

ACCENTRO HOUSING COST REPORT 2022

FOR GERMANY



INSTITUT
DER DEUTSCHEN
WIRTSCHAFT

A Nationwide Analysis of Rents
and Owner-Occupiers' Housing Costs
in Germany

INCLUDING SPECIAL SECTION:
Outlook Interest Rate Reversal

7TH EDITION

ACCENTRO Housing Cost Report 2022

Nationwide Analysis of Rents and Owner-Occupiers' Housing Costs in Germany

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Summary

The user-cost-of-housing approach makes it possible to compare rental costs with the recurrent costs borne by homeowners. While the approach is used to determine the relative economic benefit of owning your home outright versus renting your home, it also identifies over- or undervaluations in the market. The comparison of the cost burdens of tenants and owners, respectively, according to the user-cost-of-housing approach across all rural districts and urban districts in Germany returned the following key findings:

- » The owner-occupiers' housing costs flatlined year on year.
- » The low level of interest rates on mortgage loans continued to have a dampening effect on owner-occupiers' costs, as did significant decreases in the assumed opportunity interest rate.
- » Last year, the law mandating that the agent's fee be split between buyer and seller further increased the economic benefit of homeownership by lowering the incidental acquisition costs.
- » The rapid price growth for residential freehold property last year is unsurprising when judged on the basis of the user-cost-of-housing approach.
- » Scenario calculations for the emergent rise in interest rates for mortgage loans show that owner-occupiers' housing costs are likely to increase sharply in 2022. However, the calculations also reveal that the housing market has so far coped rather well with the higher level of interest rates. Major price drops are therefore not to be expected in the short term.

1. Introduction

This seventh edition of the ACCENTRO Housing Cost Report once again compares the housing costs of own-occupiers with those of residential tenants. Even during the past two pandemic years, the ACCENTRO Housing Cost Report helped to gain a deeper understanding of the price trends in privately owned homes, the findings of the previous report for the year 2020 underlining the significant economic benefit of home-ownership. Keen demand for residential freehold property continued in 2021, and this was certainly to be expected from the perspective of the presented user-cost-of-housing approach.

The previous report voiced the hope that this year's edition would get to discuss the post-pandemic return of the housing market to business as usual. But while the infection situation in Germany may be largely under control at mid-year 2022, the pandemic is far from over. Lockdowns in China, especially in Shanghai and Beijing, have caused massive upheavals for global trade, and the downstream effects of the pandemic are likely to be felt worldwide for a long time to come.

In spring of 2022, Russia launched its war of aggression against Ukraine. The world remains in shock over the terrible amount of suffering it has caused. And its humanitarian and economic repercussions are enormous. The short-term economic consequences of the war have prompted a sharp rise in energy prices, and high rates of inflation are here to stay. For this reason, the European Central Bank is expected to embark on an interest tightening policy before the end of this summer. On the real estate market, the interest rate reversal already arrived in the spring of 2022, and interest expenses for mortgage loans have soared within a very short period of time. Potential consequences of the interest rate hikes for the economic benefit of owning versus renting your home will be discussed in this report.

The other parts of the report are structured as follows: First, the methodology underlying the user-cost-of-housing approach will be elaborated and illustrated using an example. Next, the results for the nationwide average and Germany's seven largest cities will be presented over time, followed by the survey findings for Germany's rural districts. The report will then present the results of an annuity calculation that put the outcome of the user-cost-of-housing calculation into perspective. Finally, a scenario calculation will be used to discuss the ramifications of the latest interest hike for the level of owner-occupiers' housing costs.



2. Owner-Occupiers' Housing Costs

2.1 Notes on the Methods Used

Comparing Rents and Homeownership Costs

The costs of renting a home are easy to define because they are synonymous with the rental dues. But the ability to compare the costs of an owner-occupier with those of a residential tenant presupposes a few assumptions regarding the owner side. The section below will start with a simple comparison of the costs of transferring residential accommodation and the costs of occupying it. In other words, the comparison will only consider the net rent on the tenant side. The service charges are ignored in the subsequent discussion.

The costs borne by owner-occupiers include more than just one cost item. Under the user-cost-of-housing approach (cf. Poterba [1984] or Himmelberg et al. [2005]), a variety of costs associable with the acquisition and maintenance of real estate are added up and then broken down into a monthly amount per square metre of dwelling floor area, in euros, which permits a direct comparison of rental costs and owner-occupiers' housing costs, respectively. The calculation of the owner-occupiers' housing costs can be formally summarised as follows:

$$\begin{aligned} \text{SNK}_{k,t} = & P_{k,t} \cdot (b \cdot i_{F,t}) + P_{k,t} \cdot (s + a) - P_{k,t} \cdot \widehat{\Delta P}_k \\ & + P_{k,t} \cdot (1 - \tau_t) \cdot (1 - b) \cdot i_{A,t} \\ & + P_{k,t} \cdot (m_{k,t} + g_{k,t} + n + e) \cdot (1 - \tau_t) \cdot i_{A,t} \\ & + P_{k,t} \cdot (m_{k,t} + g_{k,t} + n + e) \cdot i_{F,t} \end{aligned}$$

The owner-occupiers' housing costs SNK are determined on the level of Germany's 40¹ rural and urban districts k for a given year t . The purchase price of the freehold residential property P in euros per square metre of dwelling floor area represents a key aspect in the cost measurement. The higher the purchase price of a given property, the higher the owner-occupiers' housing costs are bound to be, at least if all other conditions are identical. A certain share b of the purchase price is borrowed, subject to a borrowing rate of i_F . The higher the purchase price, the leverage and the mortgage interest, the higher the cost of debt, meaning the interest payments to repay the loan

taken out to finance the property. The higher the cost of debt, the higher, in turn, will be the owner-occupiers' housing costs. Unlike tenants, homeowners need to factor in maintenance costs s as well as amortisation a which will cause the value of the property to deteriorate over time if the necessary capital expenditures were skipped. This cost item should therefore be considered on an opportunity basis. Either the capital expenditures are actually incurred to keep the property value stable, assuming that market prices do not increase for some other reason, or they are skipped, causing the property value to decline in a proportionate amount. So, whether these costs are actually incurred or remain hypothetical, they will impact the value of the property in any case. This is matched by the market price performance ΔP_k of the property. A positive development of the market price will lower the owner-occupiers' housing costs. It should be noted that the equity interest $1-b$ in the property financing arrangement could alternatively have been invested on the capital market rather than in real estate. The calculation imputes that the alternative investment would pay interest at a rate of i_A . Interest income from the alternative investment would be taxable at a rate of τ . In addition, buying property generates incidental acquisition costs. These include the estate agent fee m , the real estate transfer tax g as well as the notary fee n and the charges for entering the title in the land register e . The incidental acquisition costs, just like the equity paid down, could have been invested into something else. Any income from that would also be subject to taxation. The higher the imputed interest on the alternative investment, the higher the owner-occupiers' housing costs. Finally considered is the fact that the incidental acquisition costs have no equivalent value in the form of a property asset. In order to be able to take these costs into account, it is assumed that the financing markets are fully flexible, and that even the equity capital share is debt-financed and subject to debt interest. The repayments of the principal associated with a mortgage loan are explicitly not part of a property owner's housing costs because they contributed to the capital formation.



Data Sources

Below, the owner-occupiers' housing costs are measured for each of Germany's 401¹ rural and urban districts. The regional property prices that are needed for this purpose are obtained from two different data sources. To permit a direct comparison of owner-occupiers' housing costs and rents, the respective prices and rents obviously need to reference comparable properties. Actually sold and rented residential properties can differ considerably from one region to the next, and over time. So, in order to ensure that properties are actually comparable, the survey relies on hedonic prices. These prices assume matching fit-out specifications and equivalent locations of the respective properties. We use the data provided by vdpResearch (2022) to juxtapose owner-occupiers' housing costs and rents. The data include initial selling prices or resale prices of fully refurbished period apartments in good locations and with high-spec interior fit-outs, on the one hand, and new-tenancy rents for comparable apartments, on the other hand. These data are available for the years 2010 through 2021. The calculation of the owner-occupiers' housing costs also takes account of appreciation. The anticipated long-term appreciation we use is based on the data by F+B (2022). These data let us analyse the extended time horizon from 2005 through 2021. The analysis measures the average annual performance per rural district or urban district, as the case may be. The analysed time period includes both the Zero Years, a time when the property price level was actually in decline in parts of Germany, and the more recent boom

years. In order to keep the fast price growth rates of recent years from attaining too much weight, the price growth rate is capped at an annual maximum of 3 percent.

To determine the percentage of the equity capital share, the survey relies on diverse publications by financial intermediary Dr. Klein, whose figures are in turn taken from real estate financing arrangements handled by the Europace platform. The higher the average equity capital commitment, the lower the owner-occupiers' housing costs. In this regard, we impute a uniform average value for all rural districts and urban districts for the period under review. It should be noted that significantly lower equity shares are also associated with interest rate markups. These interest rates, too, represent imputed average values without regional differentiation. The interest rates imputed in the calculations are obtained from surveys of Deutsche Bundesbank. The mortgage interest rate we applied represents the average effective interest rate that German banks charged for housing loans to private households with an initial fixed interest period of more than 10 years (Deutsche Bundesbank, 2022b). The average current yields of domestic bearer bonds are used as opportunity interest rate for alternative investments (Deutsche Bundesbank, 2022a). These returns would have to be taxed, and the average tax rate assumed here matches the definition used for Germany's financial statistics in this context (Federal Ministry of Finance, 2022).

¹ A local government reorganisation took place in 2021. The number of rural districts and urban districts in Germany declined from 401 to 400 as of 1 July 2021. The formerly independent urban district of Eisenach was integrated into Wartburgkreis district. Since the territorial reform took place midway through the year, the findings of this edition of the report are still shown for the 401 districts that existed up to 1 July 2021.

The level of the incidental acquisition costs varies from one German state to the next. Depending on the state, the real estate transfer tax rate ranges from 3.5 percent (e. g. in Saxony and Bavaria) to 6.5 percent (e. g. in Brandenburg and North Rhine-Westphalia). The costs of the land register entry and the notarial charges are assumed to be uniform nationwide.

Variables and data sources

Table 2.1

Variable	Explanation	Source
P_{kt}	Purchase price, in euros per sqm of dwelling floor area	vdpResearch (2022)
b	Debt capital share	Dr. Klein (2022a)
$i_{F,t}$	Mortgage rate	Deutsche Bundesbank (2022a)
$i_{A,t}$	Current yield on bearer bonds	Deutsche Bundesbank (2022b)
τ_t	Tax rate	BMF (2022)
ΔP_k	Purchase price change	F+B (2022)

Source: German Economic Institute (IWW)



Calculation of Owner-Occupiers' Housing Costs, Using an Example

The example below illustrates the measurement of the owner-occupiers' housing costs. As one of the key parameters of the owner-occupiers' housing costs, we assume a price of 4,000 euros per square metre of dwelling floor area. The incidental acquisition costs break down into the real estate transfer tax, whose rate varies from one region to the next and which is assumed to be 6 percent in the case at hand, as well as the estate agent's fee for buyers, here assumed to be 3.57 percent, plus costs for the land register entry and the notarial charges, assumed to be an aggregate amount equal to 1.525 percent. All things considered, the incidental acquisition costs in the example add up to 11 percent or 444 euros per square metre. The leverage equals around 85 percent. The borrowed capital is subject to an annual interest

rate of 1.26 percent. The remaining 15 percent of the purchase price, which represents the equity capital paid down, generate opportunity costs in an amount of 0.91 percent. This figure reflects the average current yield rate paid on domestic bearer bonds in 2021, which dropped noticeably year on year. Interest income of this sort would be taxable. To calculate the tax dues, the average tax rate according to the delimitation used in the financial statistics of 2020 was adopted for 2021. The rate was 23.2 percent. Another assumption used in the example is a long-term price growth rate of 2.5 percent annually. Maintenance costs equal to 1 percent and a depreciation rate of 2 percent were also assumed. Based on all of these assumptions, the calculation of the owner-occupiers' housing costs returned the following results:

$$\begin{aligned} \text{SNK}_{\text{Musterstadt}} &= 4000 \cdot (0,85 \cdot 0,0126) + 4000 \cdot (0,01 + 0,02) - 4000 \cdot 0,025 + 4000 \\ &\cdot (1 - 0,219) \cdot (1 - 0,85) \cdot 0,0091 + 4000 \cdot (0,0357 + 0,06 + 0,01525) \\ &\cdot (1 - 0,219) \cdot 0,0091 + 4000 \cdot (0,0357 + 0,06 + 0,01525) \cdot 0,0126 \end{aligned}$$

For an apartment of 100 square metres, it identified owner-occupiers' housing costs of 7,585 euros per year or 6.32 euros per square metre and month. Assuming a monthly rent rate of 9.00 euros per square metre for an equivalent flat, the economic benefit of owner occupancy would equal 30 percent.

Separating Owner-Occupiers' Housing Costs from the Annuity Calculation

As mentioned above, the capital repayment component of the financing arrangement is ignored in the context of owner-occupiers' housing costs because it serves a wealth-building purpose. The interest payments represent costs charged by the bank for making the borrowed capital available. The capital repayment component, by contrast, generates no economic benefit for the bank, and it is directly matched by the equivalent value of the purchased property. In classic annuity accounting, these two components are merged. After all, their sum represents the amount that has to be paid to the lender on a monthly basis. The annuity level is no doubt relevant when a given household has to decide how much of the household income can be spent on mortgage financing.

But this is not the fundamental idea underlying the user-cost-of-housing approach. Rather, it is based on the premise that the costs of renting a home should, in the long-term, match the costs of inhabiting an owner-occupied home. This means that only the cost components are of relevance. The classic annuity calculation only considers the debt capital interest as costs. By contrast, the owner-occupiers' housing cost approach takes opportunity costs into account, too. Opportunity costs represent the costs that are generated by the fact that capital is tied up in the property. Also taken into account are hypothetical returns that could have been generated if the capital had been spent on an investment product with a similar risk profile. Another aspect that the annuity calculation fails to consider are the costs for refurbishments and depreciations, nor does it include the appreciation of the property.

Nonetheless, the annuity calculation also serves an important purpose, because it is used to determine the monthly sums actually paid by households. Potential property buyers are therefore well advised not to consider either one of the two approaches in isolation. The section below therefore includes the results of a classic annuity calculation, too.

