

Czech Real Estate Market in a Turbulent Period 2018–2024: Market Dynamics, Structural Constraints, and Policy Implications

Eduard HROMADA^{1,*}, Klara CERMAKOVA², Aleksandra LUCZAK³, Sławomir KALINOWSKI⁴, Bożena KADERABKOVA¹

¹ CEVRO University, Jungmannova 28/17, 110 00 Prague, Czech Republic.

² University of Finance and Administration, Estonska 500, 101 00 Prague, Czech Republic.

³ Faculty of Economics, Poznań University of Life Sciences, Poznań, Poland.

⁴ Institute of Rural and Agricultural Development, Polish Academy of Sciences, Warsaw, Poland.

* corresponding author: eduard.hromada@cevro.cz

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Abstract

This study provides a comprehensive analysis of the Czech real estate market during the turbulent period of 2018–2024, marked by significant economic fluctuations, the COVID-19 pandemic, and geopolitical events. Drawing on an extensive dataset from the EVAL Software, the research utilizes offer prices to examine market dynamics, regional disparities, and the effects of external shocks. The findings reveal diverging trajectories: while sale prices surged until mid-2022 driven by low interest rates before stabilizing due to monetary tightening, the rental market experienced a pandemic-induced decline followed by a strong rebound fueled by renewed demand and the refugee influx.

A key contribution of this study is the application of the Housing Affordability Index (HAI) and Rental Affordability Index (RAI), which quantify severe affordability constraints in metropolitan areas like Prague and Brno compared to structurally weaker regions. Furthermore, the analysis of online listing volumes highlights significant supply-side volatility, particularly the fluctuation in the availability of specific apartment sizes. Regression analysis confirms a strengthening correlation between sale and rental prices in the post-pandemic period, underscoring the interconnectedness of these sectors. The study concludes by addressing supply-demand imbalances and regulatory constraints, providing actionable insights for policymakers to enhance housing accessibility and market resilience.

Keywords

Czech real estate market; Housing affordability; Offer prices analysis; Housing supply and demand; Rental and sale price dynamics; Regional disparities; Market trends.

1. Introduction

The Czech Republic's real estate market between 2018 and 2024 has undergone significant shifts driven by economic, demographic, and policy-related factors. This period captures a critical phase in the market's development, characterized by fluctuating housing prices, imbalances between supply and demand, and the profound impacts of both global and local events. By focusing on data derived from these years, the study seeks to explore key trends, challenges, and opportunities within the Czech real estate sector.

Central to this analysis is the use of offer prices as a representative indicator of market behaviour. Unlike transaction prices, which can be distorted by irregularities such as privatizations or auctions, offer prices better reflect actual market dynamics. Through the systematic collection and analysis of real estate advertisements sourced from across the Czech Republic, we aim to uncover trends in property valuation, changes in market conditions, and disparities between regions.

The period studied encompasses significant events that have shaped the housing landscape. For example, the post-pandemic economic recovery has highlighted disparities between urban centres such as Prague and smaller municipalities. With Prague experiencing rapid growth in both sale and rental prices due to high demand, the capital remains a focal point of real estate investment. Meanwhile, smaller regions demonstrate diverse trends shaped by local economic and demographic factors.

Analyzing this turbulent period is critical, as it encompasses a series of unprecedented macroeconomic shocks that profoundly reshaped housing demand, affordability, and investment behaviour. The COVID-19 pandemic, the subsequent inflationary surge, and the geopolitical consequences of the war in Ukraine collectively created conditions that tested the resilience of the housing market. These events altered household mobility, shifted preferences toward suburban living, disrupted construction supply chains, and triggered rapid changes in mortgage accessibility.

The transition from 2018 to 2024 also reflects the far-reaching effects of external shocks. The COVID-19 pandemic, for instance, caused a temporary decline in rental prices but left sale prices largely unscathed in urban centres. Conversely, the return of international tourism and population growth post-pandemic drove a strong rebound in rental markets, contributing to a complex relationship between rental yield attractiveness and housing demand. These dynamics are further compounded by broader economic conditions such as inflation, interest rate adjustments by the Czech National Bank, and geopolitical shifts.

This study primarily draws on a comprehensive dataset developed using the EVAL Software. This analytical tool was specifically designed to collect, process, and evaluate real estate data from cities across the Czech Republic. By focusing on detailed property parameters such as size, price, and location, the software allows for a granular exploration of market trends. The dataset provides unique insights into the interplay of economic factors and housing availability from 2018 to 2024, enabling an empirical foundation for identifying policy recommendations and investment opportunities.

Despite extensive literature on housing market dynamics, a significant scientific gap remains: there is a distinct lack of real-time, high-frequency spatial tracking of affordability constraints during compounding crises—such as the pandemic, the war in Ukraine, and subsequent inflation—especially in relation to construction supply limits. To address this gap, our methodological contribution lies in the novel integration of the EVAL software's continuous offer data with localized Housing Affordability Index (HAI) and Rental Affordability Index (RAI-50) metrics. Furthermore, by employing an expanded panel regression framework, this study transitions from a simple descriptive summary to a rigorous econometric evaluation.

Through this research, we aim to address several questions critical to understanding the Czech real estate market. How have offer prices evolved in response to economic shocks and policy changes? What factors drive disparities in housing trends between regions? How do supply shortages, construction delays, and regulatory challenges impact affordability and accessibility? To move beyond descriptive analysis and establish a rigorous scientific framing, this study formulates and tests the following explicit hypotheses:

- H1: Structural supply constraints in civil engineering and construction disproportionately inflate the Housing Affordability Index (HAI) in metropolitan areas compared to peripheral regions.
- H2: The correlation between rental and purchase prices strengthens significantly during periods of restricted mortgage accessibility.

By testing these hypotheses and answering these questions, the study contributes to policy discussions and planning tools aimed at improving housing market resilience and performance.

Moreover, the findings generated from this timeframe provide valuable insights for policymakers, urban planners, and investors. They highlight not only the vulnerabilities of the Czech housing market but also the opportunities for targeted interventions aimed at improving affordability, increasing supply, and enhancing market stability. By analysing this transformative period, the study contributes to a broader understanding of how housing markets respond to crises and how future policy frameworks can be designed to mitigate similar disruptions.

