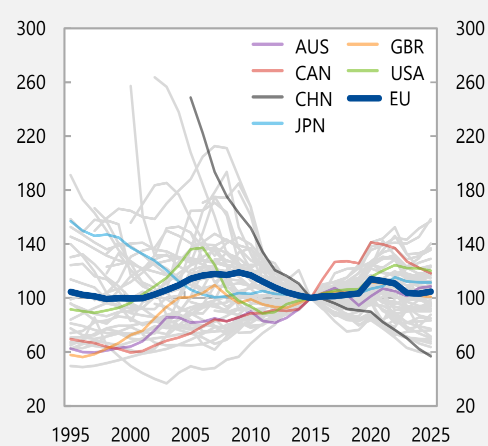
Housing affordability challenges are not a purely European concern. In fact, across many advanced economies house price increases have led to affordability pressures (Igan, 2024). The median EU property price and price to income development since 2015 has been broadly aligned or perhaps even somewhat more favorable than in other major economies (Box Figure 1). But at the same time, the EU median hides important within EU differences, with some EU countries seeing a sharp worsening in affordability (Figure 4).

Box Figure 1. Property Price Indices

1. Real Residential Property Price Indices (Index, 2015=100)



2. Price-to-Income Indices (Index, 2015=100)



Sources: BIS; Eurostat; Haver Analytics; RES Real Estate Market Module; and IMF staff calculations.
Note: Gray lines represent all other EU27 countries in the BIS sample. The EU index is a population weighted average of the EU countries.

Drivers of European house prices

Having laid out stylized facts on housing price increases across the euro area in recent years, this section quantifies the drivers of aggregate house prices using two complementary methodologies. First, using a structural Bayesian VAR (SVAR) with sign and narrative restrictions, estimated on quarterly euro area data over 2005–25, we decompose real house price movements into the contributions of four structural shocks—housing supply, housing demand, monetary policy, and credit supply—to shed light on which shocks drove the pre-GFC and pandemic-era house price growth, and whether the two episodes had the same drivers. Second, because the SVAR identifies housing supply shocks but is silent on their origin, we use local projections to link the identified supply shock series to observable constraints on construction activity—financial constraints and labor shortages—to shed light on which factors underlie the supply shortages.

Data

The SVAR is estimated on quarterly euro area aggregate data over 2005Q1–2025Q3. The model includes five variables: the quarter-on-quarter log difference of (i) real house prices, (ii) real credit to households for house purchases—both deflated by the CPI; (iii) real GDP (chain-linked volumes), (iv) housing supply, proxied by the log of building permits for residential construction;[3] and (v) the nominal mortgage rate, measured as the interest rate on new loans to households for house purchases. Prices, credit, and GDP thus enter in growth rates, while permits and the mortgage rate enter in levels.

Supply-side constraint indicators are from the European Commission's business survey of the construction sector. Financial constraints and labor shortages are measured as the share of construction firms reporting each as the main factor limiting production. These series enter the local projection analysis over 2005Q3–2023Q3 (latest available) and are standardized to zero mean and unit variance, making estimated effects comparable across indicators.

Finally, to corroborate the role of labor shortages, we use Eurostat data on the average age of workers in construction and in the total economy over 2008-2024. The average age of workers is computed separately for economies whose construction sectors were most scarred by the GFC (Greece, Ireland, Portugal, and Spain) and for the rest of the EU, using employment weights to aggregate across countries. All data sources are listed in Annex B (Table B.2).

[3] Following the literature, we use building permits as a proxy for new housing supply (Ben-David and others 2026; Banerjee and others, 2024), while recognizing that, as an equilibrium outcome, they also reflect housing demand and financing conditions and should not be interpreted as a direct measure of supply constraints.

Methodology

The SVAR specification follows Ben-David, Towbin, and Weber (2025):[4]

$$y_t = \alpha + \sum_{i=1}^{L} A_i\, y_{t-i} + e_t\,,\ with\ e_t \sim N(0, \Sigma) \tag{1}$$

where the vector of endogenous variables collects real GDP growth, real house price growth, the log of building permits, real credit growth, and the mortgage rate; the coefficient matrices are estimated with a lag length of L = 2; α is a constant; and e_t are the reduced-form errors, normally distributed with covariance matrix Σ.

The structural shocks are identified with sign restrictions (Uhlig 2005). The reduced-form errors are expressed as linear combinations of orthonormal (mutually uncorrelated, unit-variance) structural shocks, and a candidate combination is retained only if the impulse responses satisfy the sign restrictions in Table 1, imposed at impact and at one quarter ahead. For real house prices, real credit, and real GDP, which enter the VAR as quarterly growth rates, the restrictions apply to the corresponding growth-rate responses. For building permits and the mortgage rate, which enter in levels, the restrictions apply to level responses. All shocks are normalized to raise real house prices.

With five variables, four structural shocks are identified; the fifth is left unrestricted and collects the variation not attributed to the identified shocks, reported as a residual. All shocks are normalized to raise the level of real house prices; each shock is then identified by a unique combination of sign restrictions on the remaining variables (Table 1). A (negative) housing supply shock raises prices while building permits fall. A housing demand shock raises prices together with permits, household credit, and GDP. An expansionary monetary policy shock raises prices while the mortgage rate falls. A credit supply expansion raises prices and household credit together with the mortgage rate, as lenders are compensated for taking on additional risk (Bernanke and Gertler, 1995; Maddaloni and Peydró, 2011).

The identifying restrictions are deliberately parsimonious. Responses are left unrestricted where economic theory does not provide an unambiguous sign. This is particularly relevant for housing-supply shocks, for which the responses of credit, GDP, and mortgage rates can depend on financing conditions and broader general-equilibrium effects. The identified housing-supply shock should therefore be interpreted as an innovation that raises house prices while reducing permits, conditional on the remaining identifying responses. Conversely, the housing-demand shock identifies demand expansions that are accompanied by a positive construction response; in a highly supply-constrained environment, some demand pressures may therefore not be separately captured by this shock.

[4] The VAR is Bayesian in the sense that inference is based on the posterior distribution of the reduced-form VAR parameters. In the baseline, we use a flat prior and fix the reduced-form coefficients and covariance matrix at their posterior mode, which coincides with the OLS estimate. The reported uncertainty therefore mainly reflects the range of admissible structural decompositions rather than parameter uncertainty. A robustness check reintroduces parameter uncertainty by drawing the reduced-form VAR parameters from their posterior distribution.

Table 1. Identified Structural Shocks and Sign Restrictions

Shock	What the shock captures	Identifying co-movement (on impact)
Housing supply	Shifts in the capacity or cost of building new housing (e.g., land availability, permitting, input supply), not driven by demand or financing	House prices ↑, building permits ↓
Housing demand	Shifts in households' demand for housing unrelated to credit conditions (e.g., demographics, preferences, income prospects)	House prices ↑, permits ↑, household credit ↑, GDP ↑
Monetary policy	Surprise changes in the monetary policy stance	House prices ↑, mortgage rate ↓
Credit supply	Shifts in lenders' willingness or ability to extend housing credit (lending standards, risk appetite, funding conditions)	House prices ↑, household credit ↑, mortgage rate ↑

Note: For real house prices and real GDP, which enter the VAR as quarterly log differences, the reported signs refer to cumulative responses. For real credit, the sign restriction refers to credit growth. Building permits and the mortgage rate enter in levels, so the restrictions apply directly to their level responses. Sign restrictions are imposed at impact and one quarter ahead. Variables not listed for a given shock are left unrestricted.

With sign restrictions alone monetary policy and credit supply shocks remain difficult to distinguish as they differ on impact only in the sign of the mortgage rate. Their identification is a common problem in macro-financial VARs, and is particularly relevant in housing applications where credit, interest rates, and house prices move jointly. We therefore tighten the identification using narrative restrictions (Antolín-Díaz and Rubio-Ramírez, 2018). We use sign-at-date narrative restrictions; that is, among the structural shocks that satisfy the sign restrictions, we retain only those that have the expected sign during well-defined historical episodes. The monetary policy shock is required to be contractionary in 2006Q1 (the start of the ECB hiking cycle), 2007Q2 (the cycle's 4 percent peak rate), and 2022Q3 (the first hike in 11 years, ending negative rates), and expansionary in 2024Q2 (the first cut of the tightening cycle); the credit supply shock is required to be expansionary in 2006Q2, the peak of the euro area credit boom. The full set of narrative restrictions in terms of dates is reported in Annex B (Table B.1). We then use the identified shocks to construct a historical decomposition of real house prices, which expresses observed prices—in deviation from their deterministic path, the path prices would have followed absent any shock—as the sum of the contributions of the four shocks and the unexplained residual.

To understand the factors that underline the identified housing supply shocks, we use local projections and link the cumulated housing supply shock to construction constraint indicators at horizons of up to 12 quarters:

$$s_{t+h} = \alpha + \beta^h X_{t-1} + \gamma^h s_{t-1} + \varepsilon_t^h, \;\; h = 0,1,\cdots,12, \qquad (2)$$

where *s* is the structural housing supply shock identified by the SVAR—the median across accepted draws at each date—standardized (to zero mean and unit variance) and cumulated over the local-projections sample, normalized such that s_t=0 at 2015Q1. Intuitively, s_t measures the cumulative supply tightening that has built up between 2015Q1 and *t*: positive values indicate that the realization of supply shocks has, on net, tightened housing supply since 2015Q1, negative values that it has eased.[5] *X* collects financial constraints and labor

[5] The dependent variable is the cumulated identified supply shock itself, not its contribution to the level of real house prices: the local projections therefore relate supply-side conditions to the realization of supply shocks, not to their propagation through the SVAR.