2.2 Findings for Germany

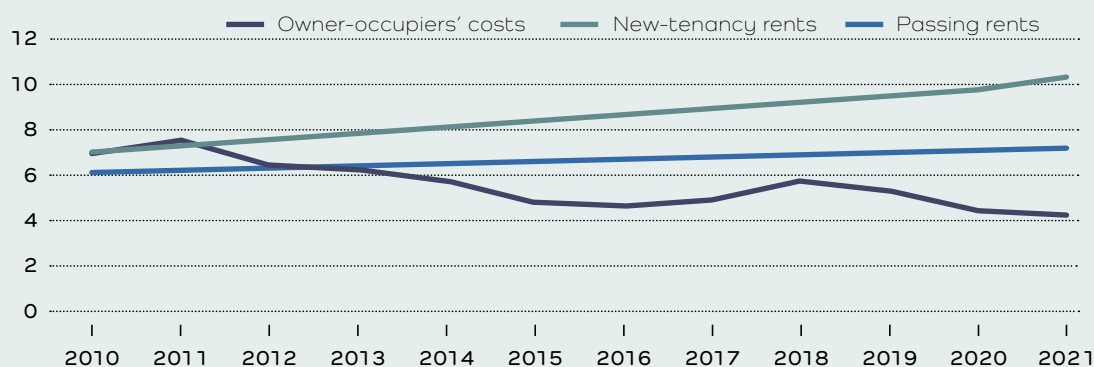
On the national level, the owner-occupiers' housing costs experienced no year-on-year change last year. Figure 2.1 shows the development of the owner-occupiers' housing costs between 2010 and 2021. In 2021, the owner-occupiers' housing costs equalled 4.21 euros per square metre of dwelling floor area. The rent rate for comparable apartments was 10.30 euros. This implies a cost advantage of just below 60 percent. Average passing rents in 2021 came to 7.04 euros, suggesting a cost advantage of around 40 percent for owner-occupiers.



Development of owner-occupiers' housing costs and rents ¹⁾

Population-weighted German ²⁾ average, in euros per square metre of dwelling floor area and month

Figure 2.1



¹⁾ Passing rents refer to a dwelling of standard fit-out specifications and state of repair (F+B, 2022). Rents on new leases and selling price are based on transaction data and refer either to first-sale prices or to resale prices of fully refurbished apartments in good locations and with good specification (vdpResearch, 2022).

²⁾ With no population data for 2021 available yet, the population weightings of 2020 were adopted for 2021. To do the census reset of 2011 justice, retrograde calculation was used for 2010 as defined by the BBSR Federal Institute for Research on Building, Urban Affairs and Spatial Development (2018).

Sources: German Economic Institute (IW); vdpResearch (2022); F+B (2022)

Considering the price growth on Germany's housing market, the stagnation of owner-occupiers' housing costs may come as a surprise, yet it is essentially attributable to two important developments that transpired last year. Freehold residential property prices increased by a population-weighted average of 10 percent last year, the fastest increase during the period under review. However, new-tenancy rents matched the trend with a 4.1-percent increase, which means that selling prices were only 6 percentage points faster to rise than rents. On the interest side, mortgage rates only went up by the annual average of 4 basis points since the previous year, which implies a percentage change of 3 percent. The trend that these three components of the owner-occupiers' housing

costs discussed so far followed would imply an increase in those costs. However, the opportunity interest rate declined significantly last year, from 1.75 percent down by almost half to 0.91 percent. In order to capture the effect of the declining opportunity interest rate, we assume in the example that this interest rate remained unchanged between 2020 and 2021. Had the opportunity interest rate remained stable, owner-occupiers' housing costs would have increased to 4.76 euros, implying an 11-percent growth. Another aspect that prevented a rise in owner-occupiers' housing costs is the reform of the regulations governing estate agent's fee.



On 23 December 2020 the new “Act on the Distribution of Estate Agent Fees for Brokering Sales and Purchase Agreements for Apartments and Single-Family Homes” (cf. Federal Law Gazette I 2020, p. 1245) was introduced. In regions where sellers used to have to shoulder the full amount of the agent’s fee of up to 7.14 percent of the selling price, the new regime cut the rate down to 3.57 percent (cf. Sagner/Voigtländer, 2021). Nationwide, the population-weighted average agent’s fee for buyers

dropped from 4.1 percent to 3.57 percent, which equals a reduction by 13 percent. Without the reduction of the agent’s fee, owner-occupiers’ housing costs would have added up to 4.25 euros, and thus would have made only a modest difference to the measured costs of 4.21 euros. However, in those regions where the agent’s fee used to be particularly high for buyers, such as in Berlin and Brandenburg, the muting effect was proportionately higher.

Changes in material calculation bases for the owner-occupiers’ housing costs
Table 2.2

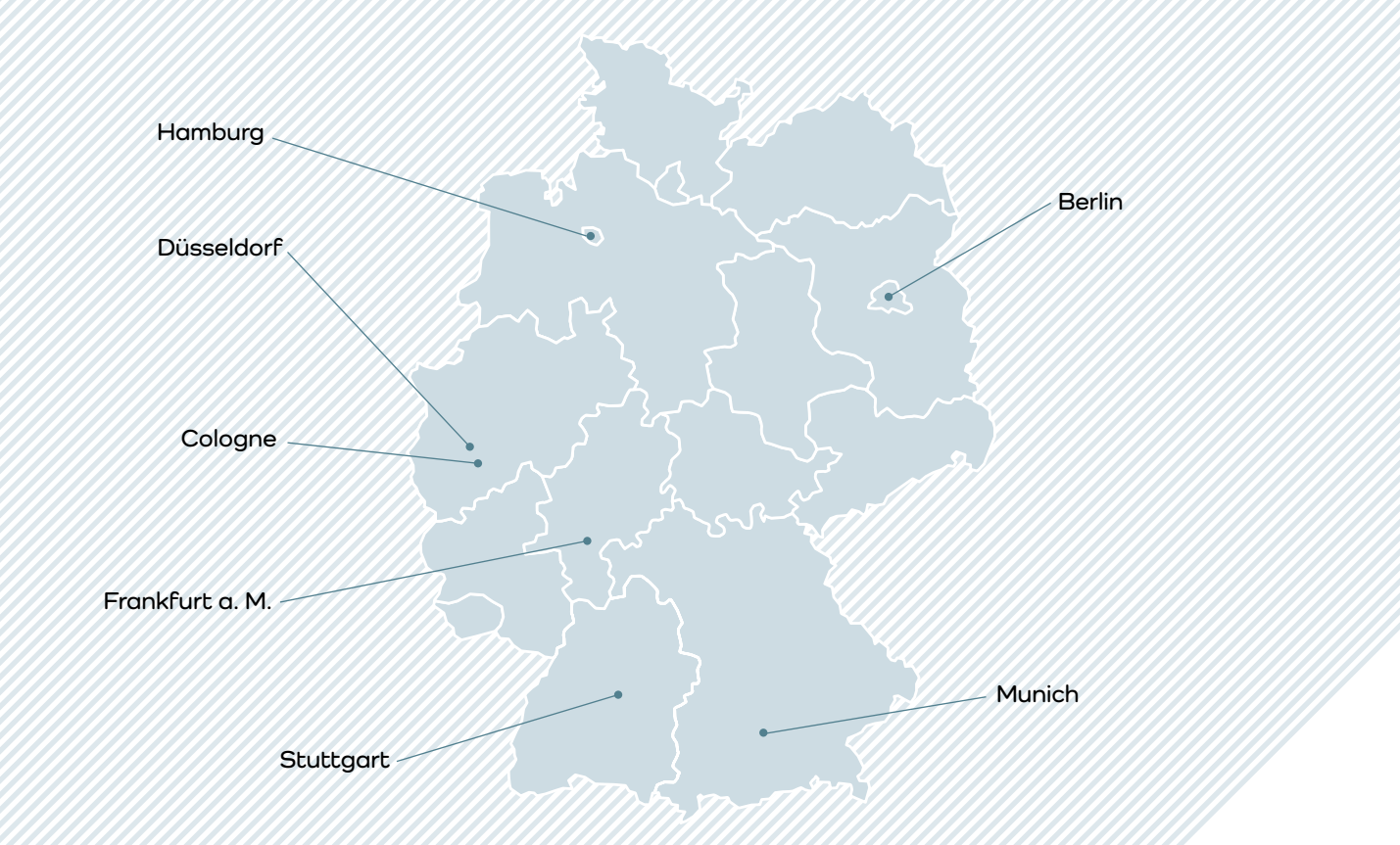
	2020	2021	Change
Purchase price	3018 €	3320 €	+ 10 %
New-tenancy rent	9.89 €	10.30 €	+ 4 %
Mortgage interest	1.22 %	1.26 %	+ 3 %
Opportunity interest	1.75 %	0.91 %	- 48 %
Estate agent’s fee	4.1 %	3.57 %	- 13 %

Sources: German Economic Institute (IW); vdpResearch (2022); Deutsche Bundesbank (2022a, b)

2.3 Findings for the “Big 7” Cities

On a regional level, the development of the economic benefit of owner-occupying versus renting is essentially influenced by the trend of the price-to-rent ratio. Moreover, the development between 2020 and 2021 is also dependent on changes in estate agent fees. In Berlin and Brandenburg (both 3.57 %) as well as in Hamburg and Frankfurt am Main (both 2.68 %) the imputed average sales commissions have decreased drastically, and the fact is reflected in the development of owner-occupiers’ housing costs. But the afore-mentioned changes on the interest side affect all districts symmetrically since we assume uni-

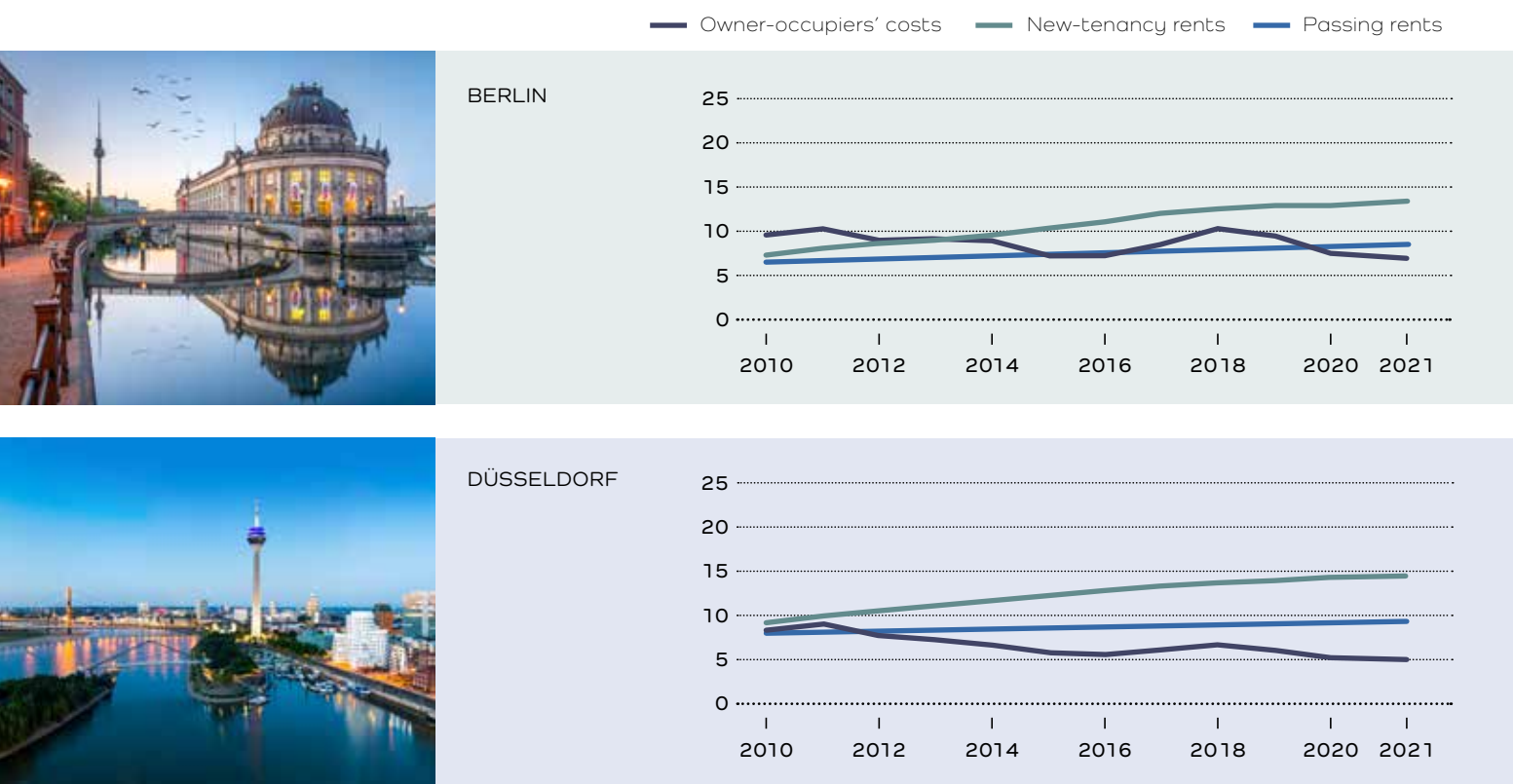
form interest rates across Germany. Accordingly, cities where the estate agent fees have declined also report a reduction in owner-occupiers’ housing costs, whereas they stagnated in other cities, such as Düsseldorf, Cologne, Stuttgart and Munich. Figure 2.2 shows the trends of rents and owner-occupiers’ housing costs in the so-called “Big 7,” i. e. Germany’s seven largest cities (Berlin, Cologne, Düsseldorf, Frankfurt am Main, Hamburg, Munich and Stuttgart). Overall, the findings returned by applying the user-cost-of-housing approach highlight the reasons why significant price hikes were to be expected last year.