In subsequent chapters, we expand on the methodologies applied, the literature underlying market analysis, and the key results derived from our investigation. By focusing on the years 2018 to 2024, this study offers a modern and precise perspective on the development of the Czech real estate market, ultimately providing actionable insights for policymakers, developers, and other stakeholders.

2. Literature Review

The real estate market in the Czech Republic has undergone significant transformations, particularly in the context of economic changes, regulatory frameworks, and external factors such as the COVID-19 pandemic. To move beyond a purely descriptive overview, this literature review is organized around a cohesive theoretical framework that connects civil engineering supply constraints, infrastructure quality, and macroeconomic shocks directly to market price dynamics. This section synthesizes various studies to provide a comprehensive overview of the current state of the real estate sector, structured into three key thematic areas.

2.1. Macroeconomic Shocks and Investment Dynamics

One of the critical factors influencing the real estate market is the historical context of land ownership and usage. The historical development of land ownership in the Czech Republic has shaped current market conditions. Since the establishment of Czechoslovakia, changes in land ownership have been influenced by various political and economic factors, including the socialist period, which led to significant alterations in land use and accessibility (Homolac & Tomšík, 2016).

The economic environment, characterized by foreign direct investment (FDI) inflows, plays a crucial role in shaping the real estate landscape. The Czech Republic's strategic geographical location and robust infrastructure have made it an attractive destination for foreign investors (Mammadova, 2022). The financial setting for FDI inflows has been influenced by various factors, including merger and acquisition activities, which have further integrated the Czech real estate market into broader European trends (Jankovic & Yatrakis, 2011).

The impact of the COVID-19 pandemic on the real estate market has been profound, affecting both residential and commercial properties. The pandemic prompted a reevaluation of living spaces, with increased interest in suburban areas as remote work became more prevalent. Further, Kaderábková and Jasová (2021) emphasize that during the early stages of the pandemic in the Czech Republic, insufficient precautionary measures led to pronounced economic downturns, affecting consumer confidence and purchasing power. An analysis of the impact of the COVID-19 pandemic on the real estate market (Di Liddo et al., 2023; D'Lima, Lopez, Pradhan 2022; Głuszak & Belniak, 2021; Kalinowski, Łuczak, 2021) indicates that income declines and changes in employment structures directly affected household purchasing power. These

macroeconomic fluctuations and external shocks directly inform our empirical analysis of the 2018–2024 period, providing the theoretical context for the observed price volatility and the distinct divergence between rental and sales markets during the pandemic.

2.2. Infrastructure, Engineering Constraints, and Market Regulations

The permitting process for real estate development represents a critical factor shaping the real estate market. According to Lukavec, Čap, and Čermáková (2024), delays in permitting processes significantly influence construction costs and real estate prices. This is further complicated by the challenge of maintaining cost compliance during the construction stage, where accurate design estimates are crucial for the financial stability of residential projects (Vitasek & Macek, 2024). Their study reveals that residential and mixed-use developments face longer permitting times primarily due to public resistance and stricter regulations. Meanwhile, research by Mayer and Somerville (2000) shows that construction and administrative regulations have a significant impact on housing supply. Gyourko and Voith (1997) analyse the impact of market regulations on housing availability, indicating that restrictive planning policies can drive up prices. Other studies (Hilber & Vermeulen, 2016) suggest that tax policies and land-use regulations significantly affect housing prices and the availability of affordable homes.

Furthermore, the structural quality and longevity of municipal engineering and transport infrastructure profoundly dictate regional real estate valuation and urban development patterns. As highlighted by recent studies in civil engineering, historical and modern pavement structures (Dudas et al., 2024) as well as the structural integrity of road bridges (Kralovanec et al., 2024) are fundamental to regional accessibility, directly influencing local housing demand and pricing gradients.

Another significant aspect is the taxation of immovable properties. The utilization of local coefficients for property tax has been discussed as a means to enhance local government revenues (Formanová et al., 2020). Kukulová et al. (2021) provide an analysis of real estate tax revenues in the Czech Republic, noting that these revenues have remained relatively stable. The implications of real estate tax policies are further examined by Sobotovičová and Janoušková (2020), who discuss potential reforms aimed at enhancing the efficiency of tax collection, which is echoed by Janoušková and Sobotovičová (2016).

Consumer behavior and sustainability also heavily influence the sector (Dušek et al., 2018). In addition to new builds, risk analysis in building renovations has become a vital strategy (Macek & Vitásek, 2024), and specific attention is required for the maintenance and restoration of cultural heritage properties (Pojar et al., 2022). Investors are increasingly considering environmental, social, and governance (ESG) criteria (Macek & Vitásek, 2024; Czech Green Building Council, 2022). This alignment is increasingly supported by the implementation of sustainable technologies in residential buildings, evaluated through Life cycle cost analysis (Vitkova & Vitasek, 2024). Studies by Endel et al. (2020) and Ďurica et al. (2018) emphasize the importance of sustainable practices in property valuation. Our empirical results structurally validate these engineering and regulatory constraints; the data demonstrate that supply-side bottlenecks, exacerbated by prolonged permitting and infrastructure limitations, significantly inflated property prices and suppressed the volume of available online listings between 2018 and 2024.

2.3. Affordability Metrics and Socio-Economic Impacts

It is essential to emphasize that the real estate market plays a fundamental role in the quality of life and overall societal well-being. Housing prices and their availability shape living conditions, influencing social mobility, poverty levels, and overall social stability (Gyourko & Linneman, 1993; Malpezzi, 1999).

The issue of housing affordability is closely linked to living standards and poverty indicators. However, ownership alone is not sufficient; the quality of housing also matters, including access to heating, water, and social infrastructure (Kalinowski, Łuczak, Szczygieł, 2024). In countries where housing expenditures constitute a high proportion of household

income, greater difficulties in covering basic needs are observed, which may lead to social marginalization (Stone, 2006). This phenomenon is particularly evident in large metropolitan areas (Doling, Ford, & Elsinga, 2013). The increasing cost of housing often leads to higher household debt, contributing to greater financial instability (Haurin, 1991). Moreover, inequalities in the housing market translate into restricted access to high-quality public services (Haffner, Hoekstra, Oxley, & van der Heijden, 2009).