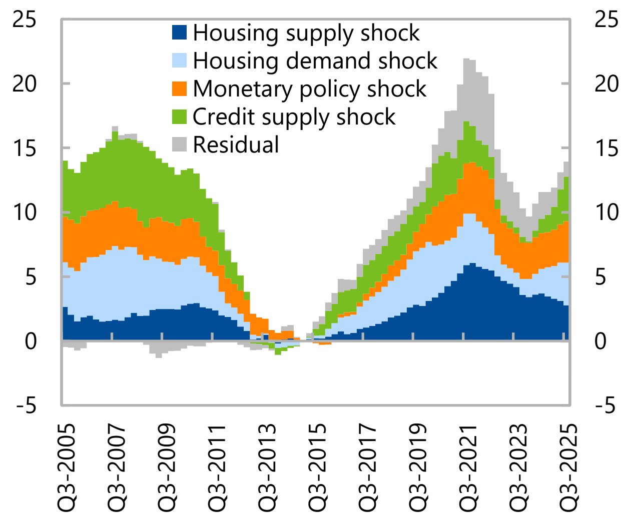
shortages, which enter as the standardized share of construction firms citing each as the main constraint to production; both enter in levels as they are stationary and are dated $t-1$ to mitigate simultaneity; β^h measures the response of the cumulated supply shock h quarters ahead to a one-standard-deviation increase in an indicator. A positive coefficient means the constraint tightens housing supply.

We use the estimated coefficients to decompose how much labor shortages and financial constraints contribute to the realized supply shocks: each indicator's horizon-4 coefficient (h=4) is multiplied by its realized value and averaged over pre-defined periods to show how the contributions have evolved over time.

Results

Figure 8 plots the contributions of the four identified structural shocks—housing supply, housing demand, monetary policy, and credit supply—and an unexplained residual to the level of real house prices net of the model's deterministic path (implied by the SVAR's constant), normalized to zero in 2015Q1. Contributions are shown at quarterly frequencies over 2005Q3-2025Q3.[6]

Figure 8. Period Averages: Contribution of Each Structural Shock to Cumulated Real House Prices (Percent)



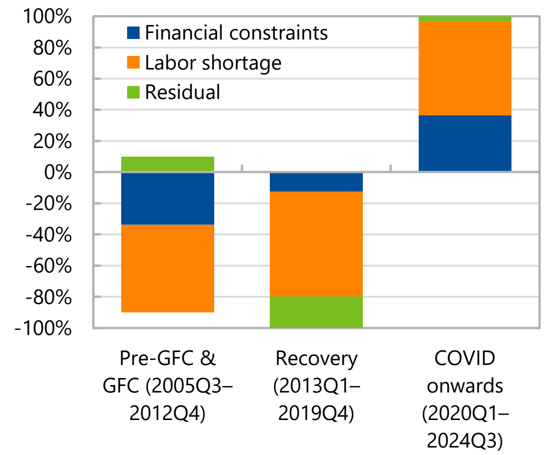
Source: IMF staff calculations.
Note: The figure shows the structural shock contributions to cumulative real house prices (percent, relative to 2015), based on the baseline SVAR estimates with sign and narrative restrictions.

Consistent with a credit fueled housing cycle, the pre-GFC rise in house prices over 2005Q3–2012Q4 was largely driven by credit supply shocks, with sizable contributions from housing demand and monetary policy shocks—a feature consistent with easy credit, strong demand, and declining financing costs. Housing supply shocks, on the other hand, contribute comparatively less. Between 2013Q1 and 2019Q4, the average contributions of all identified shocks are modest, in line with the subdued recovery of credit and construction documented in Section II. On the other hand, consistent with supply constraints becoming increasingly prominent in the pandemic era, over 2020Q1–2025Q3, housing supply shocks are the largest single identified contributor to real house price growth, while the contribution of credit supply shocks has fallen well short of its pre-GFC role; housing demand and monetary policy shocks also contribute positively. These findings suggest that the engine of house price growth has thus shifted from credit to constrained supply—raising the question of what underlies the supply constraints.

[6] Impulse response functions of the identified shocks are available upon request from the authors.

The estimates from the local projection show that both supply-side conditions enter as positive predictors of the cumulated supply shock.[7] A one-standard-deviation rise in the share of firms reporting financial constraints increases the cumulated supply shock significantly, with the effect peaking three to five quarters out, consistent with financial constraints and labor shortages explaining the supply shocks. Labor shortages have the strongest and most persistent effect, building over the full 12-quarter horizon and reaching their peak at around three standard deviations of the cumulated supply shock.

Figure 9. Supply Shock Drivers: Contributions by Period (Percent)

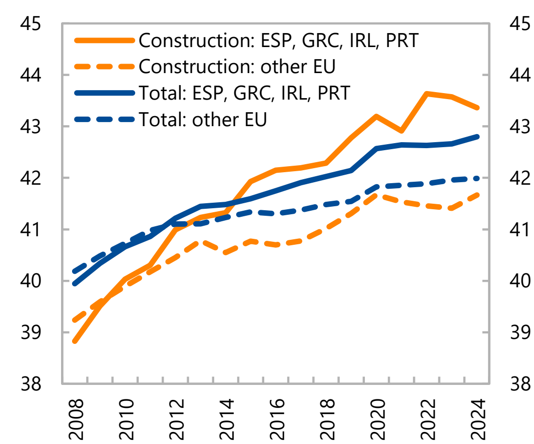


Source: IMF staff calculations.
Note: The figure plots the average contribution of each driver to the cumulative housing supply shock. A positive value implies the driver tightened supply, on average, during that period.

Labor shortages appear as the dominant supply constraint. The period decomposition of the supply shock shows that during the GFC window both drivers contribute negatively—supply constraints were not binding while construction collapsed. The post-GFC window shows a somewhat similar pattern, with labor shortages only marginally positive. In the pandemic era the pattern reverses: labor shortages and financial constraints turn strongly positive, restricting supply (Figure 9).

This evidence suggests that construction-capacity constraint may reflect lasting scarring from the GFC. In the economies whose construction sectors contracted most severely after the GFC—Greece, Ireland, Portugal, and Spain—the average age of construction workers has risen by about 4.5 years since 2008, overtaking the average age of the overall workforce. In the rest of the EU, construction workers have also aged but remain younger than the workforce average. This pattern is consistent with sectoral-supply scarring: the post-GFC construction bust pushed workers out of the sector and discouraged young entrants, leaving an older and thinner labor pool with limited capacity to scale activity back up—and helps explain why labor shortages now bind (Figure 10).

Figure 10. Average Age of the Workforce: Construction versus Total Economy



Sources: Eurostat; and IMF staff calculations.
Note: Groups are weighted averages, using employment as weights.

[7] The impulse responses of the cumulative supply shock to labor and financing constraints are omitted for brevity and are available from the authors upon request.

Box 3. Tourism and Housing Hot Spots: The Role of Short-term Rentals

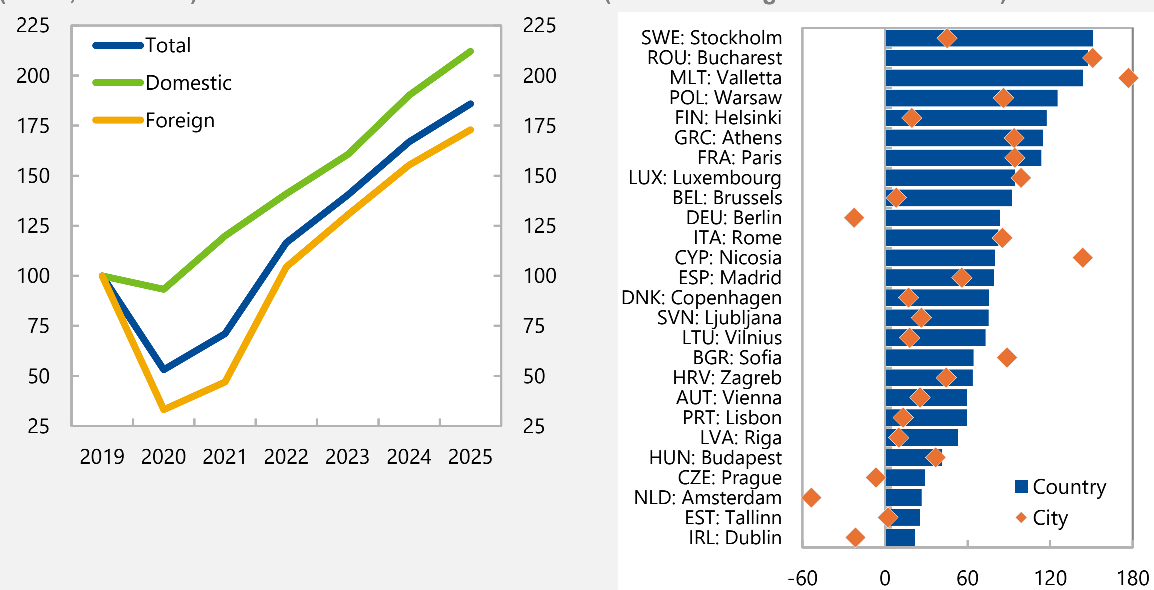
Short-term rentals (STRs) booked through online platforms have expanded rapidly in Europe and have become increasingly prominent in housing policy discussions, particularly in cities and tourism-intensive areas. In these locations, STR demand can compete with residents for a limited housing stock, especially when listings consist of entire dwellings rather than spare rooms. By shifting units from long-term residential rental toward short-term visitor accommodation, STRs can add pressure to already tight rental markets. Empirical studies for European cities provide evidence consistent with the reallocation and resulting shortages. STR growth has been associated with higher rents and house prices in Barcelona, particularly in more exposed neighborhoods (García-López and others, 2020), higher prices and lower resident inflows in Madrid (Chaves-Fonseca, 2026), and lower long-term rental supply and higher asking rents in Berlin (Duso and others, 2024).

STR activity has increased significantly since the pandemic. In 2025, platform-booked guest nights in the EU reached roughly 951 million, about 70 percent above their 2019 level (Box Figure 2). STRs also represent a meaningful part of the tourism market, accounting for about one-quarter of tourist accommodation nights booked through major platforms in 2024 (European Commission, 2025). For housing markets, however, the key feature is concentration. STR activity is heavily clustered in coastal areas and large urban destinations, with cities such as Paris, Barcelona, Lisbon, and Rome accounting for a disproportionate share of platform-based accommodation activity (Box Figure 3).