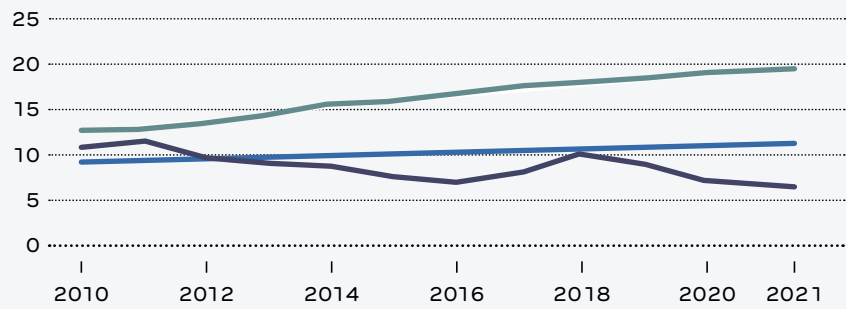
Owner-occupiers' housing costs and rents in Germany's metropolises

In euros per square metre of dwelling floor area and month

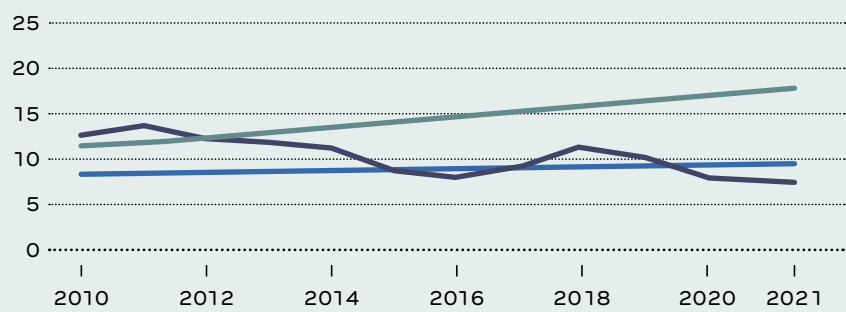
Figure 2.2



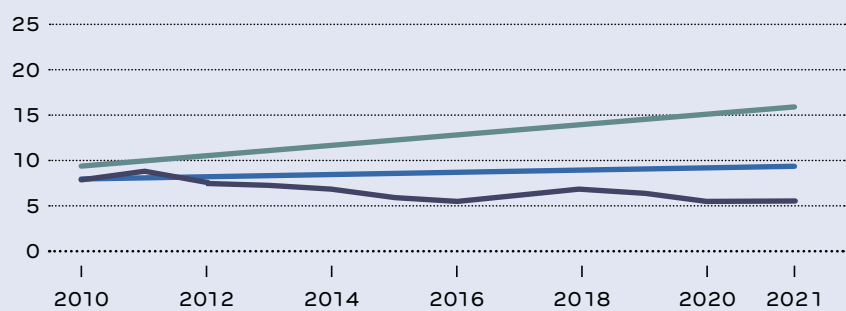
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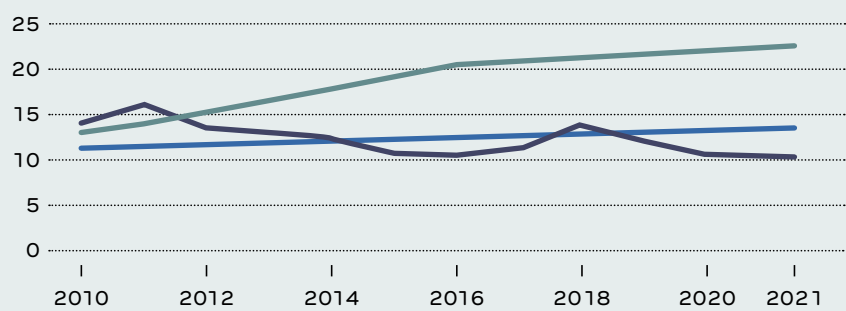
HAMBURG



COLOGNE



MUNICH



STUTTGART

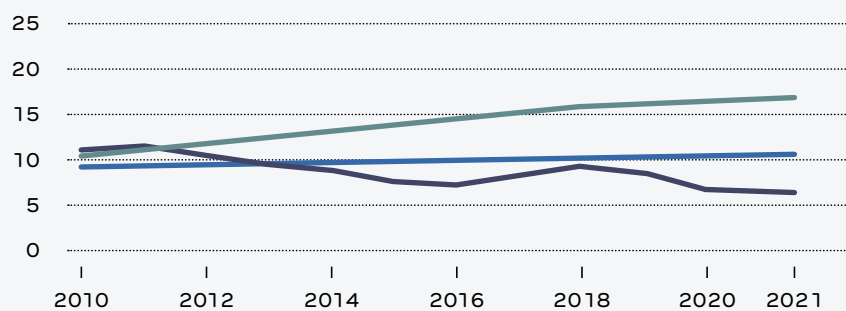


Table 2.3 shows the connection between the owner-occupiers' housing cost advantage, yields and property prices. Among the "Big 7" cities, the fastest price growth was registered in Hamburg last year, both for rents (+3.9 %) and for ownership apartment prices (+12.2 %). The price growth generally in the double-digit per-centage range among the "Big 7" cities last year, except in Berlin (+8.7 %) and in Frankfurt am Main (+9.4 %). Even in Munich, by far the most expensive German metropolis, selling prices perked up by more than 10 percent. A price growth that outpaces the rental growth implies an increase in gross rent multipliers, meaning the ratio of selling prices to annual rents, and a hardening of gross initial yields. The price-to-rent ratio in Berlin rose to 38.5 and thus remains by far the highest among the seven metropolises, which under-scores the bright market outlook that investors have for Berlin's housing market, with Hamburg and Munich next on their shopping list. The lowest price-to-rent ratios are reported from Düsseldorf and Cologne. This means the owner-occupiers' housing cost advantage is highest in these two metropolises on the Rhine, and is lowest in Berlin. Then again, the economic benefit of owner-occupiers bounced back slightly last year, which to some extent is explained by the mentioned reduction of the agent's fee for buyers but also by the muted price growth, which remained below the national average last year.



Owner-occupiers' housing cost advantage, yields, price-to-rent ratios, and price trend

Table 2.3

City	Owner-occu-piers' housing cost advantage	Gross initial yield	Gross rent multiplier	Rents	Purchase prices per sqm
Berlin	47.3 %	2.6 %	38.5	13.10 €	6,029 €
Düsseldorf	65.7 %	4.0 %	24.8	14.80 €	4,409 €
Frankfurt a. M.	63.7 %	3.8 %	26.5	19.60 €	6,222 €
Hamburg	53.7 %	2.9 %	34.5	17.60 €	7,270 €
Cologne	66.2 %	4.1 %	24.5	15.60 €	4,581 €
Munich	54.9 %	2.9 %	34.1	22.70 €	9,285 €
Stuttgart	59.3 %	3.3 %	30.1	16.80 €	6,074 €

Sources: German Economic Institute (IW); vdpResearch (2022)

2.4 Findings for Rural Districts and Urban Districts

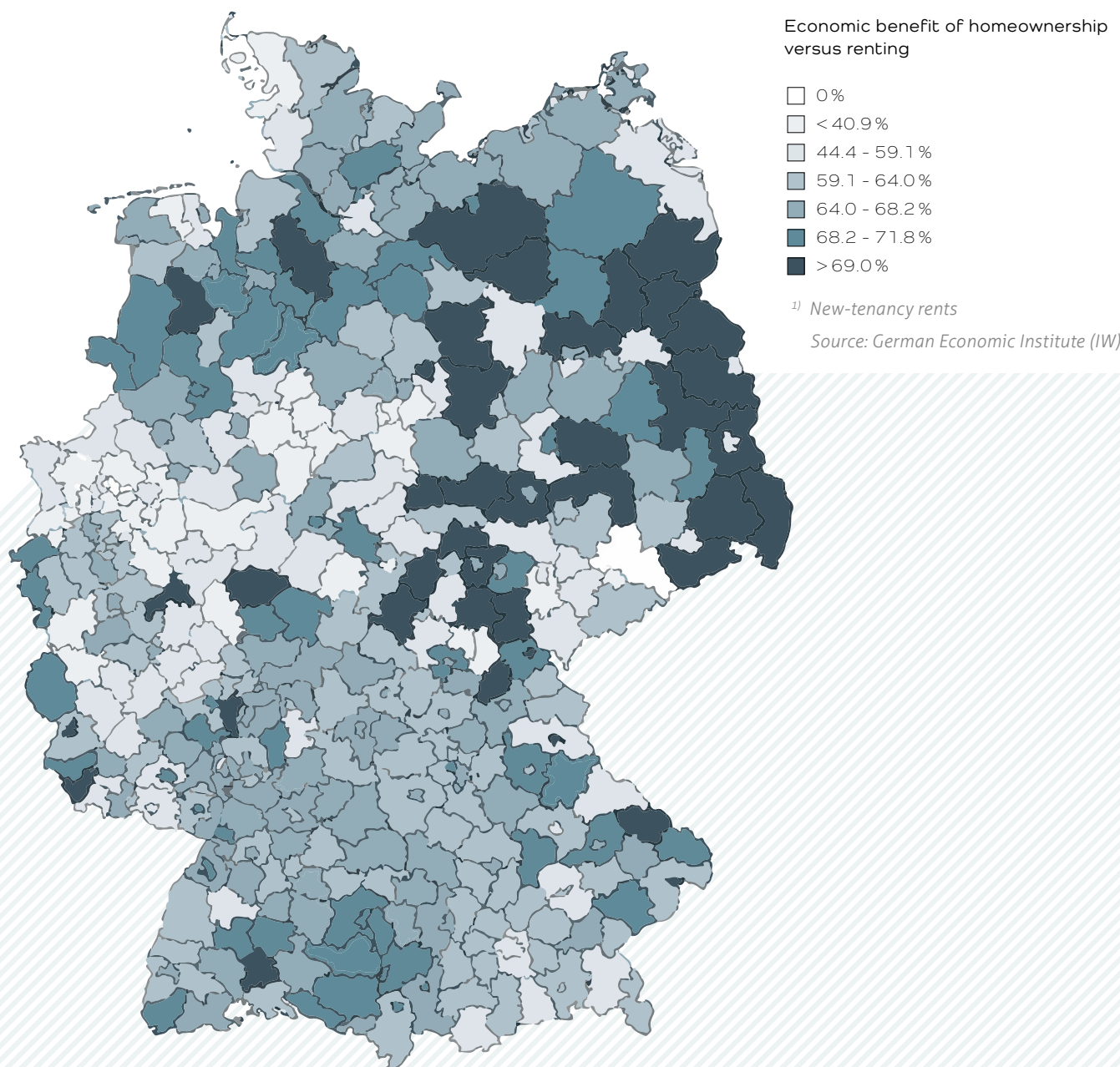
In 2021, owner-occupiers' housing costs undercut rents in every rural district across Germany. The "Big 7" cities discussed above rank close to the bottom in a comparative view of all districts across Germany. Berlin, where the economic benefit is lowest among the "Big 7" cities, ranks 351st nationwide, while Hamburg (ranking 328th) and Munich (ranking 325th) are also among the cities in the bottom quarter as far as the economic benefit of owner-occupiers goes. Cologne and Düsseldorf, by contrast, rank much higher in the comparative view of districts, placing 141st and 158th, respectively. The economic benefit is highest in the

rural district of Sömmerda in Thuringia. As Figure 2.3 shows, the cost advantage of owner-occupancy is relatively high in many districts of eastern Germany. The economic benefit is often lower in regions of the Ruhr because of the relatively low rent level, but also because of a slower pace of the selling price growth. The price increases that are reflected in the calculation of the owner-occupiers' housing costs are based on the analyses of F+B (2022), and show a very sluggish annual price trend since 2005 for parts of the Ruhr and the Sauerland region south-east of it.

Comparative view of owner-occupiers' housing costs and rents ¹⁾

The economic benefit of homeownership over renting in 2021, in percent

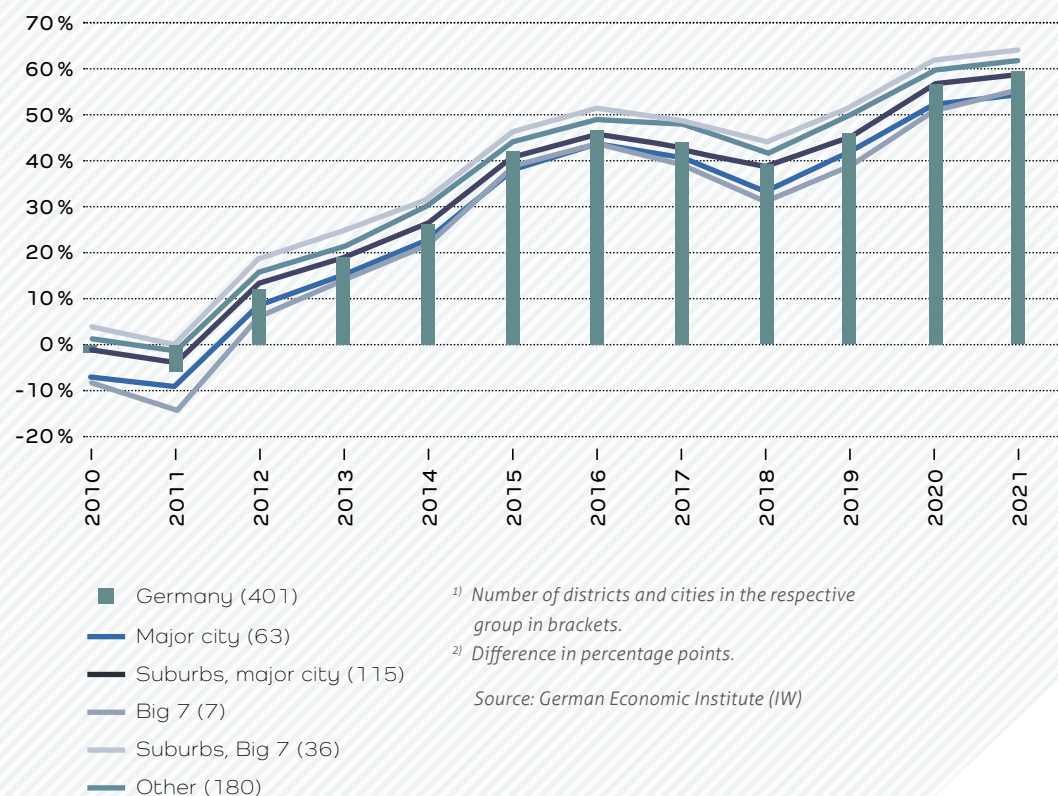
Figure 2.3



Development of economic benefit of homeownership, by type of region ¹⁾ and difference to national average ²⁾

a) Development between 2010 and 2021

Figure 2.4 a



As Figure 2.4 illustrates, the trend in economic benefit for owner-occupiers develops more or less in sync in the various types of regions. In the image, the "Big 7" term refers to Germany's seven largest cities, as previously mentioned. The "major city" category comprises major independent cities below the "Big 7", including the regions of Hanover, Saarbrücken and Aachen, and adds up to 63 cities overall. The suburban districts for cities of either type were also identified. On the whole, 36 districts that are not major cities in their own right are grouped around the periphery of the "Big 7" cities. The suburban districts around the other major cities add up to a total of 115. The remaining districts that are neither a major city nor located on the periphery of any major city or metropolis are grouped together in the category "Other" districts.