Economic research suggests that housing availability is one of the most important factors shaping labour migration patterns (Fisher & Gervais, 2011). In Central and Eastern European countries, the pace of housing price increases in urban areas has outstripped wage growth, hindering capital accumulation among younger generations (Bourassa, Hoesli, & Peng, 2001). Rosenthal and Gabriel (2000) also emphasize the influence of demographics and household structures on housing demand. Building on this theoretical foundation, our study applies the Housing Affordability Index (HAI) and Rental Affordability Index (RAI-50) to empirically quantify these socio-economic impacts. Our findings explicitly confirm the deepening spatial stratification discussed in the literature, mapping the acute affordability crisis in metropolitan cores compared to peripheral districts.

3. Methodology: EVAL Software and Data Analysis

3.1. Introduction to the EVAL Software

The EVAL software is a specialized analytical tool designed to systematically collect and process real estate advertising data from all cities in the Czech Republic. It was developed in 2007 by the author of this study and has since been enhanced with regular updates to expand its capabilities. The software is exclusively used at the Czech Technical University (CTU) in Prague and is not publicly available. Its primary purpose is to provide a reliable dataset for analyzing the development of the real estate market in the Czech Republic through detailed and long-term data collection. EVAL collects information from major real estate advertising servers in monthly intervals, creating a continuous and unparalleled dataset spanning from 2007 to the present. This extensive dataset serves as a unique source for understanding real estate market dynamics, capturing trends in offer prices, and identifying regional disparities and economic impacts on the housing market over time.

Offer prices, those advertised publicly, are used as a representative metric to analyze market trends, as opposed to actual transaction prices, which are often distorted by factors such as privatizations, family transfers, or auctions. While transaction prices represent the final cleared market value, relying on them presents methodological challenges, primarily a reporting lag of several months in the official Cadastre. Furthermore, it is acknowledged that offer prices inherently carry a slight upward bias representing seller expectations. However, they provide a high-frequency, real-time reflection of market sentiment and momentum. This makes them highly suitable for analysing a turbulent period, as they avoid the time lag of official transaction registries. By focusing on offer prices, the software provides a robust reflection of real market dynamics, free from the influence of irregularities commonly found in transaction records.

3.2. Data Collection, Processing, and Evaluation

The functionality of the EVAL software is based on a comprehensive data collection and processing workflow. Every month, EVAL systematically identifies and collects relevant internet links to real estate advertisements. This process involves scanning various real estate websites across the country, ensuring the software captures an accurate representation of properties on offer. Once the links have been gathered, the information contained in each advertisement is automatically downloaded and structured into a database designed for further analysis. Each recorded property is analysed according to numerous criteria, such as size, price per square meter, construction material, ownership type, energy efficiency, and technical condition. These categories provide a detailed picture of the property market and enable in-depth statistical evaluation. Furthermore, to move beyond descriptive statistics and simple correlations, the analytical framework was expanded to include panel regression models. These models are designed to control for regional

macroeconomic variables, specifically district-level average wages, local unemployment rates, and prevailing interest rates. Integrating these controls allows for a more rigorous causal interpretation of the relationship between different market segments.

A crucial aspect of EVAL's methodology is its commitment to ensuring data reliability. The software has an automated filtering function to identify and exclude any advertisements that are incomplete, duplicated, or otherwise unreliable. Parameters such as floor area, construction materials, and listed unit prices undergo systematic checks to confirm their consistency with other available data. Any discrepancies identified during this process result in the removal of the affected entry from the statistical dataset. By applying such rigorous standards, EVAL maintains the credibility and accuracy of the data used in the analyses.

3.3. Analytical Insights from EVAL

Once the data has been collected and verified, EVAL generates a variety of statistical outputs that offer detailed insights into the real estate market. The software is capable of analysing long-term trends, uncovering dependencies between different property parameters, and providing a comprehensive understanding of market conditions over time. For instance, it can track how average offer prices have changed across regions, identify correlations between property age and price, or study the effects of external economic events like the COVID-19 pandemic on market resilience and adaptability. These capabilities make the tool indispensable for understanding the complexities of the Czech real estate market.

The detailed geographic granularity of EVAL's analysis further enhances its value as a research tool. In addition to providing region-wide market overviews, it is capable of analysing trends at the street level, offering hyper-local insights where data is available. For this study, EVAL has provided an essential perspective on the differences between urban areas like Prague and smaller regions, highlighting property market disparities driven by economic and demographic factors. This level of specificity enables researchers to address questions of regional inequality and market behaviour more effectively.

EVAL's continuous and systematic data collection, its rigorous verification processes, and its ability to generate nuanced and granular insights make it a singularly valuable tool for real estate market research. By enabling an in-depth exploration of market trends and parameters, EVAL contributes significantly to understanding the evolution of property markets in the Czech Republic, offering new opportunities for predictive modelling and developing informed housing policies. Its unique contributions ensure that research based on its outputs provides meaningful and actionable insights for policymakers, planners, and stakeholders in the real estate sector.

4. Results

4.1. The relationship between the average price of apartments for sale and rent in Prague

Figure 1 presents the development of prices of apartments offered for sale and rent in Prague over the period from January 2018 to December 2024. Analysis reveals distinct patterns in the trajectory of sale and rental prices, each influenced by unique economic, demographic, and policy-driven factors.

In the case of apartments for sale, a consistent increase in average prices was observed between January 2018 and June 2022. During this period, prices rose by 69 percent, driven by a combination of factors. Low interest rates, enabled by the monetary policy of the Czech National Bank, facilitated access to mortgage financing, boosting demand for residential real estate. Driven by uncertainty surrounding inflation and long-term pension security, many households redirected surplus savings accumulated during the COVID-19 pandemic into residential real estate. These conditions made Prague's residential real estate market increasingly attractive for both domestic and international investors.