Box Figure 2. Short-Term Rental Guest Nights in the EU[1]

1. Guest Nights in the EU by Country of Origin (Index, 2019=100)

2. Total Guest Nights by Country and Main City (Percent change from 2019 to 2025)

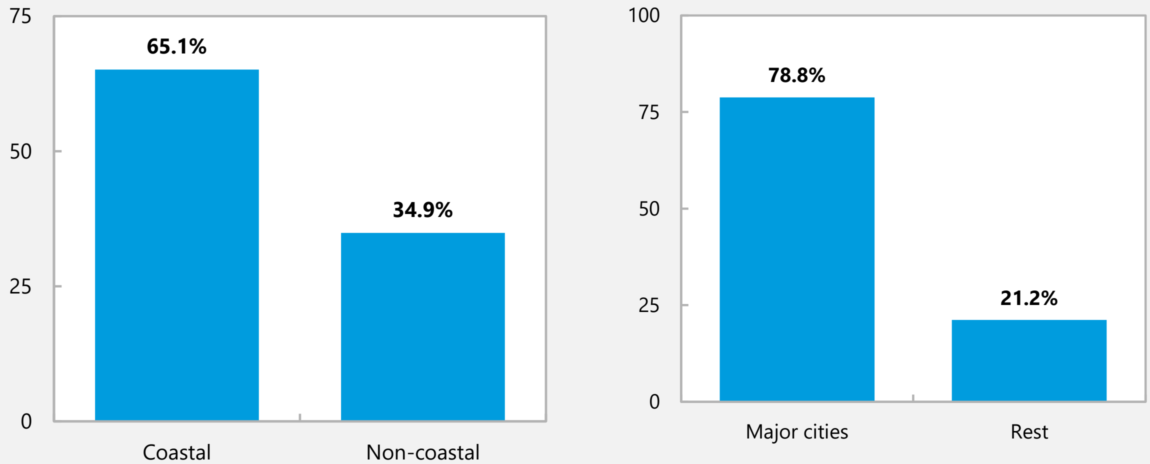


Sources: Eurostat; and IMF staff calculations.
[1]STRs refer to platform-booked guest nights through Airbnb, Booking, Expedia, and TripAdvisor.

Box Figure 3. Short-Term Rental Guest Nights in the EU[1]

1. Share of Guest Nights in Coastal vs Non-Coastal Regions, 2024[2]
(Percent; share of total STR nights)

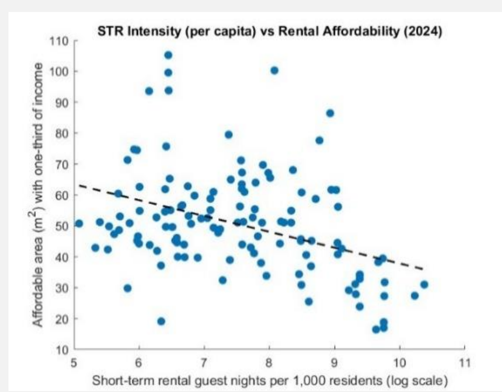
2. Share of Guest Nights in Major Cities vs Rest Cities, 2024[3]
(Percent; share of total STR nights)



Sources: Eurostat; and IMF staff calculations.
[1]Platform-booked guest nights in the EU (Airbnb, Booking, Expedia, TripAdvisor).
[2]Regions are NUTS2. Coastal classification is derived by the authors using Eurostat's NUTS3 coastal typology: a NUTS2 region is classified as coastal if at least one of its underlying NUTS3 regions is coastal. Shares are computed over total nights across all NUTS2 regions.
[3]Major cities are defined as the top quintile of cities with at least 1m guest nights in 2024; the rest includes all other cities. Shares are computed over total nights across all cities.

This concentration is most prevalent with areas where rental affordability pressures are often most acute. Across European cities, higher STR intensity is associated with lower rental affordability, measured as the amount of housing space affordable to a representative household (Box Figure 4). The relationship is stronger in cities with greater exposure to foreign tourism demand. While this correlation is not causal, it is consistent with the city-level evidence that STRs can add pressure when they represent a competing use of scarce housing stock.

Box Figure 4. Correlation between STR Activity and Rental Affordability



Sources: Eurostat; ESPON House4All; and IMF staff calculations.

The scale and persistence of STR activity make this channel relevant in the current housing cycle. Beyond the recovery in tourism, shifts in travel behavior, preferences, and work arrangements may have supported demand for short-term accommodation, including longer stays in high-amenity locations and greater scope to combine work and travel (Barrero, Bloom, and Davis, 2021; Ramani and Bloom, 2021; Mondragon and Wieland, 2022; Brueckner, Kahn, and Lin, 2023). Although the box does not identify these channels directly, STR activity is clearly concentrated in major cities, coastal areas, and tourism-intensive destinations—places where rental affordability is already stretched, suggesting that STRs is likely adding to affordability pressures in specific local markets.

The Distributional Consequences of Housing Affordability Pressures

This section examines the distributional implications of the affordability pressures documented in Section II. The stylized facts showed that housing cost burdens are higher for renters than for owners and are especially elevated for low-income renters in cities. Here we first show that housing costs worsen disposable income inequality once income is measured net of housing expenditures, following Dustmann and others (2018). We also plot household wealth data from the ECB Distributional Wealth Accounts to show that the net-wealth gap between owners and renters has increased over the past decades.

Second, and more novel, we study access to homeownership—the dimension of affordability that depends not only on current housing costs, but also on the ability of renter households to purchase a home. We find that the probability of transitioning to ownership has declined over time, especially in urban areas and for households without financial buffers. Access to ownership has thus decreased, further accentuating the owner-renter divide.[1]

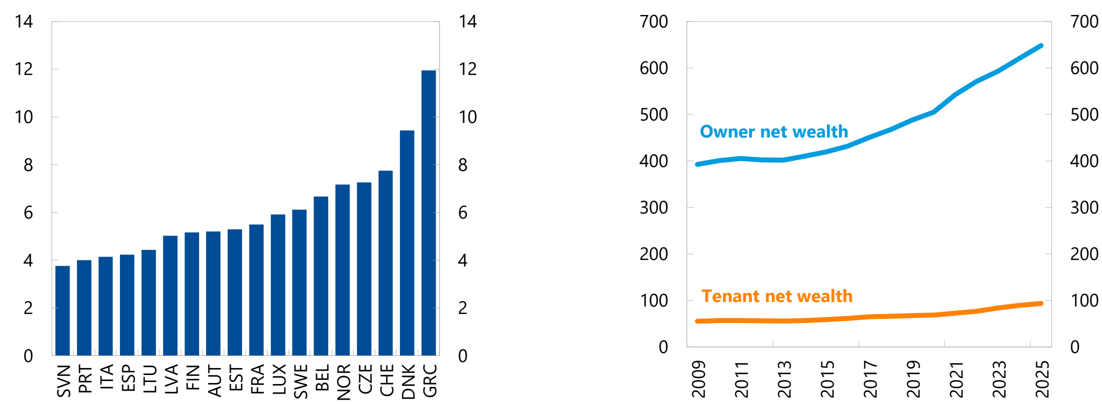
Figure 11.1 shows that housing costs are worsening disposable income inequality. In all countries, the Gini coefficient based on disposable income net of housing costs is higher than the Gini coefficient based on disposable income before deducting housing costs. The size of this effect varies by country and is especially pronounced in Greece and Denmark.[2] Figure 11.2 uses data from the European Central Bank on household net wealth by tenure. Since the GFC, net wealth has increased much more strongly for homeowners than for renters, widening the wealth gap between the two groups.

Figure 11. Housing Affordability Pressures

1. Additional Inequality Caused by Housing Costs, 2024[1] (Difference in Gini coefficient including and excluding housing costs)

2. Euro Area: Net Wealth by Tenure

(Thousands of euro per household)



Sources: ECB Distributional Wealth Accounts; EU-SILC; and IMF staff calculations.

[1] In addition to house price appreciation, changes in nominal interest rates and inflation can impact the owner-renter divide. See for example Section 5.2 of Piette et al. (2025) for the case of Belgium.

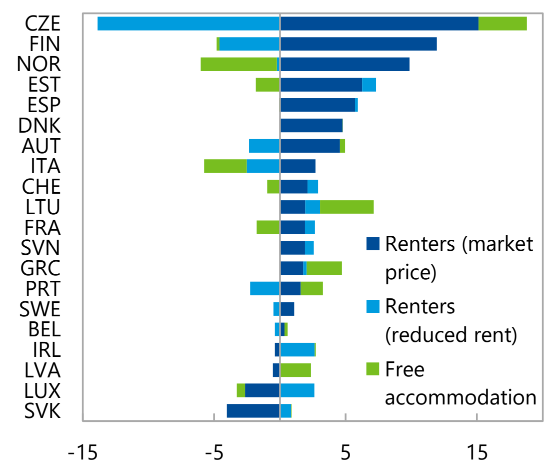
[2] The chart updates the analysis in Elfayoumi and others, 2021, using the same methodology.

[1]Using EU-SILC data, inequality is measured as the difference between the Gini coefficient with and without housing cost calculated with equivalized disposable income, following Dustmann and others (2018). Positive numbers suggest that inequality is larger if housing cost is taken into account. Housing cost includes utilities (water, electricity, gas, and heating) among other housing-related expenses. Equivalized disposable income controls for the differences in a household's size and composition.

If owning is so attractive, all else equal one might expect an increase in homeownership. Figure 12 shows the evolution of tenure. Despite the wealth gains associated with ownership, the share of renters has increased in almost all countries for which data are available, particularly among market renters. This trend suggest a shift away from ownership rather than toward it.

Figure 12. Change in the Share of Renters Across Countries

(Percentage points, 2024 vs. 2010 or latest/earliest available)



Sources: EU-SILC; and IMF staff calculations.