Based on the chosen breakdown of different regions, the economic benefit is greatest in those districts that border directly on one of the "Big 7" cities. This outcome is definitively influenced by the great economic benefit in the districts of Brandenburg, the state surrounding Berlin. In 2021,

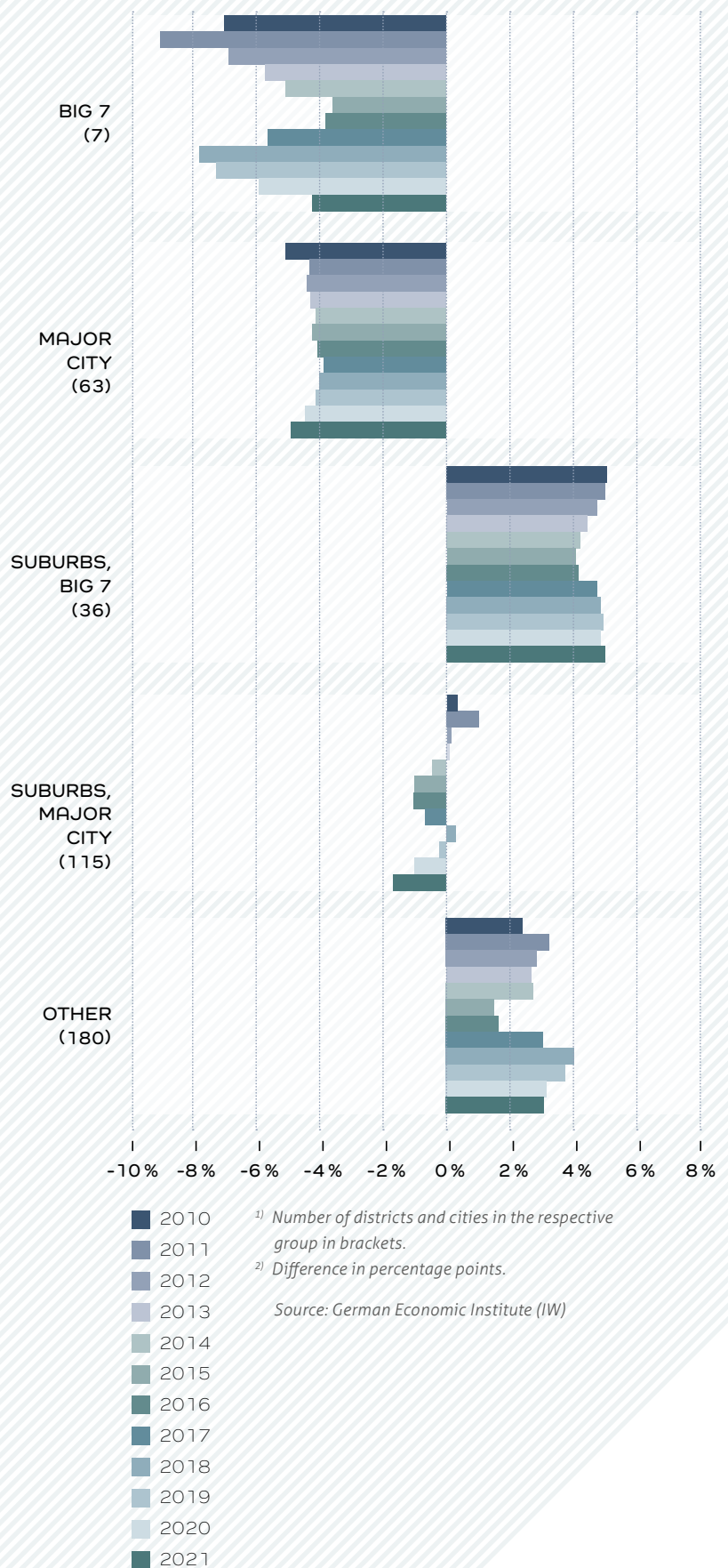
the economic benefit equalled 64 percent in these regions. This fact in combination with a principally larger supply in freehold property relative to the total supply in residential accommodation and with the generally lower prices than in the "Big 7" cities explains why demand for freehold property is particularly strong in these regions, and why the price trend developed such a brisk momentum. Relative to the national average, the economic benefit is also significant in those districts that border neither on one of the "Big 7" cities nor on any other major city. Regions of this type tend to be rural housing markets where the supply in freehold property is far larger than the rental housing stock, so that the homeownership rate in such regions is noticeably higher than elsewhere. Even in major cities other than the "Big 7" cities, the economic benefit is lower than in other (often rural) areas and also below the national average. In fact, the economic benefit in the major cities in relation to the national average declined slightly in the course of the past year and was five percentage points lower by the end of 2021.



Development of economic benefit of homeownership, by type of region ¹⁾ and difference to national average ²⁾

b) Difference to national average

Figure 2.4 b



2.5 Interest Rate Sensitivity on the District Level

The level of interest rates plays a key role for the development of owner-occupiers' housing costs. The two interest rates used in the calculation of owner-occupiers' housing costs are the interest rates on mortgage loans and the current yields on domestic bearer bonds (corporate bonds), which serve as an opportunity interest rate. A higher interest rate on real estate loans will, assuming that all other conditions remain unchanged, increase the owner-occupiers' housing costs because it drives up the payments toward the repayment of the borrowed capital. If the opportunity interest

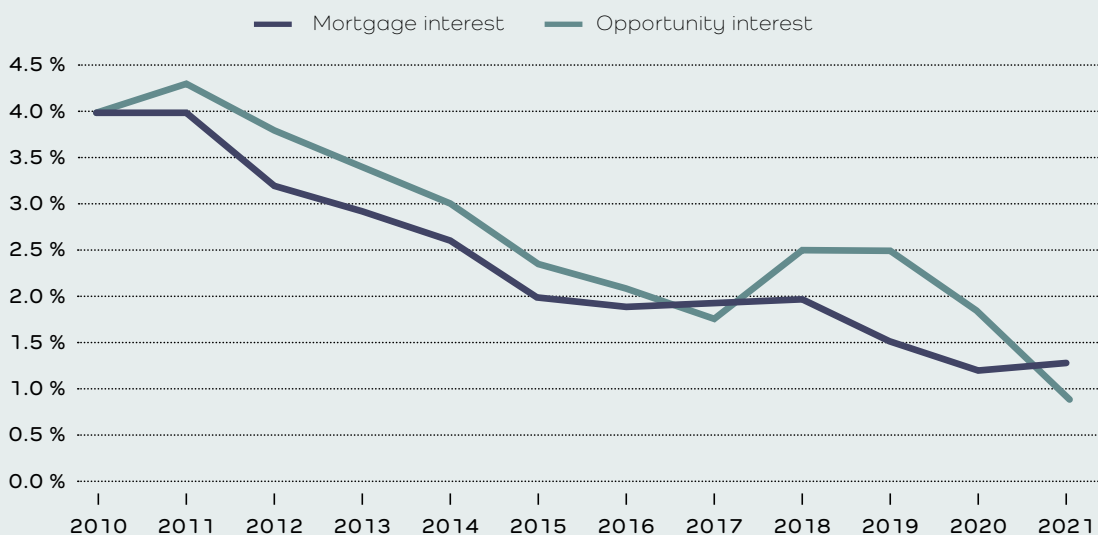
rate increases, meaning the interest imputed for a similar risk-free investment, then the owner-occupiers' housing costs will also increase. Figure 2.5 shows the development of both interest rates between 2010 and 2021. During the period under review, the two lending rates dropped from around 4 percent in 2010 to a trough level of 1.2 percent for mortgage loans in 2020 and to 0.9 percent for the opportunity interest rate in 2021. The annual mean mortgage interest in 2021 was around 1.3 percent. Accordingly, the 2021 rates undercut the interest level of 2010 by almost 70 percent.



Development of mortgage ¹⁾ and opportunity interest rates ²⁾

Annual mean, 2010 through 2021

Figure 2.5



¹⁾ The average effective interest rate that German banks charge for housing loans to private households with an initial fixed interest period of more than 10 years.

²⁾ Average current yield paid on domestic bearer bonds.

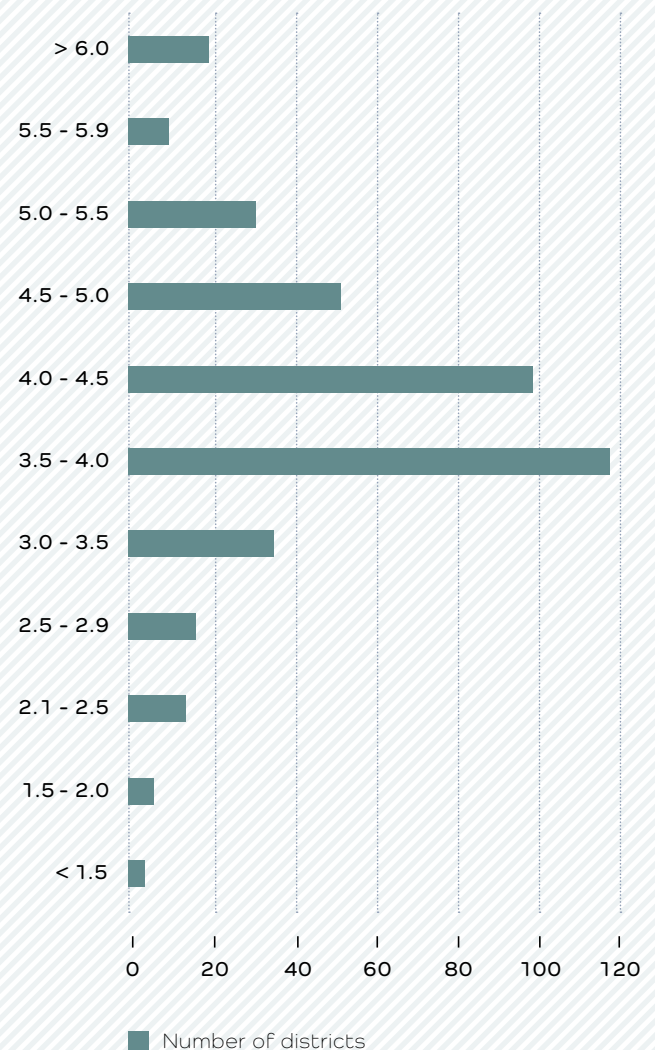
Source: German Economic Institute (IW); Deutsche Bundesbank (2022 a, b)



Calculations for the year 2021 show that the economic benefit findings remain valid for most districts even after the recent increase in interest rates, as Figure 2.6 illustrates. For a majority of districts, specifically for 116 out of the total of 401 districts, the neutral interest rate (at which owner-occupiers' costs and rents are in balance, assuming all other conditions remain stable) equals between 3.5 and 4.0 percent. The higher the owner-occupiers' housing cost advantage in a given district, the higher the neutral interest rate will be. In roughly three out of four German districts, the neutral interest is 3.5 percent or higher. In 39 districts, the owner-occupiers' housing cost advantage is relatively sensitive to interest rate changes, and the neutral interest rate is below 3 percent.

Neutral interest rate ¹⁾ on the district level
In 2021, in percent

Figure 2.6



¹⁾ Mortgage rate at which the owner-occupiers' costs match the rental costs (new tenancy)

Source: German Economic Institute (IW)



2.6 Annuity Trend and Level

2021 was another year of particularly fast growth in freehold property prices. The hefty price increases were triggered by a combination of still very affordable borrowing rates and low opportunity interest rates, as well as by a persistently strong demand for freehold property in the wake of the coronavirus pandemic. The already high price level in Germany's conurbations and the expansion of remote-working arrangements in many companies also enhanced the appeal of the wider gravity belts of major cities over the past two years.

Among Germany's regions, none of the "Big 7" cities counted among the 10 percent with the fastest price growth and therefore with the steepest increases in annuity, meaning the sum of interest and capital re-payment that is required to pay off a mortgage loan. To measure the annuity, the average interest rate for a mortgage loan, the average effective interest rate of German banks for mortgage loans to private households with an initial fixed interest period of more than 10 years, is used (Deutsche Bundesbank, 2022b), while a full repayment loan with 25-year maturity is assumed for a dwelling size of 100 square metres and an equity capital share of 20 percent. To enhance the comparability over a longer period of time, the results were price-adjusted using the harmonised consumer price index.

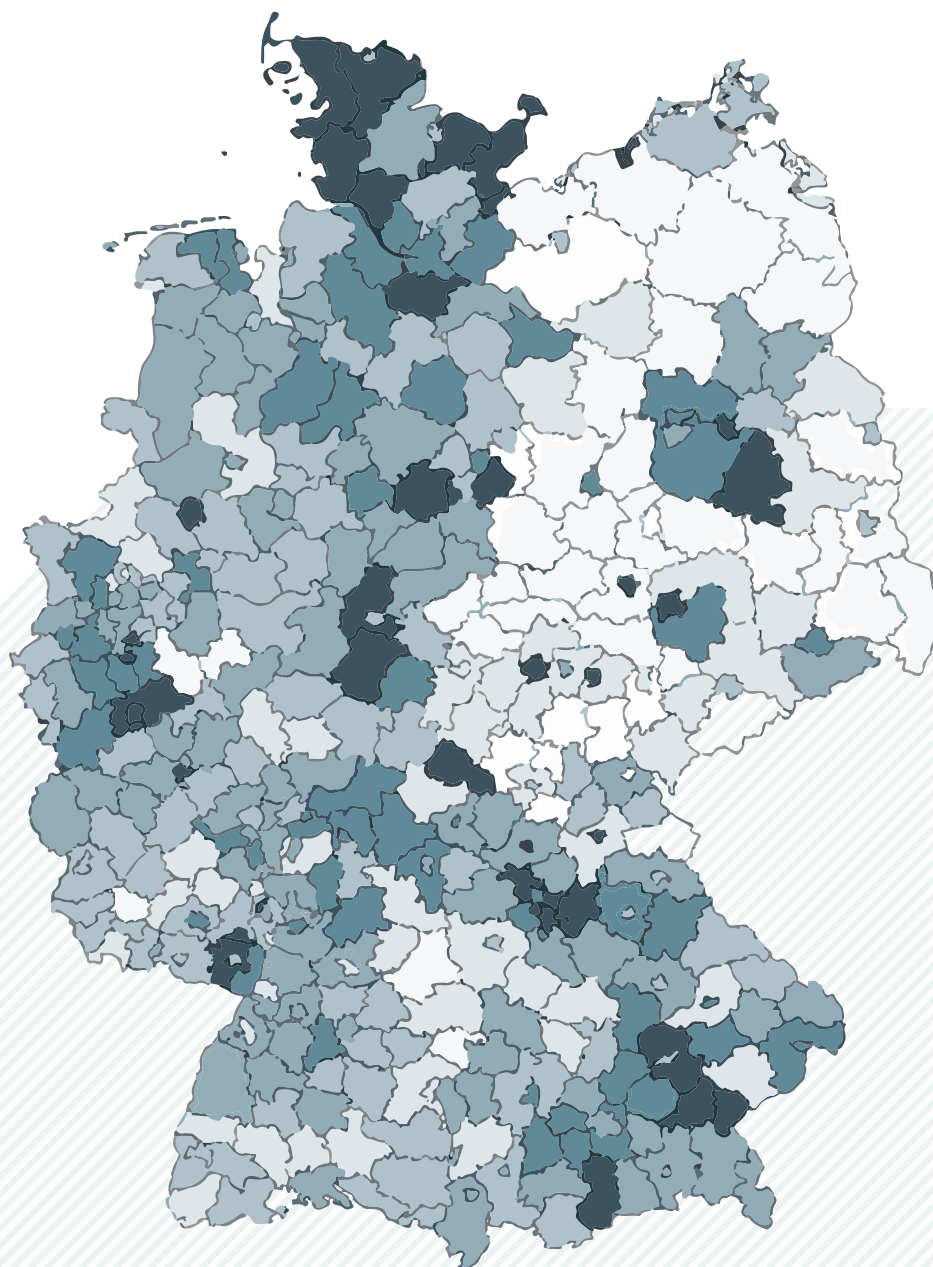
A comparison of one-year changes nationwide identified the fastest growth in annuity payments in Potsdam at 11.8 percent, trailed by another 25 districts where the annuity rose by more than 10 percent year on year. Among these re-

gions are several well-known major German cities, such as Bonn in 4th place (+11.2 %) or Nuremberg (+10.3 %) but also the district of Teltow-Fläming just beyond the southern city limits of Berlin. The median annuity among the districts rose by 7.1 percent. Especially in the rural regions of eastern Germany, the price dynamics were moderate last year, and actually declined in six districts year on year, five of which are located in Thuringia.