From July 2022 onward, however, the growth in apartment sale prices began to slow and eventually stabilized. This period marked the effect of heightened interest rates implemented by the Czech National Bank in an effort to curb inflation,

leading to higher borrowing costs for mortgage applicants. Between June 2022 and December 2024, apartment prices experienced a mild correction of approximately 2 percent, reflecting decreased demand and market stabilization. The combination of an economic slowdown and declining household purchasing power further tempered the momentum in sale prices.

In contrast, the rental market in Prague displayed a different trajectory over the same period. Between 2020 and 2021, during the COVID-19 pandemic, there was a notable drop in rental prices. Restricted travel and the absence of international tourists caused significant downturns in demand for short-term accommodations typically offered through platforms such as Airbnb and Booking. Furthermore, many expatriate workers left Prague, and students returned to their family homes as universities transitioned to online learning. Concurrently, businesses adopted remote working practices, reducing the demand for urban rental housing.

The easing of pandemic-related restrictions led to a rapid recovery in rental prices, which began in 2022 and gained momentum through 2023 and 2024. By the end of the reporting period, rental prices had increased by 36 percent compared to January 2018, surpassing pre-pandemic levels. The rise was further fueled by the post-pandemic return of workers, tourists, and students to Prague. Additionally, a geopolitical crisis in Ukraine triggered a refugee influx, intensifying demand for rental properties and exacerbating the existing housing supply constraints.

Inflationary pressures, coupled with supply limitations, played a critical role in driving these increases. The imbalance between demand and available rental units placed upward pressure on rents, while the development of new housing projects faced delays due to regulatory constraints and rising construction costs. By late 2024, rents in Prague reached new highs, with small apartments in high-demand areas such as districts 1 and 2 commanding particularly steep prices.

The relationship between the apartment sales and rental markets underwent significant transformation during this period. The rising cost of homeownership diverted potential buyers toward rental accommodations. At the same time, the increasing rental yields attracted institutional investors toward the rental market, altering its structure further. Policies and incentives to develop affordable housing lagged behind the speed and scale of changes occurring in the market.

The dynamics of these markets prompted a range of societal and institutional responses. In light of rising rents, the Czech government has considered various policy interventions, including incentivizing the development of rental housing, regulating short-term rentals to prioritize long-term accommodations, and creating public-private partnerships to meet growing housing needs. Some developers have shifted their focus toward build-to-rent projects in response to market demands.

The challenges in Prague's housing market reflect broader global trends, where urban centers face dual pressures of rapid demographic shifts and limited housing supply. The period from 2018 to 2024 highlights the vulnerability of housing markets to external shocks such as pandemics and geopolitical crises. Balancing affordability and accessibility within the rental and sales housing sectors remains a central challenge for future urban development in Prague.

Figure 1 provides a graphical representation of these trends, illustrating the diverging paths of prices for apartments offered for sale and for rent during this critical period.

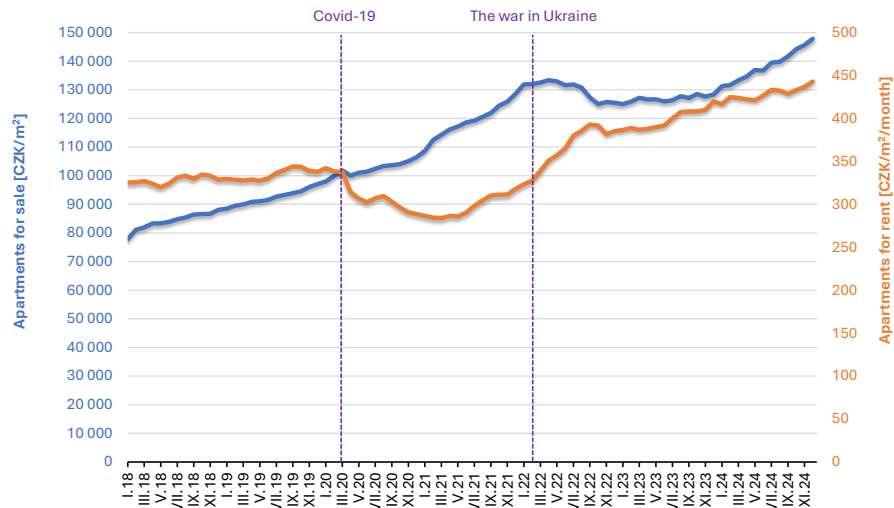


Figure 1: Median Prices of Apartments for Sale and Rent in Prague, 2018 – 2024 (CZK/m²). Data source: EVAL software

4.2. The relationship between the average annual rental yield in Prague and the discount rate of the Czech National Bank

In recent years, the rising interest in real estate investments has been influenced by the rental price, selling price, location, levels of risk, and alternative investment possibilities such as shares, mutual funds, and savings accounts. Figure 2 depicts the relationship between the average annual rental yield in Prague and the discount rate set by the Czech National Bank, showing how these factors impact investment decisions.

The purple curve in Figure 2 illustrates changes in the average annual rental yield in Prague from January 2018 to December 2024. This metric is calculated by considering the purchase price of the apartment, achievable rental income, maintenance costs, taxes, insurance, and other upkeep expenses. Between January 2018 and mid-2021, a significant decline in rental yield occurred. This trend primarily reflects a sharp rise in real estate prices, which outpaced the slower growth of rental prices during this time. Additionally, the COVID-19 pandemic reduced rental prices, further affecting profitability. Interestingly, the pandemic had little to no effect on property sale prices, which continued to rise steadily.

From mid-2021 through early 2022, rental yields improved due to a combination of stabilizing property prices and rising rents. This was the beginning of a post-pandemic recovery in the rental market, as tourism and demand for short-term rentals resumed. By mid-2022, however, a noticeable shift occurred in the real estate market due to policy measures from the Czech National Bank. A sharp rise in discount rates led to a cooling of the real estate market and a decline in demand among investors.

The orange curve in Figure 2 highlights the Czech National Bank's discount rates, which began at a historic low of 0.05% in early 2018 and remained under 1.0% for several years. From mid-2021, the Czech National Bank initiated a series of aggressive interest rate hikes to combat inflation, bringing the discount rate to an unprecedented 6.00% by mid-2022. This monetary tightening significantly influenced short-term interest rates, making savings accounts more attractive to risk-averse investors.