The remainder of this section analyzes this pattern more formally by estimating the conditional probabilities of transitioning from being a renter to an owner over time in the EU.

Data

The analysis uses the longitudinal component of the EU-SILC dataset, which allows households to be followed over time. We have access to the microdata for all countries except Germany and the Netherlands. Since housing tenure is measured at the household level, the unit of analysis is the household-year. To avoid duplicating household-level outcomes across household members, one adult "analysis person" is selected for each household-year, prioritizing eligible adults aged 18 or above and, where possible, the survey respondent. The sample is then restricted to households observed in consecutive years, allowing transitions between *t-1* and *t* to be defined consistently.

Methodology

We estimate a discrete-time hazard model using a logit specification. The dependent variable is a binary indicator for transitions from renting to owning between *t-1* and *t*. In a first step, the sample is restricted to households that were renters in year *t-1*, since only these households can transition from renting to owning between *t-1* and *t*. The dependent variable equals one if household (i) in country (c) becomes an owner in year *t*, and zero otherwise:

$$T_{ict} = \mathbb{1}\{Own_{ic,t-1} = 0 \;\&\; Own_{ic,t} = 1\} \tag{3}$$

The baseline specification takes the form:

$$Pr(T_{ict} = 1) = \Lambda(\alpha_{ict} + \gamma_c + \delta_t + X'_{ict-1}\beta) \tag{4}$$

where T_{ict} denotes a renter-to-owner transition for household i in country c and year t, α_{ict} are duration indicators for time spent in the observed rental spell, γ_c are country fixed effects, and δ_t are year effects. X_{ict-1} includes household characteristics measured before the transition, including income quintile, ability to face an unexpected financial shock, age group, marital status, and other demographic controls. In alternative specifications, year fixed effects are interacted with the degree of urbanization and with households' ability to face financial shocks, allowing transition probabilities to vary over time across these groups.[3]

Standard errors are clustered at the household level to account for repeated observations within household spells. The baseline specification excludes households with positive rental-property income, to focus more closely on renter households that are not already receiving landlord-type income.

After estimating the model, we recover the predicted transition probabilities using post-estimation margins. These margins average model-predicted probabilities over the covariate distribution of the estimation sample. Thus, the reported series represent the estimated probability that a household that rented in the previous year becomes an owner in the current year, conditional on the model and sample restrictions, given by:

$$\hat{p}_{u,t} = \mathbb{E}[Pr(trans_t = 1|u,t,X)]. \quad (5)$$

The key variable of interest is how the probability of transitioning from renter to house ownership has changed over time, and how it has changed for different groups. Concretely, when discussing the results we thus focus on the predicted probabilities recovered from the year fixed effects, δ_t, and their interaction with two important variables—the level of urbanization of the location in which a house is acquired, and households' ability to withstand financial shocks.

A few caveats on the data are worth noting. The estimates should be interpreted as short-run observed transition probabilities, not as complete homeownership histories. EU-SILC's longitudinal data follows households over a limited window, so, the analysis observes whether renter households enter ownership during the panel spell but cannot determine whether the purchase is the household's first-ever experience of owning a home. In addition, transitions that coincide with household splits, moves, or attrition may be imperfectly captured. This is a known limitation of EU-SILC longitudinal analysis.

Despite these caveats, the approach provides a harmonized cross-country framework to study access to homeownership among renter households. By focusing on gross transitions rather than ownership rates, the analysis captures the flow into homeownership and allows the evolution of entry probabilities to be compared across urbanization categories, income groups, financial-capacity groups, and demographic profiles.

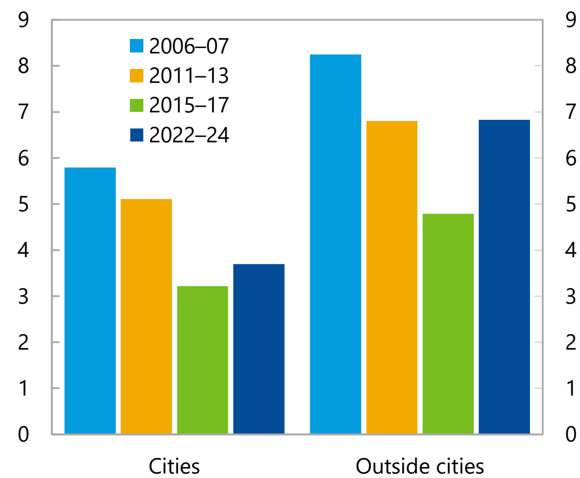
[3] Annex A shows that results are robust to different controls, time periods, weights, and country coverage.

Results

Figure 13 shows that the predicted probability of transitioning from renter to owner has dropped over time in both cities and outside cities, but the drop in the predicted probability was especially pronounced in cities where it fell by around a third, from around 6 percent before the GFC to around 4 percent in 2022-24. In rural areas the drop was as sharp as in cities from 2006-07 to 2015-17, but the last few years have seen a rebound. This could be due to pandemic-induced demand for more space and the greater availability of remote work, which may have supported increased home purchases outside cities, including by renters previously living in urban areas.

Figure 13. Probability of Transitioning from Renter to Owner, By Urbanization

(Percent; Pr(renter→owner|renter last year))



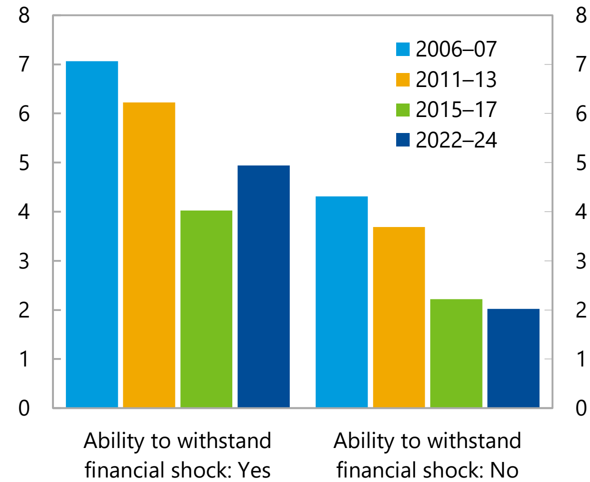
Sources: EU-SILC; and IMF staff calculations.

Figure 14 sheds further light on the decline in transition probabilities over time, as well as the partial rebound in 2022-24. It shows predicted probabilities of transitioning from renter to owner along a different margin, differentiating between households which self-declare being able to withstand a financial shock (likely implying financial buffers, either through own liquid assets or insurance from family or others) and households which are not able to withstand financial shocks. As expected, the predicted probability of transitioning to ownership is always noticeably lower for households who are not able to withstand a financial shock (even after controlling for household disposable income). This can be explained by more binding financial constraints, for example due to the absence of a sufficient downpayment.

Zooming into how the predicted probabilities have changed over time for the two groups, the one that is not able to withstand a financial shock has seen no rebound in their transition probability in 2022-24. This implies that the entire uptick in the predicted transition probability that we observe in Figure 13 is driven by financially more secure households. For the financially weaker group, the probability edged down further post-pandemic and now stands at below 2 percent, less than half the pre-pandemic probability—in other words, homeownership now appears close to out of reach for financially vulnerable households.

Figure 14. Probability of Transitioning from Renter to Owner Over Time, By Financial Strength

(Percent; Pr(renter→owner|renter last year))



Sources: EU-SILC; and IMF staff calculations.

Table A.1 in Annex A gives more details on the regression results underlying these results and their robustness. Concretely, the table shows the estimated coefficients across several specifications. The results are broadly stable across country samples, time periods, use of weights and sets of controls.

Housing Affordability and Regional Labor Mobility

The consequences of deteriorating housing affordability extend beyond distributional concerns. Labor mobility is a key margin through which regional labor markets adjust, as workers move from weaker to stronger productive regions until unemployment and wage differentials narrow. The cost of housing in destination regions therefore matters for the economy's capacity to reallocate labor to where it is most productive. When a region experiences a positive labor-demand shock, in-migration depends, among other factors, on whether wage gains outweigh higher living costs. When housing is expensive, a larger wage premium is needed to attract the marginal worker, so a given shock is likely to generate less in-migration all else equal. This section examines whether local housing conditions impede labor market adjustment following a labor demand shock.

Building on the Blanchard-Katz (1992) accounting decomposition of changes in regional employment and using Jordà's (2005) local projections we trace the responses of regional labor markets to local labor-demand shocks. The analysis proceeds in two steps. First, we estimate how employment, the employment rate, labor force participation, and migration respond to regional labor-demand shocks. Second, we examine whether these responses differ when housing is more or less affordable relative to a region's own history, separately for positive and negative shocks.

The results indicate that, following positive labor-demand shocks, in-migration is significantly weaker in low-affordability areas than in high-affordability areas. For negative labor-demand shocks, the estimated differential response is ambiguous and statistically insignificant, potentially reflecting the fact that high housing costs can push some residents to leave, while others to stay due to housing market frictions. Housing affordability therefore appears to matter asymmetrically: it constrains entry into expanding regions but does not systematically matter for declining ones.

Data

We use two complementary datasets. The first comprises nearly 500 German districts (“Kreise”), with an average (median) population of 123,000 (93,000); the second comprises 66 larger European NUTS1 regions, with an average (median) population of 5.2 million (4.5 million).[4] The German sample covers 2010-24. For this sample, local housing costs are measured by the three-year moving average of log prices for building-ready land (“Bauland”) relative to log GDP per capita. Working-age population, employment, and labor force are from the Regionaldatenbank, while land price data are from the Offices of the Federation and the Länder. The European sample covers 2004-24. For this sample, local housing costs are measured by the rent-to-disposable-income ratio. Population and labor market data are from Eurostat, and rent-to-disposable-income data are from EU-SILC.[5]

In both samples, higher values of the housing-cost measure correspond to lower affordability. To avoid confounding permanent differences across regions with changes in affordability over time, the housing-cost measure is demeaned within each region before entering the regressions. The Blanchard–Katz decomposition requires employment measured by place of residence, which we use throughout.