Annuity changes in the rural districts
Change between 2020 and 2021, in percent
Figure 2.7



Annuity changes,
2020-2021

-  < 3.3 %
-  3.3 - 5.4 %
-  5.4 - 7.1 %
-  7.1 - 8.3 %
-  8.3 - 9.5 %
-  > 9.5 %

*Adjusted using the harmonised
consumer price index*

*Source: German Economic Institute (IW);
vdpResearch (2022)*

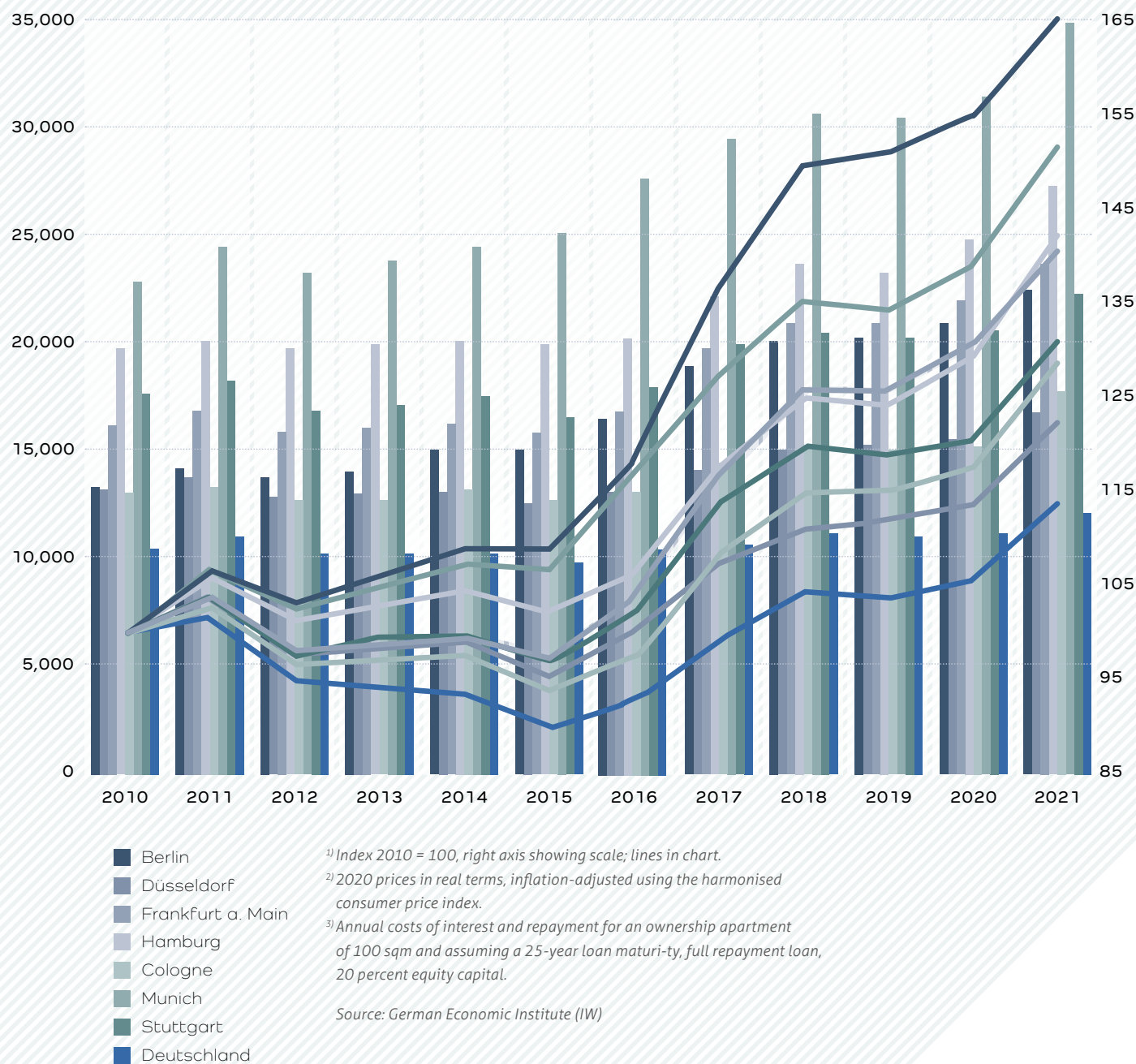


Among the “Big 7” cities, Hamburg takes the lead in real term prices because home buyers had to come up with 27,276 euros in annuities in 2021, which is 9.4 percent more than the previous year. In a comparative view of all districts, Hamburg thus ranks 44th, which means that the prices grew even more dynamically in 43 other districts. In Berlin, the inflation-adjusted annuity rose by 6 percent, which is slower than the average growth nationwide, and which put the German capital in 264th place among the 401 districts.

A comparison of the annuities in the “Big 7” cities over time shows that the price dynamics in Berlin were particularly strong between 2016 and 2018, a period when the trend relative to the starting year 2010 developed a widening gap. In the years since, prices in the “Big 7” have largely developed in sync, and the differences in price dynamics have narrowed. That being said, their ranks keep being reshuffled from time to time. For instance, the price dynamics in Hamburg have accelerated over the past years and lately outpaced the growth in Frankfurt am Main. The gap between the price trends in Cologne and Düsseldorf, both located in the Rhineland, keeps shifting as well, with property prices in Cologne rising faster than those in Düsseldorf lately. Figure 2.8 traces the trend in annuities in Germany’s seven largest cities and nationwide. Over the period between 2010 and now, Berlin showed the strongest dynamic. It started out on a level with Düsseldorf and Cologne, but soon left these two cities behind, and has more or less caught up with Frankfurt am Main and Stuttgart. The average annuity nationwide was 12,458 euros in 2021, whereas the average annuity in Munich was 2.8 times as high at 34,836 euros. This means that the real estate price level in Munich is still 50 percent higher than that in Berlin, where the annuity average is 22,620 euros.

Trend ¹⁾ and level ²⁾ of the annuity ³⁾ in Germany and the "Big 7"

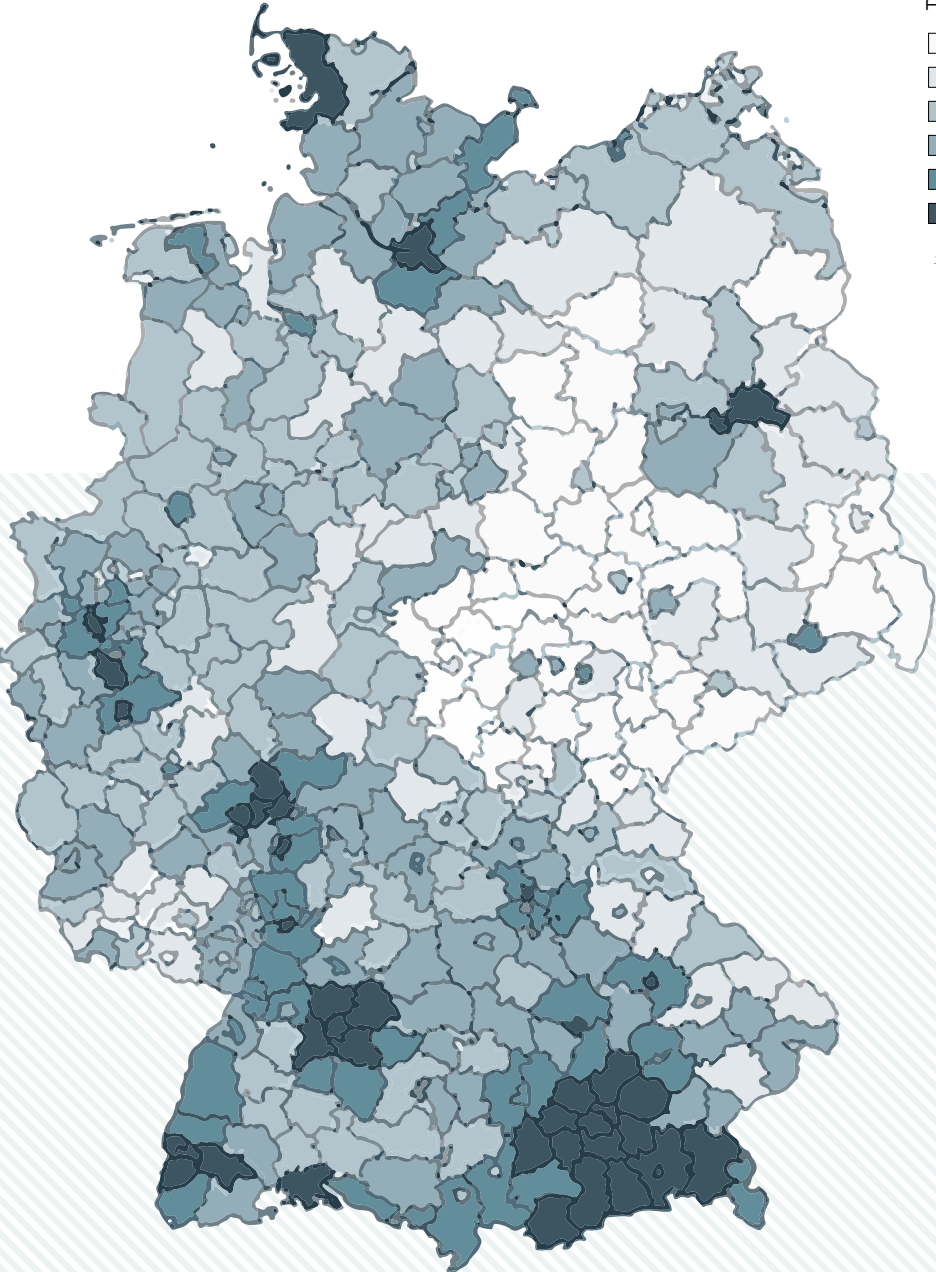
Figure 2.8



The Bavarian state capital and the rural district surrounding it (Landkreis München) are the most expensive districts nationwide. In the urban and rural districts of Munich, the annuity for an ownership apartment of 100 square metres amounted to 34,836 euros in 2021, followed by the Hamburg in third place with 27,276 euros. The federal capital Berlin ranks among the priciest ten regions in place 9, directly after Stuttgart (22,789 euros), while Frankfurt am Main placed 5th. The national median is 9,678 euros, with annuities higher in half of all districts and lower in the other half. Figure 2.9 shows the differences in annuity levels. Visibly in the lead are the major cities and their metro regions, Munich's influence penetrating particularly far into the surrounding districts.



Differences in annuity level ¹⁾ in real estate financing
 In 2021, in euros
Figure 2.9



Annuity

- < 5,692 €
- 5,725 - 7,785 €
- 7,834 - 9,687 €
- 9,702 - 12,254 €
- 12,287 - 15,428 €
- > 15,428 €

¹⁾ Annual costs of interest and repayment for an ownership apartment of 100 sqm and assuming a 25-year loan maturity, full repayment loan, 20 percent equity capital.

Source: German Economic Institute (IWI)

3. Interest Rate Reversal

The findings discussed so far concern the year 2021. But a serious interest rate reversal on the mortgage loan market took place right after its end, in mid-January 2022. By the end of April 2022, in a matter of just three months, interest on real estate loans had more than doubled, according to the same-day interest charts compiled by financial intermediary Dr. Klein and by the Interhyp mortgage broker as depicted in Figure 3.1 (cf. Dr. Klein, 2022b; Interhyp, 2022).

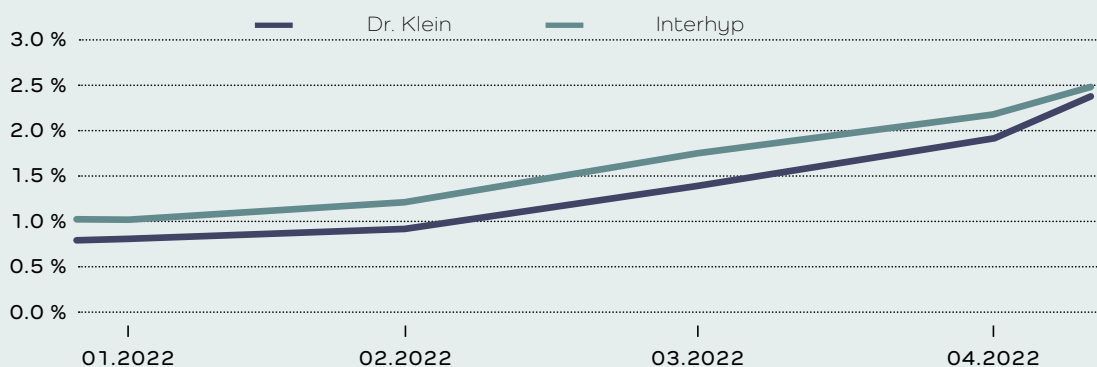
Even market insiders had not expected this kind of surge in mortgage interest over so short a period of time. In a survey conducted at the beginning of the 2022, more than half of the respondent companies still believed that the interest rate for private construction finance would go up to 1.5 percent by the end of 2022 (cf. Henger/Voigtländer, 2022). At the time of the poll, the war in

Ukraine and the global upheavals it has triggered were not yet priced into companies' expectations. With the inflation rate stabilising on a high level that is driven by fast price growth for energy resources, and that is gradually impacting the core inflation rate, a further rise in interest rates before the end of this year cannot be ruled out. The ECB, for one, has announced initial interest rate moves for summer of 2022, an announcement vindicating the interest hikes for mortgage loans. Principally, it is safe to say that rising interest rates for mortgage loans will probably cause demand for real estate to slow down, assuming all other conditions remains in place.

Interest rate level for mortgage loans with 10-year fixed interest rates

Trend between 01/01/2022 and 28/04/2022

Figure 3.1



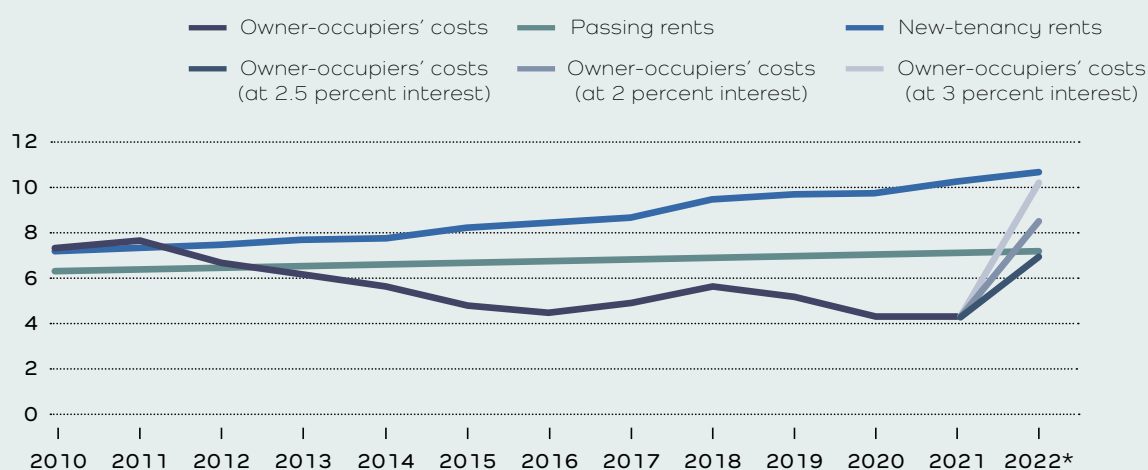
Note: Variances in levels are due to differences in the interest rate shown; Dr. Klein, for instance, shows a "best interest rate," Interhyp a medium interest rate for brokered financing offers.