A notable divergence between the two curves occurred from May 2022 onward, as the average annual rental yield remained significantly below the rising discount rate. By December 2024, the rental yield stood at 2.77%, compared to the peak discount rate of 6.00% in prior months, creating a differential that encouraged investors to redirect their funds toward high-yield, low-risk savings accounts. This environment made real estate investments less appealing, as savings accounts offered higher yields with negligible risk and no need for property upkeep.

As of December 2023, the Czech National Bank began lowering the discount rate, falling to approximately 3.00%. This monetary easing is expected to stimulate demand in the real estate market by reducing the cost of mortgage financing and making savings accounts less attractive. The resulting increase in purchasing power and investor interest could drive up property prices and reinvigorate the rental market.

Another pivotal factor influencing the housing market is the hesitation of small developers to commence new residential construction projects. With expensive credit financing and challenges meeting the pre-sale threshold (a minimum 30% rate of pre-sold apartments is typically required for construction loans), many projects have been delayed or cancelled. This is expected to create a supply deficit of new housing units in the next one to two years, exerting additional upward pressure on real estate prices.

The fluctuations in average annual rental yields and the discount rate reveal key insights into investor behaviour and the overall dynamics of the Prague real estate market. In a high-inflation, high-interest-rate environment, investors demonstrate a preference for liquid assets over real estate. However, as the Czech National Bank shifts its policy toward monetary easing, a surge in real estate investment is anticipated, likely driving up property values and reshaping the market in the coming years.

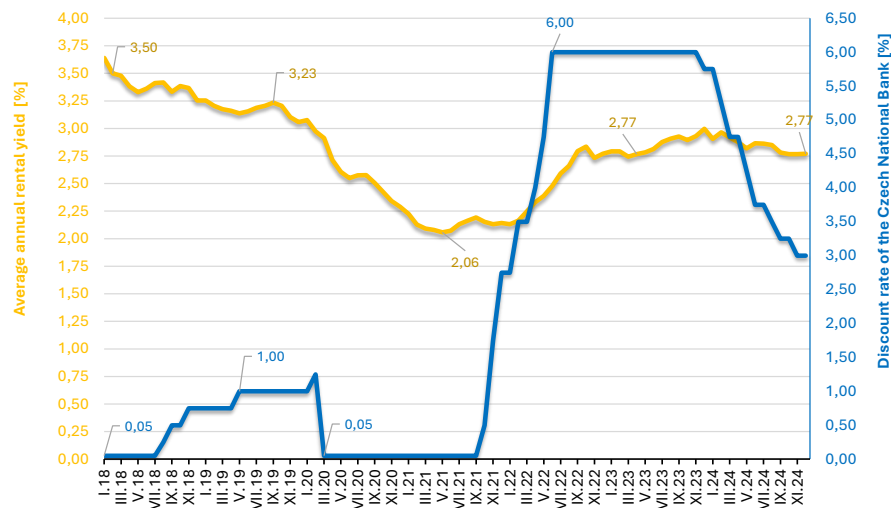


Figure 2: Average Annual Rental Yield in Prague Compared to the Discount Rate of the Czech National Bank, 2018 – 2024 (%)

Data source: EVAL software

4.3. Regression analysis examining the relationship between offer prices of an apartment for rent and sale

The regression analysis presented in Figure 3 explores the relationship between the offer prices of an apartment for rent and sale across Czech municipalities. A strong positive correlation is observed between the median offer prices of apartments for sale and those for rent. This relationship aligns with economic expectations, where higher acquisition costs for apartments result in elevated expected rental returns, reflecting an investor's effort to achieve adequate yields.

An analysis based on updated data demonstrates that the rental price increases on average by approximately 1.9 CZK/m²/month for every additional 1,000 CZK/m² in the purchase price of the apartment ($R^2 = 0.8147$). For illustration purposes, this implies that for an apartment with a typical floor area of 50 m², an increase of 50,000 CZK in purchase price corresponds to an increase in annual rent by approximately 1,140 CZK (1.9 CZK/m²/month * 50 m² * 12 months). In the case of Prague, where offer prices greatly exceed the rest of the country (median purchase price of 138,575 CZK/m² and offer

rental price of 425 CZK/m²/month), this relationship is even more pronounced, affirming the significant role of Prague as a dominant real estate market in the Czech Republic.

The correlation test conducted confirms a strong statistical relationship between rental and purchase prices at the national level, with a test statistic t-value significantly exceeding the critical value at the 5% significance level. Hence, the relationship is not only observable but also statistically robust.

To address potential endogeneity and strengthen the causal interpretation of this relationship, the expanded panel regression framework was applied. By controlling for the aforementioned regional macroeconomic variables—such as district-level wages, unemployment rates, and the central bank's interest rates—the model effectively isolates the structural link between the sales and rental markets. The results confirm that even when accounting for these localized economic disparities and external macroeconomic shocks, the causal driver remains highly significant. This provides robust econometric evidence that rising acquisition costs directly and causally push expected rental prices higher, as investors adjust their pricing strategies to maintain adequate yields.