Methodology

The Blanchard–Katz (1992) framework starts from a simple accounting identity:

$$\Delta e = \Delta(e - \ell) + \Delta(\ell - p) + \Delta_P \tag{6}$$

where e is log employment, ℓ log labor force, and p log working-age population. Employment growth can therefore be decomposed into three adjustment margins: changes in the employment rate, changes in labor force participation, and changes in population. The population component is interpreted as the migration margin, abstracting from natural population change over the short horizons considered here.

The local labor-demand shock is the shock to which these regional labor-market margins respond. We construct it as the part of regional employment growth that is not explained by the aggregate cycle. For Germany, where districts are within a single country and face a common national cycle, the shock is measured as district employment growth minus population-weighted aggregate German employment growth. For the European sample, where NUTS1 regions cover countries with different cycles, we follow Decressin and Fatás (1995) and construct the shock as the residual from a regional employment growth on population-weighted EU employment growth and region fixed effects. Thus, both measures remove aggregate employment fluctuations, but the European specification allows the response to the aggregate cycle to differ across regions. Following the Blanchard–Katz tradition, we interpret this idiosyncratic component of regional employment growth as primarily reflecting a local labor-demand shock. While the construction removes aggregate employment fluctuations and persistent regional differences, it cannot fully exclude time-varying local factors that may jointly affect employment and migration.

[4] ¹ The European analysis is conducted at the NUTS1 level because more granular regional data are not consistently available for house price, rent, and affordability measures across countries.

[5] Comparable subnational rent or house-price affordability measures are not consistently available across European countries at a more granular level. The two samples therefore use different measures of housing affordability: land prices relative to income for German districts and rent-to-income ratios for European NUTS1 regions.

Migration is analyzed as one of the adjustment margins following this labor-demand shock. We measure the migration response in two ways. First, using the Blanchard–Katz identity, we recover the population response as the residual after subtracting the employment-rate and participation responses from the total employment response. We refer to this residual population response as “implied migration,” since changes in working-age population over the short horizons considered here mainly reflect net migration. Second, as a robustness check, we estimate the response of directly measured net migration to the same labor-demand shock using the same local-projection specification.

For each adjustment margin *y* and horizon h = 0,…,3 we estimate:

$$y_{i,t+h} = \alpha_i + \beta^h s_{i,t} + \gamma^h [s_{i,t} \dots r_{i,t}] + \delta^h r_{i,t} + X'_{i,t}\theta + \lambda_t + \varepsilon_{i,t+h} \quad (7)$$

where *r* is the within-region-demeaned housing affordability, *s* is the local employment shock, *X* collects two lags of each adjustment margin, λ_t are year fixed effects, and region fixed effects are absorbed by *α*; standard errors are clustered by region. $r_{i,t}$ is a housing-cost measure, measured as the demeaned three year pre-shock moving average of affordability; a higher value of $r_{i,t}$ means that housing is less affordable than usual in that region. The interaction term therefore captures whether a given labor-demand shock generates a different adjustment response when local housing costs are unusually high relative to the region’s own norm.

To study asymmetries, we split the shock into positive and negative components, each interacted with the housing-cost measure. The estimated responses are then evaluated at two points in the within-region housing-cost distribution: the 25th percentile, which corresponds to relatively high affordability, and the 75th percentile, which corresponds to relatively low affordability. Impulse responses are normalized so that the impact employment response equals one.

To determine statistical significance, we use three tests. The *impact* test (h = 0) checks whether the interaction is nonzero on impact; the *cumulative* test checks whether the interaction summed over horizons 0–3 is nonzero, a single restriction; and the *joint* test checks whether the interaction is zero at all four horizons simultaneously, four restrictions. For the directly measured response the interaction is a single coefficient at each horizon; for the implied response it is a linear combination of interaction coefficients across the three adjustment margins, and each test is a Wald test on the corresponding combination. As a robustness check, we compare the indirect migration response against directly measured net migration in an otherwise identical approach.

The expected results are that the role of housing affordability is likely to differ between positive and negative shocks. When a region experiences a positive labor-demand shock, it is likely to attract workers. But if housing is already expensive, moving into the region becomes less attractive, and the same shock should generate less inward migration. For negative shocks, the effect is less clear. High housing costs may push some residents—especially renters—to leave more quickly, but housing market frictions may also make it harder for others, especially homeowners, to move. We therefore expect affordability to matter most clearly when regions are expanding, while its role after negative shocks is more ambiguous.

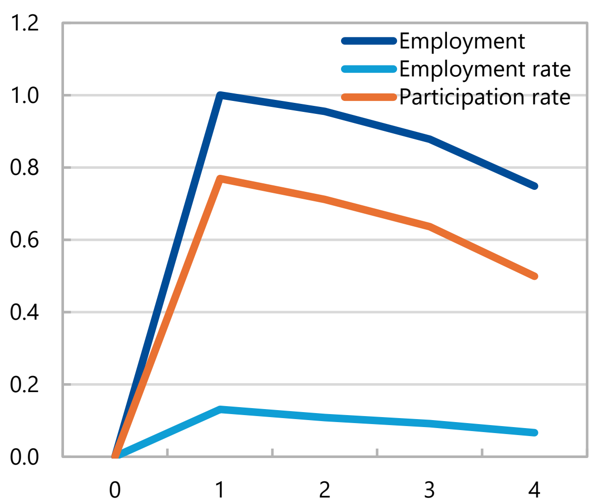
Results

Before turning to the impact of housing on labor mobility, Figure 15 documents how the two sets of regions absorb a local labor-demand shock on average. Figures 15.1 and 15.2 show the three Blanchard–Katz adjustment margins; while Figures 15.3 and 15.4 compare migration recovered as the accounting residual ("implied") and the directly estimated migration response.

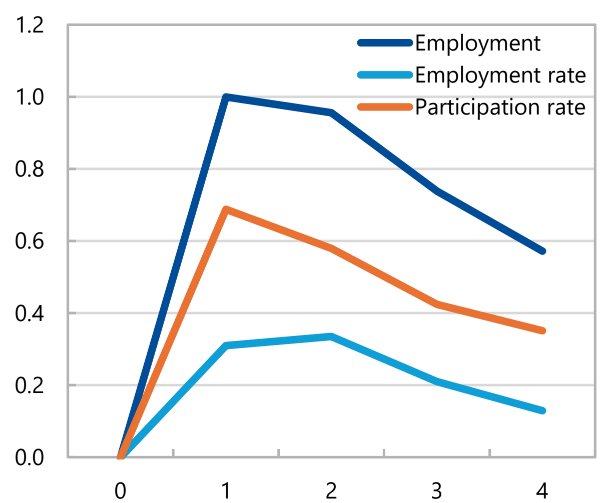
Three features stand out. First, in German districts, a significant share of the shock is absorbed through population movements, with migration reaching 0.2 of the shock by the third year; participation accounts for much of the short-run adjustment, while the employment rate plays a more limited role. Second, European regions display a similar adjustment but rely less on migration, with a population margin of 0.1 of the shock over the same horizon. The gap in migration adjustment is not surprising as much of the mobility in response to a labor-demand shock is short-distance and within national borders, and is consistent with evidence that migration is a weaker and slower adjustment margin in Europe than in the United States (Decressin and Fatás, 1995; Beyer and Smets, 2015). Third, implied and direct migration responses track each other closely in both samples, suggesting that the residual captures migration rather than a potential measurement error.

Figure 15. Regional Baseline Adjustment to Local Labor Demand Shocks

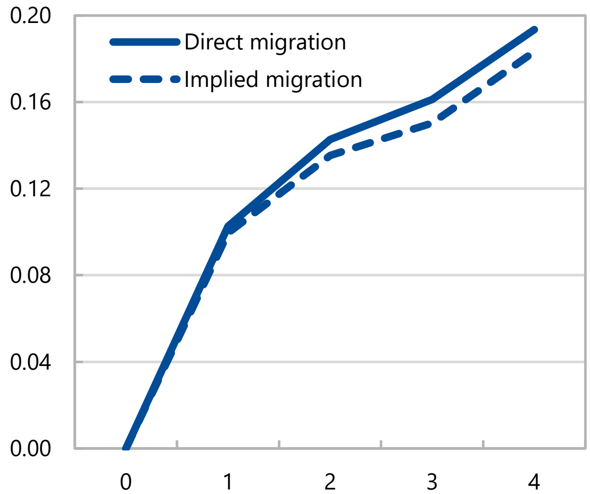
1. Germany: Regional Adjustment After Employment Shock (Percent)



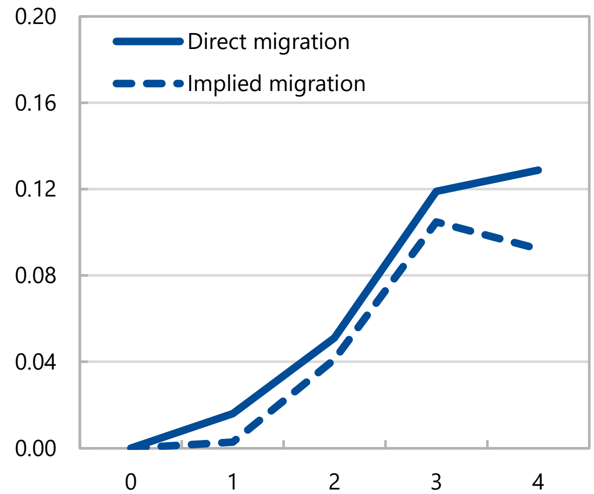
2. Europe: Regional Adjustment After Employment Shock (Percent)



3. Germany: Direct and Implied Migration After Employment Shock (Percent)



4. Europe: Direct and Implied Migration After Employment Shock (Percent)



Source: IMF staff calculations.
Note: Baseline regional adjustment to a one-unit employment shock, pooled across regions; period 0 is pre-shock.