Sources: Interhyp; Dr. Klein

Effects of different interest rates on owner-occupiers' costs in 2022

Update for 2022

Figure 3.2



Note: New-tenancy rents were carried forward with a 1.5 percent increase and passing rents with 1 percent increase.

* Scenario calculation

Source: German Economic Institute (IW)

In addition to their interest-rate expectations, real estate companies were asked about a knock-out interest rate, upward of which they would expect tipping effects on the real estate market. Such a tipping effect would signify a trend reversal for the price trend of residential real estate and at worst would precipitate price drops. The average knock-out interest rate across all respondent companies was 2.4 percent, while more than 30 percent of the companies put the threshold at 2.5 percent. These survey findings largely match the results of a neutral interest rate in the context of the user-cost-of-housing approach as depicted in Figure 2.6. Above this interest level, the number of districts where the owner-occupiers' housing costs exceed rental costs increases sharply.

The effects of a rise in interest rates for the owner-occupiers' housing costs are mapped in Figure 3.2. The three scenarios discussed capture the owner-occupiers' housing cost levels for interest rates of 2, 2.5 and 3 percent, respectively, and assume an opportunity interest rate equivalent to the loan interest plus the average spread between the two interest rates during the years 2010 through 2021 (about +0.3 percentage points). Other than that, the parameters were assumed to be the same as in 2021, especially an unchanged selling price level. The scenarios show that a rise in interest rates of the sort currently seen on the German real estate market will seriously impact the level of owner-occupiers' housing costs, too. An increase in the interest rate to an annual average of 2 percent would increase owner-occupiers'

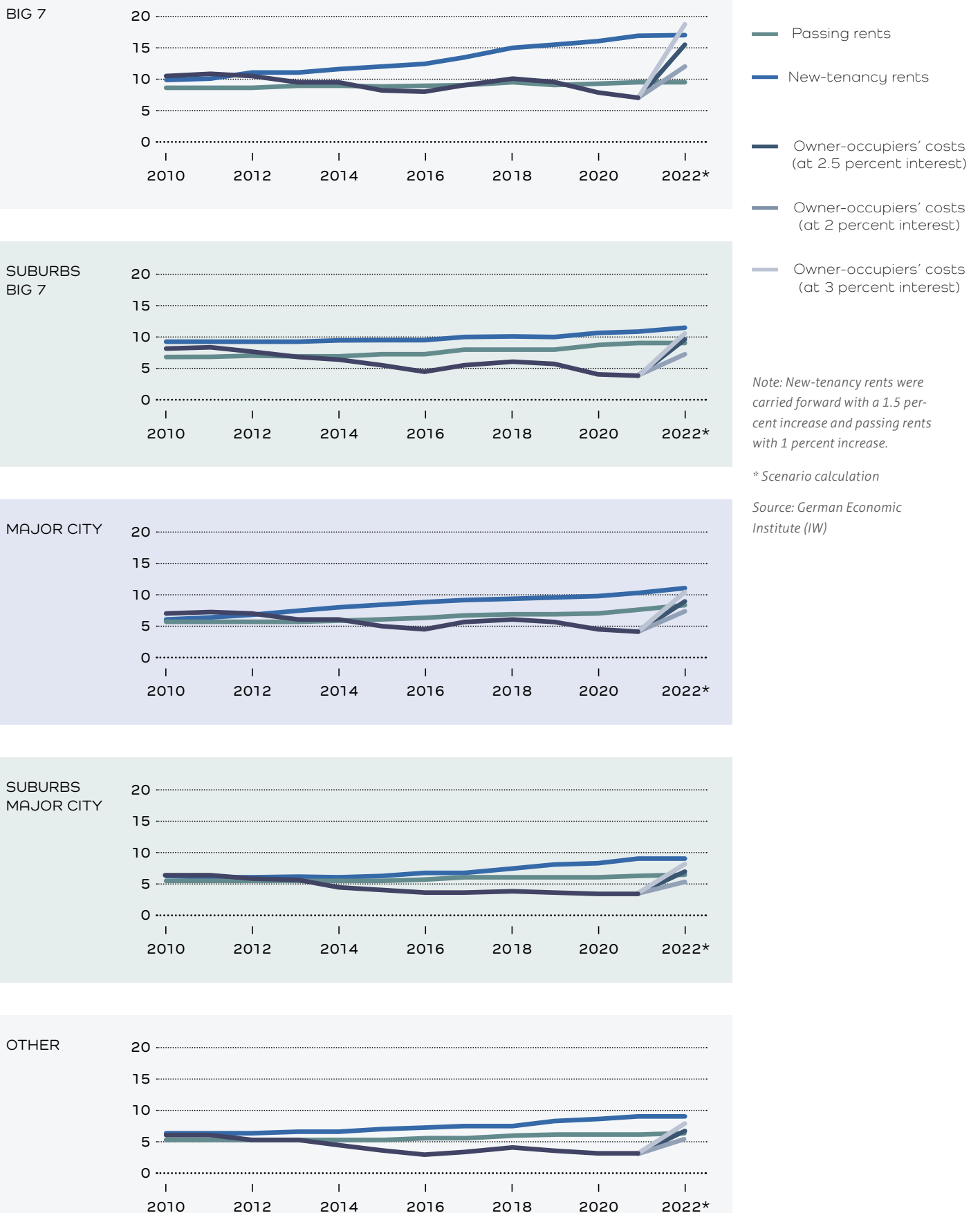
housing costs by 66 percent from 4.21 euros to 6.97 euros, while an increase to 2.5 percent would double owner-occupiers' housing costs (+103 percent) to 8.55 euros and an average interest rate of 3 percent would increase them by 141 percent to 10.12 euros. The calculations impute that selling prices remain the same as in 2021. However, prices continued to go up during the first quarter of 2022. A price growth by an annual average of 5 percent in 2022 would raise the owner-occupiers' housing costs by another 8 percentage points up to 7.32 euros when assuming an interest rate of 2 percent, by 10 percentage points up to 8.97 euros when assuming 2.5 percent interest, and by an additional 12 percentage points to 10.63 euros when assuming 3 percent interest. The scenario calculation shows that a substantial increase in owner-occupiers' housing costs is to be expected in 2022.

The degree to which rising interest rates will change the owner-occupiers' housing costs will vary from one region to the next, as Figure 3.3 shows. The relative economic benefit of homeownership is shrinking fastest in the "Big 7" cities and other major cities in Germany. In the event of a particularly hefty rise in interest rates, up to 3 percent or more, for instance owner-occupiers would no longer be at an advantage. But Figure 3.3 also shows that particularly the metro regions of the "Big 7" and other major cities would continue to imply economic benefits for owner-occupiers, albeit on a far smaller scale. At least in the short term, this could keep fuelling the urban exodus that gathered momentum during the pandemic.

Effects of different interest rates on owner-occupiers' costs in 2022, by type of region

Update for 2022

Figure 3.3



Assuming that the opportunity interest rate in 2022 will rise in sync with the level of lending rates, supplemented by the interest rate spread of past years, the neutral loan interest rate in the “Big 7” cities would equal a population-weighted average of 2.8 percent. In other major cities, the interest level at which owner-occupiers’ housing costs and new-tenancy rents would be balanced, equals 3.1 percent, being slightly higher in rural areas. The interest rates are summarised in Table 3.1.

Neutral interest rate for 2022, by type of region

Table 3.1

Type of region	Neutral interest rate (scenario calculation 2022)
“Big 7” cities	2.8 %
Suburbs, “Big 7”	3.6 %
Major city	3.1 %
Suburbs, major city	3.5 %
Other	3.7 %

Population-weighted average values at which owner-occupiers’ housing costs and new-tenancy rents would be in balance for the 2022 scenario calculation.

Source: German Economic Institute (IW)

It appears that the rise in interest rates presents potential owner-occupiers and landlords with a second bottleneck as far as the acquisition of freehold property goes. Over the past years, the drastically reduced level of interest in combination with substantial income growth caused the terms of financing to remain attractive for many German households. Especially private buy-to-let investors took advantage of this constellation to acquire residential real estate for letting purposes. Between 2011 and 2019, the number of households deriving income from renting and leasing increased by around a quarter (Sagner, 2022). The number of households opting for homeownership during the same period increased by merely 7 percent, barely exceeding the growth in the total number of households in Germany, and thus causing the homeownership rate to flatline. Homeownership investment became particularly difficult for young households because of the high level of incidental acquisition costs, which kept rising rapidly in

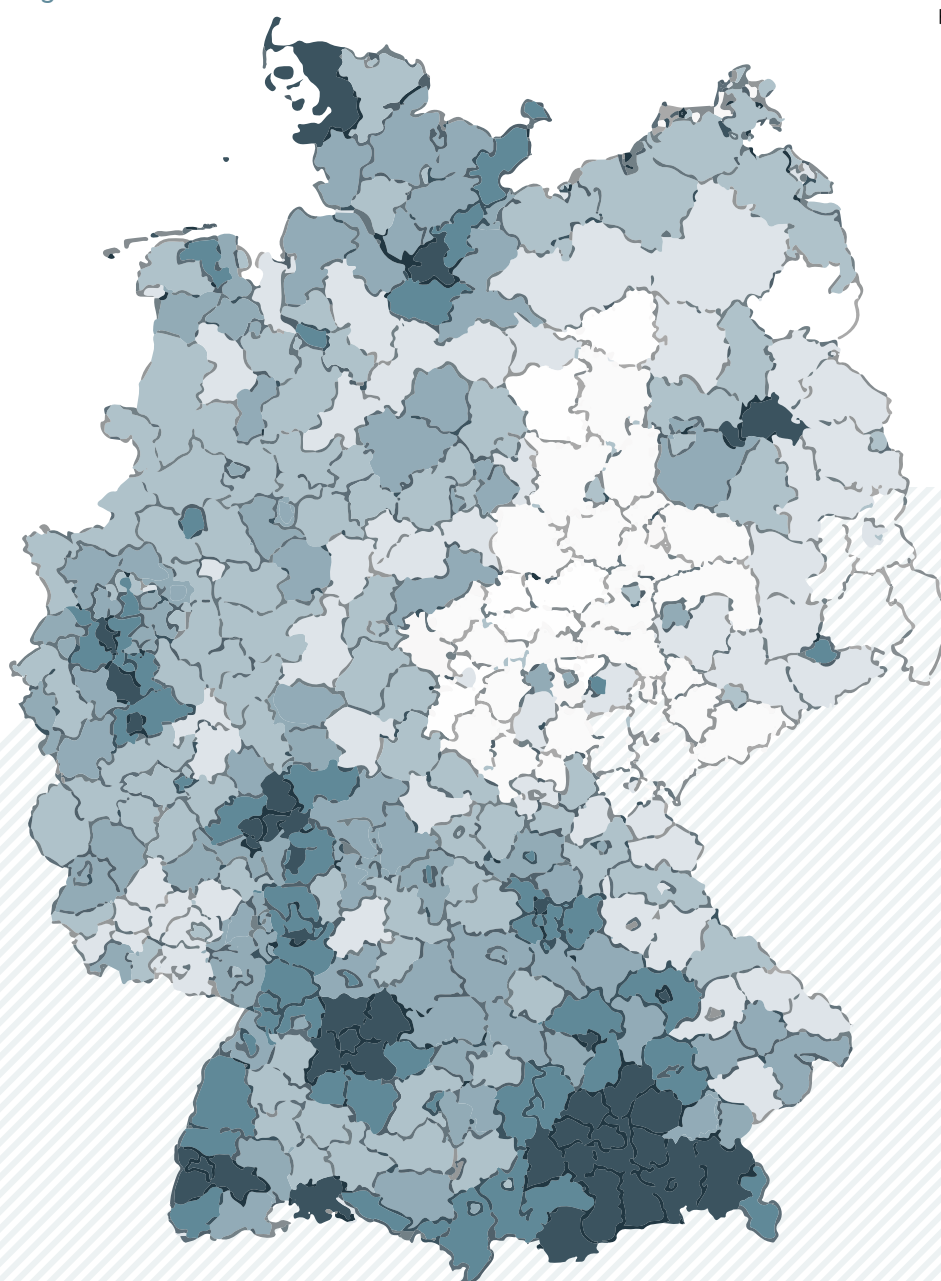
sync with the price dynamics. And lately, financing costs have surged as well. Figure 3.4 breaks down the implications for the annuity—that is, the combined payments of interest and principal—in Germany’s 401 rural districts and urban districts. If the level of interest rates was to increase from 1.26 percent to 2.5 percent, the annuity would rise by 578 euros in the most affordable of German districts (the district of Sömmerda), by 5,480 euros in the most expensive district (the city of Munich), and by 1,524 euros on average across all districts, which would imply an increase in financing costs of 38,100 euros for the imputed loan maturity. The scenario assumes that the loan maturity remains unchanged. In order to limit an increase in the annuity, potential property buyers generally have the option of extending the repayment period, but the total costs from the financing would, of course, still increase significantly.



Change in annuity ¹⁾ after an interest hike of 2.5 percent

Assumed: price level of 2011

Figure 3.4



Change in annuity after an interest hike of 2.5 percent

- 587 - 895 €
- 901 - 1,225 €
- 1,232 - 1,524 €
- 1,526 - 1,928 €
- 1,933 - 2,427 €
- 2,450 - 5,480 €

¹⁾ Annual costs of interest and repayment for a condominium of 100 square metres and assuming a 25-year loan maturity, full repayment loan, 20 percent equity capital. Nominal values.

Source: German Economic Institute (IW)

The German real estate market is exposed to an exceptional situation of conflicting factors at present. As far as set-up costs go, various factors are driving up costs, most notably the rapid rise in construction prices. During the first quarter of 2022, prices for the new-build construction of residential buildings rose by 14.3 percent compared to the same quarter of the previous year and by 4.4 percent compared to the fourth quarter of 2021 (Destatis, 2022). The sharpest cost hike affected carpentry and timber construction work, whose costs increased by one third. Prices for construction timber had already gone up by an average of 61.4 percent in 2021, the same being true for petroleum products such as bitumen, whose costs increased by over a third. These products have become even pricier, and significantly so, since the war in Ukraine started. The rise in construction costs is also driven by the shortage of skilled labour in the building industry. The order book balance in construction remains robust, but the construction industry has warned of a slump in new construction activity due to the sharp rise in costs and a shortage in building materials (Handelsblatt, 20 April 2022). The trend in construction costs therefore bolsters freehold residential property prices, and when combined with the rise in interest rates, this implies a significant increase in financing costs.