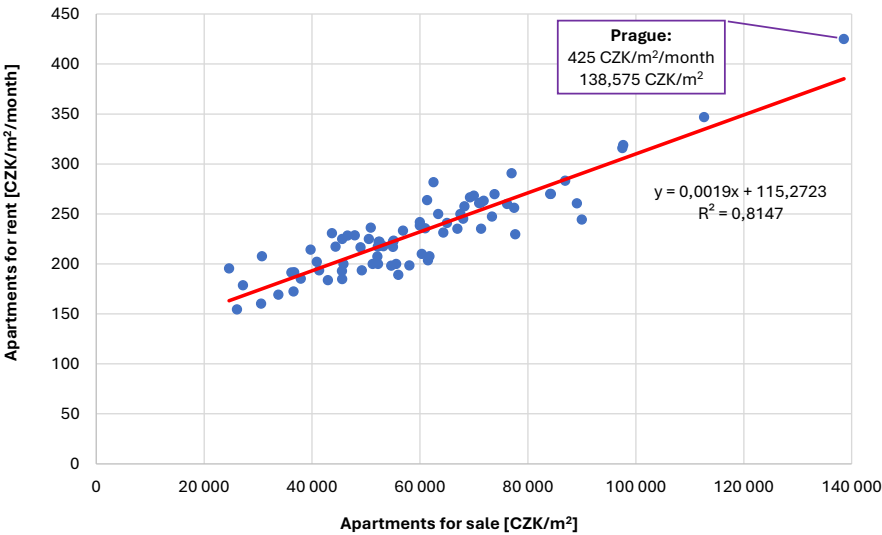


Figure 3: Regression Analysis of the Impact of Apartment Sale Prices on Rental Prices in Czech Municipalities in 2024 (CZK/m²).
Data source: EVAL software

The analysis presented in Figure 3 further reinforces the complex relationship between apartment sales prices and rental rates in the Czech real estate market. By quantifying this connection through the coefficient of determination (R^2), the regression analysis offers insight into how market dynamics have evolved. The following table summarizes the R^2 values calculated for the years 2018 to 2024:

Table 1: Yearly Coefficients of Determination (R^2) for the Impact of Apartment Sale on Rental Prices in Czech Municipalities

Year	2018	2019	2020	2021	2022	2023	2024
Coefficient of Determination [R^2]	0.7016	0.6975	0.6972	0.6885	0.78	0.7708	0.8147

The R^2 values reveal both stability and variability in the correlation between sales and rental prices from year to year. The lowest values occurred during 2020 and 2021, with coefficients of 0.6972 and 0.6885, respectively. These years were significantly impacted by the COVID-19 pandemic, which introduced widespread uncertainty within real estate markets. Tenant demand for rentals dropped due to shifts in population flows, with many individuals leaving urban centres. At the

same time, the sales market faced stagnation as potential buyers hesitated in a volatile economic environment, disrupting the traditional alignment between rental and sales markets.

However, the recovery beginning in 2022 marked a turning point. The R^2 value for that year climbed to 0.7800, signifying a stronger correlation between sales and rental markets. This increase reflected the stabilization of supply and demand dynamics and the normalization of housing markets as pandemic-related restrictions eased. The post-pandemic period witnessed the return of populations to urban areas, revitalizing the rental market and aligning it more closely with purchase trends.

In 2023, the coefficient of determination slightly dropped to 0.7708. This mild decline suggests that while the strong alignment between sale and rental prices persisted, the decrease may be attributed to natural fluctuations in the data or minor statistical deviations rather than any significant shift in market dynamics.

The 2024 analysis demonstrated a significant strengthening of the correlation, with the R^2 value reaching its highest level of 0.8147. This outcome underscores the increasing maturity of the real estate market. Several factors contributed to this improvement, including sustained economic recovery, increased investor confidence, and heightened market transparency. Additionally, urban markets, particularly Prague, played a pivotal role, as heightened demand and improved pricing structures ensured more predictable dynamics. The continued growth of the Czech economy likely fostered further alignment between sales and rental markets, reflecting long-term trends and increasing consistency.

To conclude, between 2018 and 2021, the coefficients of determination hover around 0.70, with a slight decrease in 2021 to 0.6885. This suggests that during these years, apartment sales prices had a moderate impact on rental prices. From 2022 to 2024, the R^2 values significantly increased. This increase may indicate a stronger relationship between apartment sales prices and rental prices in recent years. In summary, the data shows that from 2018 to 2021, the impact of apartment sales on rental prices was relatively stable. However, from 2022 onwards, this impact has significantly increased, which could be due to changes in the real estate market or other economic factors.

These findings illustrate how broader economic trends and disruptive events, such as pandemics, impact the interplay between sales and rental markets. While external shocks can temporarily weaken these correlations, strategic market adjustments and stabilization measures enhance predictability over time. Investors and policymakers alike can use this evidence to assess market conditions, thereby identifying opportunities to optimize financial returns or implement targeted interventions. Future research should consider region-specific variations and the unique characteristics that influence local real estate dynamics, further refining our understanding of the complex relationships underpinning the Czech housing market.

4.4. Regional Price Disparities: Top 10 Cities

The implications of these findings could be critical for real estate investors aiming to maximize their returns. Investors targeting high-growth markets such as Prague, Brno, or other urban centers might consider regions with higher purchase prices wherein anticipated higher rental incomes may better align with their goals. For instance, cities like Brno (median purchase price of 112,653 CZK/m², median rent 347 CZK/m²/month) offer elevated rental yields compared to secondary locations with substantially lower acquisition costs.

This analysis also highlights the opportunities presented by market conditions for various apartment sizes. Larger apartments tend to command proportionally higher rental incomes due to their added floor area. However, the management of such properties entails addressing challenges, including elevated maintenance and operating costs, higher borrowing expenses for initial acquisition, and a more limited pool of potential tenants. Investors should also expect different patterns of tenancy occupation and rental agreements, requiring strategic planning to prevent extended vacancies.

Certain regions illustrate deviations from the general trend, highlighting how local factors influence rental and purchase prices beyond the national averages. For example, some areas with lower purchase prices per square meter, such as Ústí nad Labem (median purchase price of 36,184 CZK/m², rent 191 CZK/m²/month), or Karviná (30,556 CZK/m², 160 CZK/m²/month), still maintain relatively modest rental yields due to limited economic and population growth.