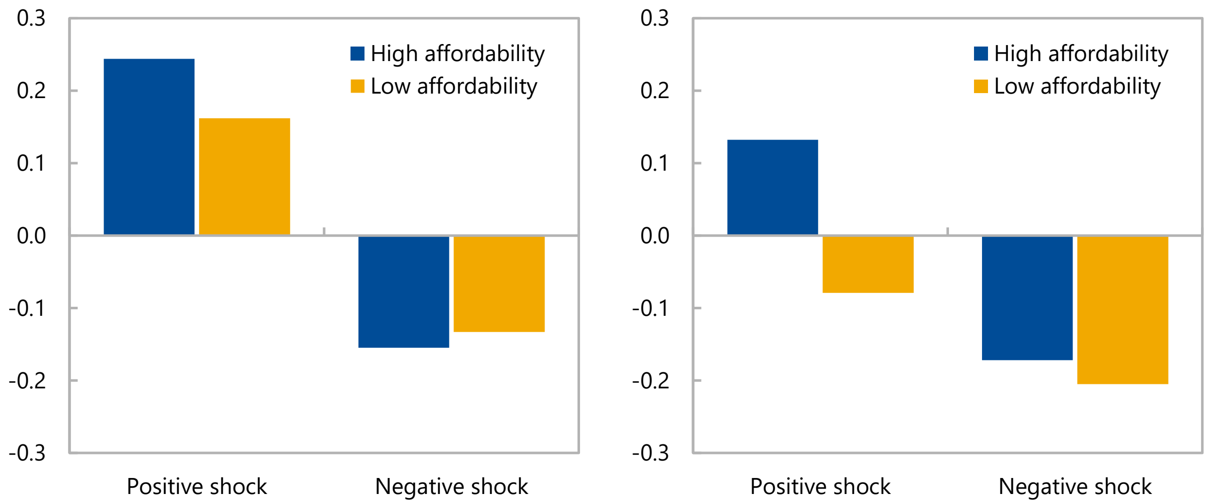
Figure 16 turns to the question whether migration responses differ by housing affordability. The figure reports the cumulative migration response three years after the shock, separately for positive and negative labor-demand shocks for regions with high affordability (evaluated at the 25th percentile of the within-region housing-cost measure) and low affordability is (evaluated at the 75th percentile).

The main takeaway is that housing affordability matters mainly when regions are expanding, as evident in both samples. Following a positive shock, more affordable regions absorb a substantially larger share of the shock through in-migration than less affordable regions. By the third year, the German migration response reaches 0.24 of the shock in more affordable districts, compared with 0.16 in less affordable districts; in Europe, the difference is larger, with low affordability eliminating the typical inward migration response to positive shocks. Following a negative shock, by contrast, migration responses lie close together in both samples, with the small gap even changing sign across them, suggesting no evidence that housing affordability matters. The pattern is therefore consistent with housing costs restraining entry rather than systematically affecting exit.

Figure 16. Cumulative Migration Response by Shock Sign and Housing Affordability

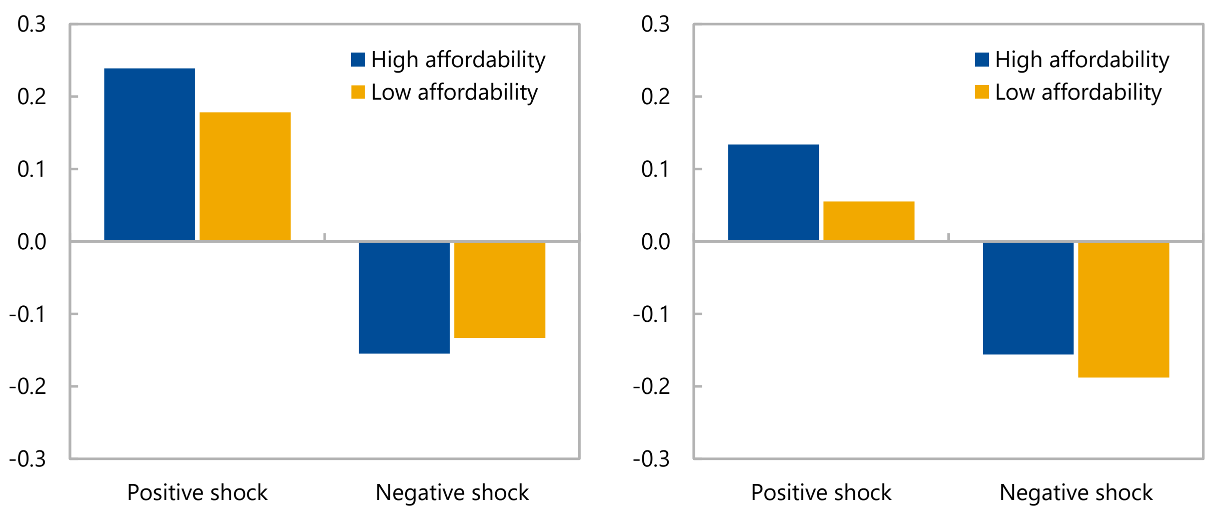
1. Germany: Regional Migration After Employment Shock, Direct Migration Response (Percent)

2. Europe: Regional Migration After Employment Shock, Direct Migration Response (Percent)



3. Germany: Regional Migration After Employment Shock, Implied Migration Response (Percent)

4. Europe: Regional Migration After Employment Shock, Implied Migration Response (Percent)



Source: IMF staff calculations.

The results are similar when migration is measured directly rather than inferred from the Blanchard-Katz decomposition. Figures 16.3 and 16.4 repeats the exercise using directly measured net migration in place of the residual. The positive-shock pattern is reproduced in both samples. This robustness check supports the interpretation that the affordability channel operates through migration rather than through the construction of the residual.

Table 1 provides further statistical validation for the results presented in Figure 16. Migration responses after positive labor-demand shocks are weaker in less affordable regions. The evidence is strongest after positive labor-demand shocks: in both Germany and Europe, migration into expanding regions is lower when housing is less affordable. This result holds using both implied migration from the Blanchard-Katz decomposition and directly measured net migration, although the timing of statistical significance differs somewhat across samples and measures. By contrast, after negative shocks, the affordability gap is small and statistically insignificant. These findings reinforce our main result that housing affordability appears to constrain entry into expanding regions, rather than systematically affecting exit from declining ones.

Table 2. Migration Contribution at the Three-Year Horizon (h = 3), By Sample, Shock Direction, and Housing Affordability

	High affordability	Low affordability	Gap	p-value	
				p-value on impact	p-value cumulative
Panel A. Germany (Kreise): land price					
Positive (boom)					
Implied	0.244	0.162	−0.082	**0.02**	**0.07**
Direct	0.239	0.178	−0.061	**0.06**	**0.06**
Negative (bust)					
Implied	0.155	0.133	−0.022	0.55	0.75
Direct	0.163	0.131	−0.031	0.59	0.81
Panel B. Europe (NUTS1): rent burden					
Positive (boom)					
Implied	0.132	−0.079	−0.210	0.24	**0.04**
Direct	0.134	0.055	−0.079	**0.05**	0.14
Negative (bust)					
Implied	0.172	0.205	+0.034	0.20	0.62
Direct	0.156	0.188	+0.032	0.50	0.81

Source: IMF staff calculations.
Note: Contributions are evaluated at the three-year horizon and normalized to a unit impact employment response. High and low affordability denote the 75th and 25th percentiles of within-region housing affordability, respectively; the gap is the low-minus-high difference. Bold p-values are significant at least at the 10 percent level.

The estimated impact of housing affordability on labor mobility is moderate but economically meaningful. To gauge the size of this effect, we ask how many additional workers would have moved into expanding regions if housing costs had been lower. For each expanding region-year, we compare actual predicted migration with predicted migration under a more affordable housing-cost level, set at the 25th percentile of that region's own history. Adding up these differences suggests that about 86,000 working-age people did not move into German districts between 2010 and 2020 because housing had become less affordable—around 4 to 5 percent of recorded in-migration. Applying the same illustrative counterfactual to the European sample implies about 1.1 million foregone moves over the past decade, although this estimate is less precise given the coarser regional geography.

For Germany, these foregone moves imply a modest output loss. Valuing each missing move by the productivity gap between the destination region and alternative origin-region assumptions suggests that GDP would be 0.02 to 0.10 percent higher without the housing-affordability friction, with a central estimate of about

0.06 percent, or roughly EUR 2 billion per year. For Europe, the direction is likely similar, but the NUTS1 geography is too coarse to support a credible aggregate estimate.[6]

Our estimates are smaller than those in the spatial-misallocation literature because they measure a more limited channel. Hsieh and Moretti (2019) and Ganong and Shoag (2017) estimate how much output is lost because workers are persistently unable to move from lower-productivity places to higher-productivity places. Our exercise is narrower: it assesses how many additional workers would have moved into regions during periods of strong local labor demand if housing had been more affordable. The estimates should therefore be read as a conservative measure of the output cost from reduced in-migration during regional expansions, not as the full output cost of housing constraints.

Conclusions

This paper examined the drivers and economic implications of declining housing affordability in Europe. The key takeaways include the fact that housing affordability in Europe has deteriorated sharply in some countries and regions but not all, and especially for lower-income renters in urban areas. Renters are also finding it harder to transition to ownership. Housing costs exacerbate inequality by lowering net disposable incomes and widening the wealth gap between owners and renters, especially in urban areas. Low affordability also hampers migration to high-growth regions, reducing economic efficiency. Unlike the pre-global financial crisis (GFC) price increases, the current cycle is driven less by credit growth and more by housing supply constraints.

These findings underpin the policy recommendation as set out in the IMF's 2026 Euro Area consultation. Policies should focus on expanding housing supply, including by releasing land for residential construction, streamlining permitting procedures, and improving access to finance for developers. Labor shortages in the construction sector also need to be addressed. In many countries there is room to raise the low stock of social rental housing, either directly via the public sector or via financial incentives to private developers. While many of these measures need to be taken at the national or even subnational level, EU-level action can complement national efforts, starting with deepening the single market for construction—one of the least traded services in the EU.