On the whole, however, it should be emphasised that the current market situation is fraught with great uncertainty. The economic development going forward will be largely determined by the course the war in Ukraine will take, not least in regard to the inflation rate. However, a number of reasons suggest that the inflation rates will remain above

their historic level. Accordingly, the necessary transformation of the economy to make it more sustainable will, at least temporarily, be associated with growing costs, and this will fuel the price trend. The political objective to become less dependent on Russian energy resources will exacerbate this cost trend. On top of that, the deglobalisation trend that emerged after the outbreak of the coronavirus pandemic has gathered momentum, especially in regard to vital manufacturing processes. Fresh security concerns, not least with regard to China, will also prompt the reshoring of production capacity back to Europe and to the United States – even if doing so will entail higher costs and thus drive up prices. Finally, the already dire shortage of skilled labour, which is likely to intensify, will encourage wage increases that will outpace the productivity gain. Sooner or later, the ECB will have to respond to the situation, and its interest rate moves, depending on how significant they are, will keep pushing up the level of interest rates. Re-nowned economists such as Carmen Reinhart (Handelsblatt, 16 February 2022) have already suggested that drastic interest rate moves will become necessary in order to rein in the inflation expectations – fully aware that this may trigger a temporary recession. Although it is impossible to tell at this time whether such a step will actually be required, market players are well advised to prepare even for such scenarios, as they would have significant downstream effects on apartment prices.



4. Conclusion

In 2021, owner-occupiers' housing costs stagnated compared to the previous year. As a result, homeownership investments remained as attractive as ever in 2021, relative to renting. Last year's price trends also reflected a persistently strong demand for residential freehold property.

Germany's housing market has now reached an important apex. The price developments of recent years took place within a very attractive economic environment. The steady decline in interest rates on mortgage loans in combination with a robust labour market, substantial wage increases in some professions, and locally concentrated demographic growth, pushed up real estate prices in many German cities. In 2022, the interest on real estate loans soared within a short period of time. The analyses on the basis of the user-cost-of-housing approach suggest that this will probably mute the price growth for residential real estate as the economic benefit of homeownership over renting begins to decline.

However, the user-cost-of-housing approach also shows that the German housing market will be able to handle the rise in interest rates – a drastic decline in selling prices is not to be expected on the basis of the latest interest hikes, whereas a slowed price growth is perfectly reasonable to assume. Decisive for the further development of residential property prices is moreover how market players will interpret the medium-term interest rate trend, as is the macroeconomic development going forward. The supply chain disruptions caused by the war in Ukraine and by the lockdowns in major trading hubs in China are slowing the economic development. Yet demand for commodities is strong across the globe. A robust economic performance depends essentially on the speed at which international trading relations recover.



Against the background of rising interest level and high prices for residential property that are further driven up by rising construction and refurbishment costs, the question presents itself how best to align the government housing policy and specifically homeownership subsidy program with the shifted parameters. Investing in residential real estate inevitably involves long time horizons for private buy-to-let investors and owner-occupiers. In the short term, however, rising interest rates imply that at least a certain number of potential home buyers will be priced out of the market. In order to support precarious households in their bids for homeownership, the housing policy steps already initiated should be implemented as swiftly as possible. The German Government is planning to move forward with legislative amendments, probably in 2023, that will increase the flexibility of the state level governments to set their own real estate transfer tax rates.



Several states already announced their intention to lower the real estate transfer tax for first-time home buyers as soon as doing so is possible. Meanwhile, North Rhine-Westphalia decided not to wait for the signal from the federal level but to issue its own guidance for subsidising homeownership investments by first-time buyers. With retroactive effect as of 1 January 2022, North Rhine-Westphalia's state bank will grant first-time home buyers a refund of up to 2 percent of the purchase price of their owner-occupied home. The subsidy is to be granted up to a purchase price of 500,000 euros, which implies that buyers will be supported with a maximum of 10,000 euros. Considering that incidental acquisition costs rose in sync with the property price growth, lowering the threshold for access to the homeownership market was a move long overdue.

Generally speaking, investors and potential home buyers will need to prepare for a changed housing market that is now going back to normal. It should be remembered that the 2010s were defined by a remarkable triad of falling interest rates, rising real wages and strong incoming immigration, which is a configuration very much at odds with a normal market environment. Interest rates are now on the rise again, while real wages are likely to decline this year. But demand for residential real estate will remain strong, the main reason being the slow pace of construction in conurbations in recent years. Accordingly, residential real estate will principally remain a sought commodity, but the times of strong upward rent and price growth are over for the time being. This is not to suggest that buying residential property has ceased to be a rewarding proposition. After all, real estate investments are long-term by nature, so that it makes sense to think farther ahead than current events and circumstances. Those who bought homes in Berlin, Cologne or Hamburg during the Zero Years, when prices followed a lateral trend, probably look back on their decision in great contentment. What matters in the current market cycle is not just the prudent selection of properties but also a keen eye for long-term lettability. Beyond that, the opportunities in the market will improve for equity-rich investors because some of those players who heavily leveraged their investments will pull out of the market.



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Neutral interest rate for 2022, by type of region

REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
SCHLESWIG-HOLSTEIN				
01001	Flensburg	2.78	6163.7	3.9
01002	Kiel	3.51	66.3	4.2
01003	Lübeck	3.54	68.2	4.5
01004	Neumünster	2.92	62.5	3.8
01051	Dithmarschen district	3.07	58.9	3.4
01053	Herzogtum Lauenburg district	3.47	64.3	4.0
01054	Nordfriesland district	5.17	39.0	2.2
01055	Ostholstein district	3.77	66.4	4.2
01056	Pinneberg district	3.73	67.9	4.5
01057	Plön district	3.22	63.5	3.9
01058	Rendsburg-Eckernförde district	2.99	66.1	4.2
01059	Schleswig-Flensburg district	2.84	64.0	3.9
01060	Segeberg district	3.34	70.5	4.9
01061	Steinburg district	2.89	65.1	4.2
01062	Stormarn district	3.91	67.7	4.4
HAMBURG				
02000	Hamburg	8.12	53.7	3.0
LOWER SAXONY				
03101	Braunschweig	3.51	64.4	4.0
03102	Salzgitter	4.93	26.6	2.4
03103	Wolfsburg	2.81	72.2	5.2
03151	Gifhorn district	2.90	62.4	3.8
03153	Goslar district	4.87	26.9	2.5
03154	Helmstedt district	3.07	54.8	3.9
03155	Northeim district	2.32	62.7	4.0
03157	Peine district	2.46	67.1	4.4
03158	Wolfenbüttel district	5.61	28.6	2.4
03159	Göttingen district	3.89	58.7	3.7
03241	Hanover district	3.62	64.5	4.0
03251	Diepholz district	2.72	70.4	4.8
03252	Hameln-Pyrmont district	4.28	36.9	2.7
03254	Hildesheim district	4.00	47.3	3.5
03255	Holzminden district	4.60	23.8	2.3
03256	Nienburg (Weser) district	2.05	68.9	4.6



	REGION	OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
03257	Schaumburg district	4.53	35.3	2.7
03351	Celle district	3.29	60.2	3.8
03352	Cuxhaven district	3.12	62.6	3.8
03353	Harburg district	3.84	66.6	4.3
03354	Lüchow-Dannenberg district	2.08	62.7	3.8
03355	Lüneburg district	3.49	69.2	4.6
03356	Osterholz district	2.52	70.7	4.9
03357	Rotenburg (Wümme) district	2.09	74.4	5.6
03358	Soltau-Fallingb. district	2.14	70.7	4.9
03359	Stade district	3.32	68.5	4.5
03360	Uelzen district	2.15	69.4	4.7
03361	Verden district	2.69	70.8	4.9
03401	Delmenhorst	2.68	67.7	4.4
03402	Emden	3.42	64.1	5.2
03403	Oldenburg	3.62	66.5	4.2
03404	Osnabrück	3.00	70.8	4.9
03405	Wilhelmshaven	2.39	64.0	3.9
03451	Ammerland district	3.00	65.2	4.1
03452	Aurich district	2.80	66.2	4.2
03453	Cloppenburg district	2.13	74.4	5.6
03454	Emsland district	2.35	70.6	4.9
03455	Friesland district	3.17	58.1	3.3
03456	Grafschaft Bentheim district	2.57	71.8	5.1
03457	Leer district	3.32	61.7	3.7
03458	Oldenburg district	2.86	69.0	4.6
03459	Osnabrück district	2.50	68.2	4.5
03460	Vechta district	2.96	62.1	3.7
03461	Wesermarsch district	2.29	68.8	4.6
03462	Wittmund district	4.18	40.4	2.3
	BREMEN			
04011	Bremen	3.72	67.5	4.4
04012	Bremerhaven	2.30	64.0	4.0
	NORTH RHINE-WESTPHALIA			
05111	Düsseldorf	5.07	65.7	4.2
05112	Duisburg	7.34	7.4	1.5



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
05113	Essen	7.47	18.4	1.9
05114	Krefeld	6.41	30.9	2.4
05116	Mönchengladbach	5.59	32.9	2.6
05117	Mülheim an der Ruhr	6.02	38.3	2.8
05119	Oberhausen	5.89	28.1	2.5
05120	Remscheid	5.84	21.9	2.1
05122	Solingen	3.60	60.8	3.6
05124	Wuppertal	8.23	2.1	1.3
05154	Kleve district	4.48	45.6	3.4
05158	Mettmann district	4.40	60.4	3.7
05162	Rhein-Kreis Neuss district	4.26	62.4	3.8
05166	Viersen district	5.23	42.7	2.9
05170	Wesel district	5.92	35.5	2.8
05314	Bonn	4.82	65.5	4.1
05315	Cologne	5.27	66.2	4.2
05316	Leverkusen	4.29	59.2	3.5
05334	Städteregion Aachen district	3.58	68.5	4.5
05358	Düren district	2.89	63.8	3.9
05362	Rhein-Erft-Kreis district	4.24	63.4	4.4
05366	Euskirchen district	6.00	30.6	2.5
05370	Heinsberg district	2.59	68.6	4.6
05374	Oberbergischer Kreis district	5.00	38.1	2.9
05378	Rheinisch-Berg. Kreis district	4.41	60.4	3.7
05382	Rhein-Sieg-Kreis district	4.09	61.4	3.7
05512	Bottrop	4.26	50.5	3.5
05513	Gelsenkirchen	6.57	5.0	1.5
05515	Münster	4.66	66.7	4.3
05554	Borken district	4.20	48.3	3.5
05558	Coesfeld district	3.98	52.0	3.5
05562	Recklinghausen district	6.67	15.4	1.9
05566	Steinfurt district	2.82	64.8	4.0
05570	Warendorf district	2.99	63.8	4.2
05711	Bielefeld	3.51	64.4	4.0
05754	Gütersloh district	3.65	57.7	3.7
05758	Herford district	3.32	56.7	3.9
05762	Höxter district	4.51	17.5	2.0
05766	Lippe district	4.61	41.9	3.2



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
05770	Minden-Lübbecke district	3.63	53.4	3.7
05774	Paderborn district	3.11	64.3	4.0
05911	Bochum	5.99	32.7	2.5
05913	Dortmund	4.50	51.5	3.7
05914	Hagen	6.84	5.7	1.5
05915	Hamm	2.35	66.8	4.3
05916	Herne	5.52	21.7	2.3
05954	Ennepe-Ruhr-Kreis district	5.10	36.5	2.7
05958	Hochsauerlandkreis district	4.32	37.0	2.7
05962	Märkischer Kreis district	6.65	8.8	1.6
05966	Olpe district	4.71	45.6	3.4
05970	Siegen-Wittgenstein district	4.45	52.1	3.8
05974	Soest district	3.38	56.7	3.7
05978	Unna district	5.93	20.7	2.1
HESSE				
06411	Darmstadt	5.02	66.5	4.3
06412	Frankfurt am Main	7.11	63.7	3.9
06413	Offenbach am Main	4.57	64.5	4.0
06414	Wiesbaden	5.45	63.2	3.9
06431	Bergstrasse district	3.87	63.7	3.9
06432	Darmstadt-Dieburg district	3.78	66.8	4.3
06433	Gross-Gerau district	3.49	72.7	5.3
06434	Hochtaunuskreis district	5.76	61.0	3.6
06435	Main-Kinzig-Kreis district	3.73	64.9	4.0
06436	Main-Taunus-Kreis district	5.34	62.3	3.8
06437	Odenwaldkreis district	2.57	69.2	4.7
06438	Offenbach district	4.35	66.2	4.2
06439	Rheingau-Taunus-Kreis district	4.62	58.5	3.4
06440	Wetteraukreis district	3.96	65.5	4.1
06531	Giessen district	3.25	68.8	4.6
06532	Lahn-Dill-Kreis district	4.35	44.3	3.2
06533	Limburg-Weilburg district	3.85	52.5	3.2
06534	Marburg-Biedenkopf district	3.09	71.9	5.1
06535	Vogelsbergkreis district	1.88	70.3	4.8
06611	Kassel	2.88	69.5	4.7
06631	Fulda district	2.65	64.0	3.9



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
06632	Hersfeld-Rotenburg district	4.47	35.2	2.7
06633	Kassel district	2.74	64.3	4.0
06634	Schwalm-Eder-Kreis district	3.43	47.9	3.2
06635	Waldeck-Frankenberg district	2.83	57.7	3.8
06636	Werra-Meißner-Kreis district	1.84	70.1	5.3
RHINELAND-PALATINATE				
07111	Koblenz	3.69	64.5	4.0
07131	Ahrweiler district	2.91	67.7	4.4
07132	Altenkirchen (Westerwald) distr.	1.90	75.1	5.8
07133	Bad Kreuznach district	2.91	65.2	4.1
07134	Birkenfeld district	2.80	53.2	3.9
07135	Cochem-Zell district	2.69	54.1	3.0
07137	Mayen-Koblenz district	2.69	63.8	3.9
07138	Neuwied district	2.76	62.5	3.8
07140	Rhein-Hunsrück-Kreis district	2.71	58.2	3.6
07141	Rhein-Lahn-Kreis district	3.85	47.2	3.2
07143	Westerwaldkreis district	2.90	58.4	4.1
07211	Trier	3.54	72.7	5.3
07231	Bernkastel-Wittlich district	3.13	58.5	3.4
07232	Eifelkreis Bitburg-Prüm district	2.86	69.1	4.6
07233	Vulkaneifel district	3.94	37.8	2.7
07235	Trier-Saarburg district	3.53	63.9	3.9
07311	Frankenthal (Pfalz)	6.05	36.4	2.8
07312	Kaiserslautern	2.72	68.2	4.5
07313	Landau in der Pfalz	2.88	71.8	5.1
07314	Ludwigshafen am Rhein	3.55	65.0	4.0
07315	Mainz	4.80	68.7	4.6
07316	Neustadt an der Weinstrasse	3.66	60.3	3.5
07317	Pirmasens	3.08	44.5	3.1
07318	Speyer	3.14	71.7	5.1
07319	Worms	3.10	67.5	4.4
07320	Zweibrücken	2.92	61.2	4.3
07331	Alzey-Worms district	2.57	69.1	4.6
07332	Bad Dürkheim district	3.16	65.3	4.1
07333	Donnersbergkreis district	2.32	66.6	4.8
07334	Germersheim district	3.13	65.1	4.1