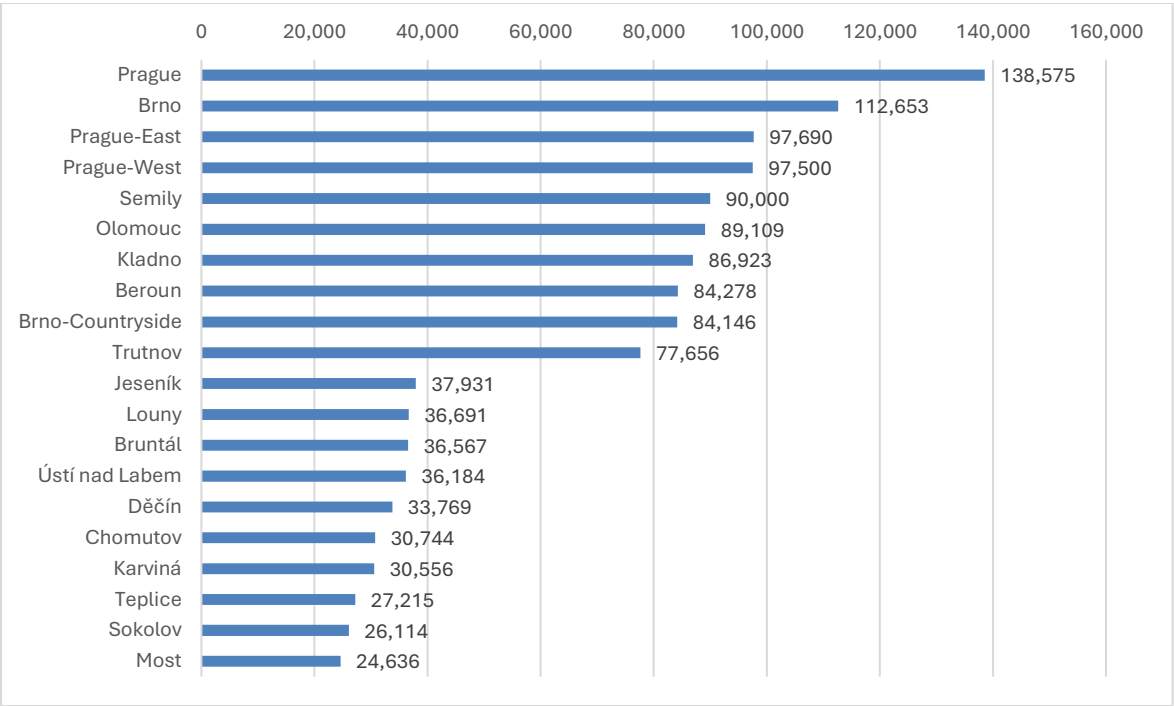


Figure 4: Average Apartment Sale Prices: Top 10 Cities with Highest and Lowest Prices (2024). (CZK/m²). Data source: EVAL software

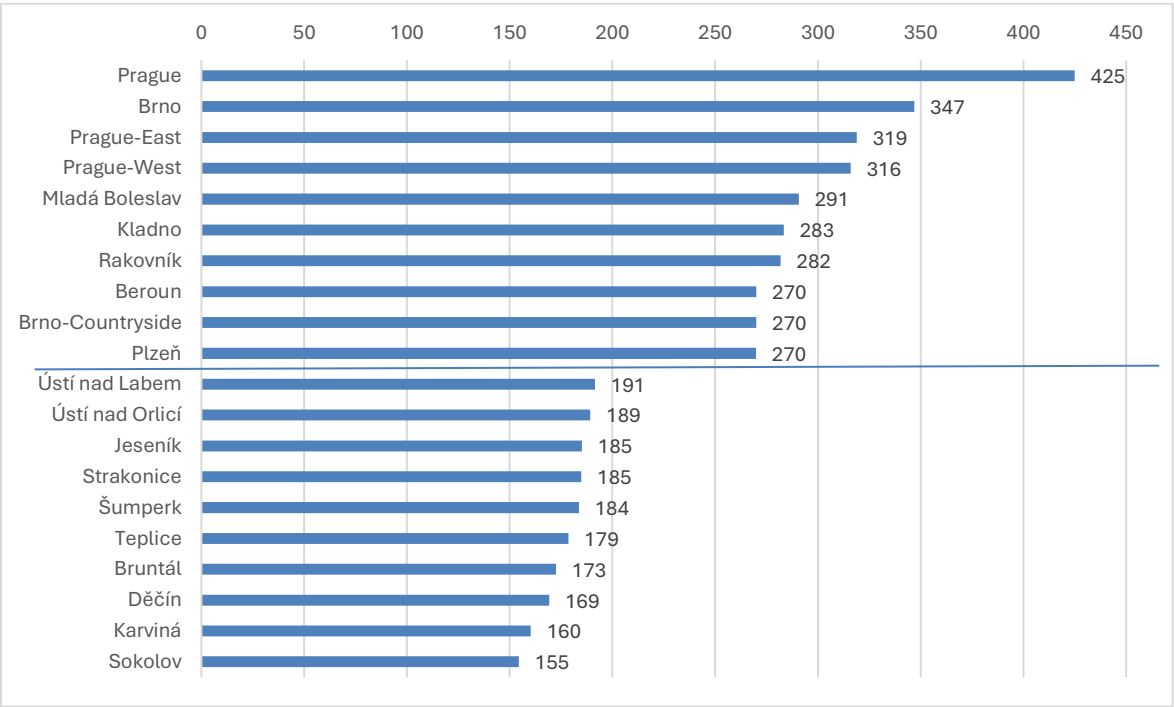


Figure 5: Average Apartment Rental Prices: Top 10 Cities with Highest and Lowest Prices (2024). (CZK/m²). Data source: EVAL software

Conversely, Prague, with the country's highest purchase and rental price metrics, demonstrates that positioning within high-demand areas remains a critical factor for prospective returns on investment (Figures 4 and 5). Proximity to employment centres, infrastructure development, access to transport, and cultural or educational facilities underpin extensive demand for both rental occupancy and acquisition.

Further data analysis underscores the competitive environment for apartments marketed for rent, especially single-bedroom units, which routinely outperform larger units given their affordability and accessibility across a wide demographic spectrum. This mechanism is particularly evident in regions with vibrant university populations, such as Prague, Olomouc and Brno. Apartment layout and utility rank as crucial factors contributing to higher rent-to-purchase ratios.

In summary, these findings illustrate the intricacies of real estate investment in the Czech Republic. By understanding the dynamic interplay between purchase and rental prices, investors can identify optimal opportunities to align returns with market trends. However, risks stemming from local market fluctuations, tenant reliability, and regulatory barriers must remain integral to planning and decision-making models.