[6] We cannot replicate the German exercise one-to-one for Europe. Benchmarking booming regions against the European average spuriously yields a negative effect, reflecting comparisons between fast-growing regions in poorer member states and a benchmark dominated by richer economies. Using poorer regions within the same country as the comparison group—the relevant benchmark given limited cross-border mobility in Europe—suggests that more reallocation would have been output-enhancing, although the sample is very small.

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Annex A. Micro-Level Analysis

Data. The European Union Statistics on Income and Living Conditions (EU-SILC) is a harmonized household and individual microdata source covering income, living conditions, housing, labor-market status, education, and other socioeconomic characteristics. EU-SILC provides both cross-sectional data and longitudinal data; the latter follow individuals and households over a limited panel window, typically four years. Housing conditions are collected mainly at the household level, while labor-market, education, and health variables are collected primarily for individuals aged 16 and above. Given known limitations in terms of the data collection and harmonization in the first few years of the EU-SILC (especially 2004 and 2005 and to some degree 2006-09), we limit some analysis to the period after the GFC. But where there is particular interest in studying pre- and post-GFC developments we include data for 2006 and 2007.

Stylized facts in section II are constructed using the cross-sectional EU-SILC data, with the data treatment copying precisely the approach taken in Elfayoumi and others, 2021. Annex Table 1 presents the summary statistics for the main variables used.

Annex Table A.1. EU-SILC Cross-Sectional Variables

	Observations	Mean	Standard deviation	Min	25th percentile	Median	75th percentile	Max
Households by tenure status (1 to 5)[1]	2,484,972	1.9	1.1	1	1	1	3	5
Cost of rent (euros)	623,494	6,589	5,519	0	3,360	5,520	8,400	1,442,100
Total housing cost including utilities (euros)	3,166,496	5,244	10,408	0	2,160	3,660	6,668	15,756,550
Total disposable income (euros)	3,166,496	34,994	40,326	0	13,694	25,670	45,670	12,925,194
Equivalized household size (number)	3,166,492	1.7	0.6	1	1	2	2	9
Equivalized disposable income (euros)	3,166,492	21,307	23,921	0	9,146	16,530	27,453	8,616,796
Degree of urbanization (1, 2, or 3)	2,991,541	2.0	0.8	1	1	2	3	3
Household cross-sectional weight (DB090)	3,166,495	671.3	920.2	0	172	395	798	96,927

Sources: EU-SILC; and IMF staff calculations.
[1]Households by tenure: 1 = owners without mortgage, 2 = owners with mortgage, 3 = renters at market price, 4 = renters with reduced rent, 5 = free accommodation.

The analysis in section IV relies on the longitudinal component of the EU-SILC. Annex Table 2 presents the summary statistics for the main variables used in the analysis of the probability of transition from renter to owner.

Annex Table A.2. EU-SILC Longitudinal Variables

	Observations	Mean	Standard deviation	Min	25th percentile	Median	75th percentile	Max
Transition: renter → owner (0 or 1)	236,204	0.1	0.2	0	0	0	0	1
Onwer occupancy indicator (0 or 1)	236,204	0.1	0.2	0	0	0	0	1
Duration within observed risk spell (years)	236,204	1.8	0.8	1	1	2	2	3
Age (years)	236,204	42.9	12.1	18	33	43	53	65
Married (1 or 2)	235,632	1.6	0.5	1	1	2	2	2
Capacity to pay for one week of holidays (1 or 2)	235,856	1.4	0.5	1	1	1	2	2
Capacity to face unexpected financial shock (1 or 2)	235,613	1.5	0.5	1	1	1	2	2
Ability to make ends meet (indicator from 1 to 6)	235,693	3.2	1.4	1	2	3	4	6
Total disposable household income (euros)	235,736	31,728	31,955	0	13,310	23,692	40,376	3,003,500
Income from a rental property or land (euros)	232,903	255	3486	0	0	0	0	800,000
Degree of urbanization (1, 2, or 3)	230,616	1.7	0.8	1	1	1	2	3
Household longitudinal weight (DB095)	148,790	1,516	2,703	0	340	808	1,548	117,073
Hybrid household weight (DB095, fallback DB090)	227,106	1,595	2,524	0	404	881	1,691	117,073

Sources: EU-SILC; and IMF staff calculations.

Robustness checks. To assess the robustness of the estimated transition probabilities, this annex estimates a sequence of discrete-time hazard logit models with progressively different weighting schemes, sample restrictions, and covariate sets. These robustness checks are designed to verify that the main conclusions are not driven by a particular choice of weights, time period, geographic sample, or set of household controls. In terms of the weights, the preferred weight is the household longitudinal weight, where available. In earlier years where the longitudinal household weight is missing, the analysis uses a hybrid measure that falls back on the household cross-sectional weight. In terms of the time period, as discussed some of the early years have known data limitations, and hence we want to make sure that these years do not drive the overall results.

Annex Table 5 shows that indeed results are robust to these considerations as shown by the broad stability of coefficient estimates across specifications.

Annex Table A.3

Coefficients	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
Not married				-0.187 (0.135)	-0.242** (0.102)	-0.171* (0.104)	-0.190 (0.144)
Broad age group: 30-39				-0.110 (0.136)	-0.124 (0.102)	-0.060 (0.104)	-0.064 (0.140)
Broad age group: 30-39 × Not Married				0.168 (0.159)	0.155 (0.120)	0.141 (0.124)	0.167 (0.169)
Broad age group: 40 and above				-0.586*** (0.130)	-0.624*** (0.098)	-0.558*** (0.100)	-0.556*** (0.134)
Broad age group: 40 and above × Not Married				0.264* (0.151)	0.295*** (0.114)	0.221* (0.118)	0.296* (0.159)
Capacity to face unexpected financial shock: No				-0.775*** (0.145)	-0.713*** (0.107)	-0.680*** (0.110)	-0.749*** (0.140)
Degree of urbanization: Rural areas				0.776*** (0.064)	0.659*** (0.047)	0.690*** (0.050)	0.742*** (0.064)
Degree of urbanization: Towns & suburbs				0.460*** (0.058)	0.390*** (0.044)	0.388*** (0.048)	0.415*** (0.059)
Duration within observed risk spell: 2 years	-0.093 (0.058)	-0.131*** (0.039)	-0.109** (0.053)	-0.127** (0.056)	-0.145*** (0.042)	-0.156*** (0.045)	-0.164*** (0.057)
Duration within observed risk spell: 3 years	-0.267*** (0.079)	-0.307*** (0.052)	-0.345*** (0.071)	-0.364*** (0.075)	-0.319*** (0.055)	-0.332*** (0.060)	-0.359*** (0.077)
HH income quintile: Q2				0.337** (0.148)	0.302*** (0.110)	0.323*** (0.118)	0.272* (0.154)
HH income quintile: Q2 × Capacity to face unexpected financial shock: No				-0.057 (0.200)	-0.003 (0.149)	-0.051 (0.156)	0.019 (0.202)
HH income quintile: Q3				0.682*** (0.131)	0.601*** (0.099)	0.607*** (0.106)	0.649*** (0.133)
HH income quintile: Q3 × Capacity to face unexpected financial shock: No				-0.096 (0.186)	0.007 (0.137)	0.018 (0.144)	-0.013 (0.182)
HH income quintile: Q4				0.958*** (0.121)	0.909*** (0.091)	0.875*** (0.097)	0.898*** (0.122)
HH income quintile: Q4 × Capacity to face unexpected financial shock: No				0.117 (0.181)	0.165 (0.133)	0.188 (0.139)	0.252 (0.174)
HH income quintile: Q5 (highest)				1.661*** (0.117)	1.579*** (0.089)	1.547*** (0.094)	1.641*** (0.118)
HH income quintile: Q5 (highest) × Capacity to face unexpected financial shock: No				-0.227 (0.180)	-0.159 (0.133)	-0.170 (0.139)	-0.244 (0.175)
Constant	-3.165*** (0.144)	-2.835*** (0.201)	-3.071*** (0.081)	-3.685*** (0.186)	-3.330*** (0.154)	-3.289*** (0.161)	-3.178*** (0.214)
Weights	Household longitudonal weights	Household longitudonal (when available), household cross-sectional otherwise	Household longitudonal (when available), household cross-sectional otherwise	Household longitudonal (when available), household cross-sectional otherwise	Household longitudonal (when available), household cross-sectional otherwise	Household longitudonal (when available), household cross-sectional otherwise	Household longitudonal (when available), household cross-sectional otherwise
Time period	All years	All years	2012-2024	2012-2024	2006-2024	2006-2024	2006-2024
Sample	All countries	All countries	All countries	All countries, no households with income from rental property or land	All countries, no households with income from rental property or land	EU only, no households with income from rental property or land	Euro Area only, no households with rental income from property or land
N	144,845	222,769	155,177	144,684	203,266	171,443	133,308
Pseudo R2	0.0265	0.0265	0.0276	0.1090	0.0999	0.0952	0.0998

Source: IMF staff calculations.

Annex B. Methodology for House Price Growth Decompositions

This annex details the SVAR and local projection methodologies used to decompose house price growth in Section III.

Structural VAR estimation. The reduced-form Bayesian VAR in equation (1) is estimated on quarterly euro area aggregate data over 2005Q1-2025Q3 with a lag length of two quarters. The errors are expressed as linear combinations of orthonormal structural shocks, $e_t = Bv_t$ with $E(v_t v_t') = I$, so that $\Sigma = BB'$, where the matrix B describes the contemporaneous response of the endogenous variables to the structural shocks. Candidate matrices are drawn and retained only if the implied responses satisfy the sign restrictions in Table 1 of the main text and the narrative restrictions in Annex Table 3. In the baseline, the VAR coefficients and covariance matrix are held fixed at their posterior estimates, so uncertainty in the baseline decomposition comes from the set of admissible candidate rotations rather than from reduced-form parameter uncertainty. Rotations are drawn until 5,000 models are accepted under the sign restrictions alone (rejection rate of 85.9 percent) and 5,000 under the combined sign and narrative restrictions (rejection rate of 98.1 percent); the latter set constitutes the baseline. The historical decomposition reports the pointwise posterior mean across accepted draws. A robustness check reintroduces parameter uncertainty by drawing the VAR coefficients and covariance matrix from the posterior.