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
07335	Kaiserslautern district	3.71	51.1	4.1
07336	Kusel district	2.40	62.9	4.4
07337	Südliche Weinstrasse district	3.29	63.1	3.8
07338	Rhein-Pfalz-Kreis district	3.25	66.1	4.2
07339	Mainz-Bingen district	4.01	62.9	4.6
07340	Südwestpfalz district	3.07	55.5	4.1
BADEN-WÜRTTEMBERG				
08111	Stuttgart	6.84	59.3	3.5
08115	Böblingen district	5.30	60.4	3.6
08116	Esslingen district	4.88	64.2	4.0
08117	Göppingen district	4.06	62.9	3.8
08118	Ludwigsburg district	4.80	64.7	4.0
08119	Rems-Murr-Kreis district	4.80	61.8	3.7
08121	Heilbronn	4.05	63.7	3.9
08125	Heilbronn district	3.54	65.3	4.1
08126	Hohenlohekreis district	2.81	68.2	4.5
08127	Schwäbisch Hall district	2.97	65.0	4.0
08128	Main-Tauber-Kreis district	2.71	63.1	3.8
08135	Heidenheim district	3.01	63.4	3.9
08136	Ostalbkreis district	3.49	64.5	4.0
08211	Baden-Baden	4.04	68.4	4.5
08212	Karlsruhe	4.52	68.8	4.6
08215	Karlsruhe district	3.73	65.1	4.1
08216	Rastatt district	3.47	65.6	4.1
08221	Heidelberg	6.90	60.6	3.6
08222	Mannheim	4.16	67.5	4.4
08225	Neckar-Odenwald-Kreis district	2.34	67.5	4.4
08226	Rhein-Neckar-Kreis district	3.84	65.8	4.1
08231	Pforzheim	3.34	66.8	4.3
08235	Calw district	2.86	68.0	4.5
08236	Enzkreis district	3.83	60.3	3.5
08237	Freudenstadt district	3.52	58.0	3.8
08311	Freiburg im Breisgau	5.79	65.3	4.1
08315	Breisgau-Hochschwarzwald distr.	4.68	59.7	3.5
08316	Emmendingen district	3.95	62.7	3.8
08317	Ortenaukreis district	3.71	59.6	3.5



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
08325	Rottweil district	2.67	68.6	4.5
08326	Schwarzwald-Baar-Kreis district	3.08	65.2	4.1
08327	Tuttlingen district	2.52	72.9	5.3
08335	Konstanz district	5.15	62.8	3.8
08336	Lörrach district	3.79	68.6	4.6
08337	Waldshut district	3.22	64.8	4.0
08415	Reutlingen district	4.17	65.2	4.1
08416	Tübingen district	4.57	66.9	4.3
08417	Zollernalbkreis district	2.65	68.7	4.6
08421	Ulm	3.89	71.2	5.0
08425	Alb-Donau-Kreis district	2.83	71.1	5.0
08426	Biberach district	2.81	69.7	4.7
08435	Bodenseekreis district	4.21	70.4	4.8
08436	Ravensburg district	3.53	68.7	4.6
08437	Sigmaringen district	2.76	66.8	4.3
BAVARIA				
09161	Ingolstadt	5.11	65.9	4.2
09162	Munich	10.22	54.9	3.1
09163	Rosenheim	5.07	62.4	3.7
09171	Altötting district	3.34	61.3	3.6
09172	Berchtesgadener Land district	4.25	60.2	3.5
09173	Bad Tölz-Wolfratshausen district	5.96	59.3	3.4
09174	Dachau district	6.10	60.5	3.5
09175	Ebersberg district	6.00	62.5	3.8
09176	Eichstätt district	4.16	60.7	3.6
09177	Erding district	5.25	62.1	3.7
09178	Freising district	5.80	61.8	3.7
09179	Fürstenfeldbruck district	6.30	61.5	3.6
09180	Garmisch-Partenkirchen district	6.33	52.7	2.9
09181	Landsberg am Lech district	4.57	63.9	3.9
09182	Miesbach district	6.78	56.1	3.2
09183	Mühldorf am Inn district	3.08	66.1	4.2
09184	Munich district	8.86	52.2	2.9
09185	Neuburg-Schrobenhausen distr.	3.56	63.2	3.8
09186	Pfaffenhofen an der Ilm distr.	3.90	63.1	3.8
09187	Rosenheim district	4.62	62.9	3.8



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
09188	Starnberg district	7.24	60.4	3.5
09189	Traunstein district	4.81	56.5	3.2
09190	Weilheim-Schongau district	4.47	63.5	3.9
09261	Landshut	4.41	63.7	3.9
09262	Passau	3.05	71.8	5.1
09263	Straubing	3.08	66.0	4.2
09271	Deggendorf district	2.91	66.3	4.2
09272	Freyung-Grafenau district	2.20	68.3	4.5
09273	Kelheim district	3.03	68.9	4.6
09274	Landshut district	3.94	58.3	3.4
09275	Passau district	3.03	61.6	3.7
09276	Regen district	1.81	73.4	5.4
09277	Rottal-Inn district	2.28	68.8	4.6
09278	Straubing-Bogen district	2.12	70.9	4.9
09279	Dingolfing-Landau district	2.89	62.3	3.7
09361	Amberg	3.17	63.6	3.9
09362	Regensburg	6.16	59.1	3.4
09363	Weiden in der Oberpfalz	2.18	73.0	5.3
09371	Amberg-Sulzbach district	2.28	68.7	4.5
09372	Cham district	2.56	58.8	3.4
09373	Neumarkt in der Oberpfalz distr.	3.08	66.1	4.2
09374	Neustadt an der Waldnaab distr.	2.86	57.6	3.6
09375	Regensburg district	3.84	60.5	3.6
09376	Schwandorf district	2.26	70.6	4.9
09377	Tirschenreuth district	1.91	62.2	3.7
09461	Bamberg	4.08	67.4	4.4
09462	Bayreuth	3.48	66.3	4.2
09463	Coburg	2.82	66.1	4.2
09464	Hof	1.84	71.9	5.1
09471	Bamberg district	2.99	59.1	3.4
09472	Bayreuth district	2.55	64.2	3.9
09473	Coburg district	2.10	71.1	4.9
09474	Forchheim district	2.99	66.0	4.2
09475	Hof district	1.58	71.4	5.0
09476	Kronach district	5.07	25.3	2.4
09477	Kulmbach district	1.94	73.6	5.4
09478	Lichtenfels district	2.39	64.4	4.0



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
09479	Wunsiedel im Fichtelgebirge distr.	1.85	63.9	3.9
09561	Ansbach	3.19	68.0	4.4
09562	Erlangen	5.21	64.0	3.9
09563	Fürth	3.77	70.1	4.8
09564	Nuremberg	4.45	66.1	4.2
09565	Schwabach	3.90	64.9	4.0
09571	Ansbach district	2.93	63.1	3.8
09572	Erlangen-Höchststadt district	3.96	62.6	3.8
09573	Fürth district	3.70	63.8	3.9
09574	Nürnberg Land district	3.81	62.4	3.7
09575	Neustadt an der Aisch-Bad Windsheim district	2.63	63.7	3.9
09576	Roth district	3.28	62.4	3.7
09577	Weissenburg-Gunzenhausen distr.	2.59	62.8	3.8
09661	Aschaffenburg	4.35	62.1	3.7
09662	Schweinfurt	3.18	63.2	3.8
09663	Würzburg	4.30	64.1	3.9
09671	Aschaffenburg district	3.31	66.3	4.2
09672	Bad Kissingen district	2.40	67.4	4.6
09673	Rhön-Grabfeld district	2.38	62.9	3.8
09674	Hassberge district	2.35	59.4	3.4
09675	Kitzingen district	2.33	65.9	4.2
09676	Miltenberg district	3.93	53.0	3.5
09677	Main-Spessart district	2.87	61.9	3.7
09678	Schweinfurt district	2.57	63.5	3.9
09679	Würzburg district	3.11	67.3	4.3
09761	Augsburg	4.53	64.1	3.9
09762	Kaufbeuren	2.63	70.2	4.8
09763	Kempten (Allgäu)	3.30	69.2	4.6
09764	Memmingen	3.56	68.7	4.5
09771	Aichach-Friedberg district	3.75	63.8	3.9
09772	Augsburg district	3.77	64.5	4.0
09773	Dillingen an der Donau district	2.50	67.5	4.4
09774	Günzburg district	3.09	66.4	4.2
09775	Neu-Ulm district	3.52	70.1	4.8
09776	Lindau (Bodensee) district	4.46	65.1	4.1
09777	Ostallgäu district	3.79	64.5	4.0



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
09778	Unterallgäu district	2.79	70.6	4.8
09779	Donau-Ries district	2.97	65.8	4.1
09780	Oberallgäu district	4.33	60.6	3.6
SAARLAND				
10041	Stadtverband Saarbrücken distr.	3.58	58.5	3.7
10042	Merzig-Wadern district	2.81	71.6	5.1
10043	Neunkirchen district	3.51	49.0	3.6
10044	Saarlouis district	2.31	72.0	5.2
10045	Saarpfalz-Kreis district	2.60	66.7	4.3
10046	Sankt Wendel district	2.33	67.8	4.4
BERLIN				
11000	Berlin	6.88	47.3	2.6
BRANDENBURG				
12051	Brandenburg an der Havel	2.75	57.1	3.3
12052	Cottbus	2.87	58.8	4.2
12053	Frankfurt (Oder)	3.90	46.7	3.1
12054	Potsdam	5.07	63.1	3.8
12060	Barnim district	2.22	73.1	5.4
12061	Dahme-Spreewald district	2.27	75.5	5.9
12062	Elbe-Elster district	1.83	68.0	4.5
12063	Havelland district	2.41	72.7	5.3
12064	Märkisch-Oderland district	2.32	73.0	5.3
12065	Oberhavel district	2.47	74.0	5.6
12066	Oberspreewald-Lausitz district	1.75	71.5	6.1
12067	Oder-Spree district	1.96	77.9	6.6
12068	Ostprignitz-Ruppin district	1.82	70.4	4.9
12069	Potsdam-Mittelmark district	3.60	66.5	4.3
12070	Prignitz district	1.45	77.1	6.3
12071	Spree-Neisse district	1.47	75.9	6.0
12072	Teltow-Fläming district	2.73	68.5	4.5
12073	Uckermark district	1.42	77.6	6.5



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
MECKLENBURG-WEST POMERANIA				
13003	Rostock	4.05	60.6	3.6
13004	Schwerin	2.61	68.8	4.6
13071	Mecklenburgische Seenplatte district	2.05	69.5	5.2
13072	Rostock district	2.52	67.7	4.4
13073	Vorpommern-Rügen district	2.79	65.5	4.1
13074	Nordwestmecklenburg district	2.64	65.6	4.1
13075	Vorpommern-Greifswald distr.	4.43	47.2	3.4
13076	Ludwigslust-Parchim district	1.72	74.6	5.7
SAXONY				
14511	Chemnitz	5.28	19.2	2.1
14521	Erzgebirgskreis district	2.37	59.9	5.3
14522	Mittelsachsen district	3.87	36.0	3.1
14523	Vogtlandkreis district	3.08	44.4	4.0
14524	Zwickau district	3.42	45.4	4.2
14612	Dresden	3.92	56.6	3.2
14625	Bautzen district	1.59	75.8	7.0
14626	Görlitz district	1.13	80.4	7.4
14627	Meissen district	2.74	61.6	4.2
14628	Sächsische Schweiz-Osterz- gebirge district	1.73	73.8	5.5
14713	Leipzig	3.26	62.3	3.7
14729	Leipzig district	2.68	60.4	4.4
14730	Nordsachsen district	1.56	76.3	6.1
SAXONY-ANHALT				
15001	Dessau-Rosslau	1.84	70.8	5.4
15002	Halle (Saale)	2.62	67.0	4.3
15003	Magdeburg	2.72	60.8	3.6
15081	Altmarkkreis Salzwedel district	1.31	76.4	6.1
15082	Anhalt-Bitterfeld district	3.35	48.1	4.3
15083	Börde district	1.35	76.8	6.5
15084	Burgenlandkreis district	2.92	53.0	5.0
15085	Harz district	2.05	66.2	5.5



REGION		OWNER-OCCUPIERS' HOUSING COSTS 2021, IN EUROS PER SQM	COST ADVANTAGE OVER RENTING, IN PERCENT, 2021	NEUTRAL INTEREST, IN PERCENT, 2021
15086	Jerichower Land district	1.87	68.1	6.1
15087	Mansfeld-Südharz district	1.29	77.0	6.3
15088	Saalekreis district	1.77	72.7	6.8
15089	Salzlandkreis district	2.36	60.3	5.0
15090	Stendal district	3.14	47.9	4.5
15091	Wittenberg district	1.34	76.3	6.1
THURINGIA				
16051	Erfurt	3.36	62.9	3.8
16052	Gera	3.11	48.1	3.8
16053	Jena	3.84	67.6	4.4
16054	Suhl	2.60	62.0	5.3
16055	Weimar	3.09	65.1	4.1
16056	Eisenach	4.97	27.1	2.6
16061	Eichsfeld district	2.74	49.5	3.7
16062	Nordhausen district	1.38	76.0	6.1
16063	Wartburgkreis district	2.31	60.9	5.2
16064	Unstrut-Hainich-Kreis district	2.83	51.9	4.7
16065	Kyffhäuserkreis district	2.07	61.8	5.1
16066	Schmalkalden-Meiningen district	1.49	75.5	6.4
16067	Gotha district	1.56	76.4	6.2
16068	Sömmerda district	1.14	82.9	8.6
16069	Hildburghausen district	2.87	55.7	4.9
16070	Ilm-Kreis district	3.42	50.5	4.2
16071	Weimarer Land district	1.54	75.3	5.9
16072	Sonneberg district	3.87	33.3	3.2
16073	Saalfeld-Rudolstadt district	1.63	73.8	5.8
16074	Saale-Holzland-Kreis district	2.03	71.1	5.6
16075	Saale-Orla-Kreis district	1.18	80.7	7.6
16076	Greiz district	3.53	39.6	3.7
16077	Altenburger Land district	3.19	45.4	4.0



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