Annex Table B.1 Narrative Restrictions

Date	Shock	Sign of shock	Historical event
2006Q1	Monetary policy	− (contractionary)	ECB starts hiking cycle (+25 bps, March 2006)
2007Q2	Monetary policy	− (contractionary)	ECB reaches peak rate of 4.00 percent, eighth consecutive hike in the cycle
2022Q3	Monetary policy	− (contractionary)	First ECB hike in 11 years (+50 bps, July 2022), ending negative interest rate policy
2024Q2	Monetary policy	+ (expansionary)	First ECB cut in the tightening cycle (−25 bps, June 2024)
2006Q2	Credit supply	+ (expansionary)	Peak of the euro area credit boom: lending standards at historic lows, credit growth above 10 percent year-on-year

Note: Narrative restrictions of the sign-at-date type (“type A”) following Antolín-Díaz and Rubio-Ramírez (2018): the sign of the indicated structural shock is restricted at the specified dates. The restrictions eliminate candidate models inconsistent with known monetary policy and credit regime changes.

Sign restrictions. Sign restrictions are imposed at impact and at one quarter ahead. They apply to the cumulative responses for real house prices and real GDP (the level effect), to the growth response for real credit (the flow of new lending), and directly to the level responses of building permits and the mortgage rate. The choice of which response to restrict—cumulated, growth, or level—is guided by what identifies each shock: cumulative effects for house prices and output, the flow of new lending for credit, and the level effect for permits and the mortgage rate. The restriction that positive demand shocks raise output and permits follows Aastveit and others (2023), Furlanetto and others (2019), and Geerolf and Grjebine (2018); a negative supply shock lowers permits; expansionary monetary policy lowers the mortgage rate; and a credit supply easing raises credit together with the mortgage rate, the latter reflecting lender compensation for risk (Bernanke and Gertler, 1995; Maddaloni and Peydró, 2011). Because the decomposition in Section III is for the level of real house prices, the identified contributions to house-price growth are cumulated when constructing the historical decomposition.

Local projections. The local projection in equation (2) is estimated at each horizon $h = 0, \ldots, 12$ on euro area aggregate data over 2005Q4-2023Q3. The dependent variable is constructed in four steps: the median of the SVAR-identified housing supply shock across accepted draws is taken as the point estimate at each date, then standardized to zero mean and unit variance over the local-projection sample, then cumulated quarter by quarter, and finally rebased to zero at 2015Q1. This level series is regressed on its own lag and the lagged standardized supply-side drivers. Labor shortages and financial constraints are entered jointly. Impulse responses are reported with 90 percent confidence bands based on Newey-West HAC standard errors.

Data sources. Annex Table 4 lists the series used in the SVAR and the local projections.

Annex Table B.2. Data Sources

Variable	Series	Source
Real house prices	Residential property price index, euro area	BIS, Residential Property Price Statistics
Real credit for house purchases	Loans to households for house purchase	ECB, MFI balance sheet items (BSI) statistics
Mortgage rate	Interest rate on new loans to households for house purchase	ECB, MFI interest rate (MIR) statistics
Building permits	Building permits for residential construction	Eurostat, short-term business statistics
Real GDP	Gross domestic product, chain-linked volumes	Eurostat, quarterly national accounts
Financial constraints; labor shortages	Share of construction firms reporting each as the main factor limiting production	European Commission, Business Survey on Construction
Workforce age	Average age of employed persons, construction and total economy	Eurostat

Note: Real house prices and credit are obtained by deflating the nominal series by CPI.

Robustness checks. All checks vary one element of the baseline at a time and confirm that the headline findings—the role of credit-supply, demand, and monetary policy shocks in the SVAR decomposition, and the role of financial constraints and labor shortages in the local projections—are not driven by a specific modelling choice.

The baseline SVAR is subjected to three robustness checks. First, the policy rate is replaced by the shadow short rate to extend the effective monetary stance through the zero-lower-bound period; the historical decomposition is qualitatively unchanged. Second, parameter uncertainty in the VAR coefficients is reintroduced via Gibbs sampling, in place of holding them at the OLS point estimate; the headline shock-contribution pattern is preserved. Third, the model is extended to six variables by adding inflation and identifying a separate inflation shock, ensuring that monetary policy is not confounded with inflation dynamics; the role of credit supply shocks in the pre-GFC house price increases and of housing supply shocks in the post-2020 episode is unchanged.

The local projections is subject to three robustness checks. First, the estimation sample is truncated successively to (a) 2005Q3-2019Q4, (b) 2005Q3-2020Q4, and (c) the full sample, with coefficients from each truncation applied to the full-sample driver values to compute predicted contributions. Labor shortages remain a stable positive predictor across all cuts; financial constraints are identified primarily by the post-2020 episode. Second, a COVID lockdown dummy (2020Q2) is added to control for the extreme disruption in construction activity during the pandemic; both coefficients are unchanged. Third, the dependent variable is replaced by its first difference, dropping its AR(1) control; the labor-shortage coefficient remains positive and significant at medium-to-long horizons, while the financial-constraints coefficient weakens, indicating that financial constraints are identified partly by the persistence of the cumulated shock series.

Annex C. Methodology for Labor Mobility Regressions

Accounting decomposition. Following Blanchard and Katz (1992), employment changes decompose into three adjustment margins,

$$\Delta e = \Delta(e - \ell) + \Delta(\ell - p) + \Delta_P, \tag{A1}$$

where *e, ℓ* and *p* denote log employment, log labor force, and log working-age population. The three right-hand terms are the employment-rate, participation, and population (net-migration) margins; the population margin *Δp* is the object of interest, treated as a proxy for net migration under the assumption that natural change in the working-age population is small relative to migration.

Local projections. For each margin y and horizon *h = 0, …, H* we estimate (Jordà, 2005)

$$y_{i,t+h} = \alpha_i + \beta^h s_{i,t} + \gamma^h [s_{i,t} \dots r_{i,t}] + \delta^h r_{i,t} + X'_{i,t}\theta + \lambda_t + \varepsilon_{i,t+h}, \tag{A2}$$

where $s_{it,}$ is the region-specific labor-demand shock, $r_{i,t}$ is housing affordability, $X_{i,t}$ holds two lags of each margin, α_i and λ_t are region and year fixed effects. We cluster standard errors by region and normalize impulse responses $\{\beta^h, \gamma^h\}$ so the impact employment response equals one. All impulse response functions (IRFs) are anchored at *t=0* with a value of 0, representing the state of the regional economy immediately before the shock occurs.

Shock. The shock is relative employment growth, measured against a population-weighted aggregate. With time-invariant weights $\omega_i = \bar{p}_i \,/\, \Sigma_j\, \bar{p}_j$ and aggregate $\bar{s}_t = \Sigma_i\, \omega_i\, \Delta e_{i,t}$, the homogeneous German districts use a simple difference,

$$s_{i,t} = \Delta e_{i,t} - \bar{s}_t \tag{A3}$$

whereas the European regions, which span countries with different cyclical sensitivities, use the Decressin–Fatás (1995) *β*-difference, taking *s(i,t)* as the residual of the region-by-region regression:

$$\Delta e_{i,t} = \alpha_i + \beta_i \bar{s}_t + s_{i,t}. \tag{A4}$$

Housing affordability. The interaction term is within-region-demeaned affordability, $r_{i,t} = z_{i,t} - \bar{z}_i$, where *z* is the three-year pre-shock moving average of affordability, measured over periods *t-3* to *t-1*, and defined as the log land price minus log GDP per capita (Germany) or the rent-to-disposable-income ratio (Europe).

Asymmetry and contributions. Splitting the shock into its positive and negative parts, $s^+ = max(s,0)$ and $s^- = min(s,0)$, each interacted with affordability, gives:

$$y_{i,t+h} = \alpha_i + \beta^+ s^+_{i,t} + \beta^- s^-_{i,t} + \gamma^+ s^+_{i,t}\, r_{i,t} + \gamma^- s^-_{i,t}\, r_{i,t} + \delta r_{i,t} + X'\theta + \lambda_t + \varepsilon_{i,t+h}. \tag{A5}$$

We recover the migration contribution in two ways: implied—the Blanchard-Katz residual and direct, the response of cumulative net migration. We evaluate each at the 25th and 75th percentiles of *r* (low and high affordability).

Inference. For the directly measured migration response the interaction is a single coefficient. The headline test is the impact-horizon interaction, $H_0 : \gamma_0^+ = 0$, clustered by region; persistence is summarized by a one-degree-of-freedom cumulative test, $H_0 : \Sigma_h \gamma_h^+ = 0$, obtained from a stacked regression with horizon-specific fixed effects. We maintain clustering in the stacked regressions, which ensures that the inference for the cumulative migration contribution accounts for both spatial and temporal (across-horizon) autocorrelation within regions. For the implied response the gap is not a single coefficient but a linear combination of interaction coefficients across the three margins. At the cumulative horizon: mobility gap = $(r_{75} - r_{25}) \cdot [\, \Sigma_h \gamma^+\_emp,h - \gamma^+\_er,H - \gamma^+\_pr,H \,]$, with the analogous combination at $h = 0$ for the impact horizon, and its significance is assessed by a one-degree-of-freedom Wald test on this combination (normal reference). The required joint covariance of the coefficients across the three equations is obtained by stacking the employment, employment-rate and participation projections over all horizons into a single regression with equation-by-horizon-specific slopes and fixed effects, clustered by region; this is the cross-equation analogue of the stacked test used for the direct gap. For the small European panel direct joint test is confirmed by a wild-cluster bootstrap (Cameron, Gelbach and Miller, 2008).

PUBLICATIONS

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