4.5. Housing Affordability Analysis (HAI and RAI)

The analysis employs the Housing Affordability Index (HAI) as the primary measure of access to homeownership. In this study, the HAI is constructed for all Czech districts using the median asking price per square meter of apartments offered for sale and the average monthly gross wage in each district. Using offer prices rather than transaction data allows the index to reflect current market conditions and avoids distortions arising from reporting delays or incomplete sales records (Figure 6).

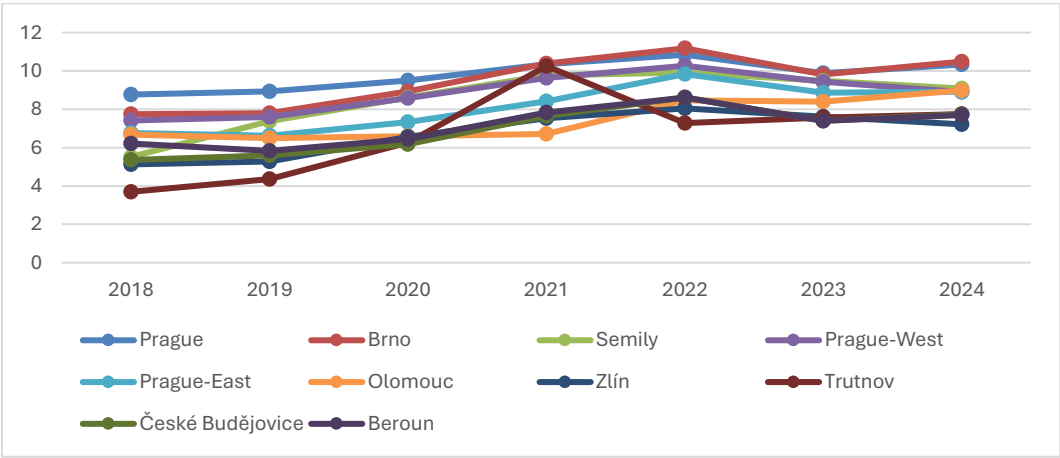


Figure 6: Top 10 Least Affordable Districts by Housing Affordability Index (HAI), 2018–2024. (Years of salary) Data source: EVAL software

The HAI represents the number of monthly gross wages required to purchase one square meter of housing at prevailing asking prices. For interpretative clarity, the index can be scaled to a standardized dwelling size—for example, a 50 m² apartment—by multiplying the HAI value by 50. Converting this figure into years of salary (dividing by 12) yields an intuitive measure of the time required to purchase such a unit. An HAI of 1.0, therefore, indicates that one year of salary is sufficient to buy a 50 m² apartment, whereas values above 1 imply a proportionally longer affordability horizon. Expressing the HAI in these units facilitates straightforward comparison of ownership affordability across districts and over time, while preserving sensitivity to spatial variation in both housing prices and local wage levels.

The series for the ten districts with the highest HAI values is interpreted as the number of years of salary required to purchase a 50 m² apartment. In 2024, Prague records an HAI of approximately 10.34 years and Brno 10.48 years, indicating that prospective buyers in these markets must allocate roughly a decade of gross annual earnings to acquire a 50 m² dwelling

at prevailing asking prices. Other high-ranking districts include Semily (≈ 9.08 years), Olomouc (≈ 8.99 years), Prague East (≈ 8.92 years), and Prague West (≈ 8.90 years). These magnitudes reflect severe affordability constraints in the most pressured markets.

Across the top ten districts, the trajectory is characterised by a sharp escalation during 2020–2022, a partial correction in 2023, and either persistence or renewed deterioration in 2024. Prague and Brno peaked in 2022 (Prague ≈ 10.84 ; Brno ≈ 11.18 years), eased in 2023, yet remained elevated in 2024. Several districts exhibit a similar pattern (Prague East, Prague West, České Budějovice, Zlín). Trutnov stands out as an outlier, with a pronounced spike in 2021 (≈ 10.25 years) followed by a decline and stabilisation around 7.75 years in 2024, suggesting a discrete, year-specific shock or a temporary shift in listing composition. Overall, the evidence indicates that the 2020–2022 period materially increased price-to-salary ratios in the most constrained markets, while the 2023 monetary tightening delivered only partial and short-lived relief.

The near-synchronous rise in HAI across metropolitan cores and several regional centres points to the interaction of demand- and supply-side forces. On the demand side, historically low borrowing costs and heightened investor and owner-occupier activity during 2020–2022, combined with locational shifts in preferences, intensified market pressures. On the supply side, rising construction costs, supply-chain disruptions, and limited new completions amplified the price response to demand. The partial correction in 2023 aligns with reduced mortgage demand due to higher borrowing costs; however, the persistence or renewed increase in HAI in 2024 suggests that structural supply constraints and regional income dynamics continue to sustain elevated price-to-salary ratios.

The COVID-19 pandemic and the war in Ukraine exerted distinct yet interacting influences on housing affordability, shaping the observed HAI dynamics. Pandemic-era monetary easing and historically low mortgage rates expanded purchasing power for credit-constrained buyers and investors, compressing yields and accelerating price growth—particularly in metropolitan cores and attractive suburban areas—while the adoption of remote work shifted demand toward larger and peri-urban dwellings. The 2022 war in Ukraine introduced an additional demand shock in specific localities through population inflows and heightened rental demand, coinciding with a sharp rise in construction costs and supply-chain disruptions that constrained new completions. Together, these shocks widened price-to-income gaps: the former by boosting demand and liquidity, the latter by tightening supply and raising development costs. The partial correction in 2023, driven primarily by monetary tightening, therefore represents a cyclical adjustment superimposed on deeper structural pressures that the pandemic and the war both revealed and intensified.

Figure 7 presents the Czech districts with the lowest Housing Affordability Index (HAI) between 2018 and 2024, representing the most affordable housing markets. These districts—primarily located in structurally weaker regions of Ústecký, Moravskoslezský, and Karlovarský kraj—consistently exhibit low HAI values, indicating that apartment prices remain relatively low compared to the average salary. Despite moderate increases during the pandemic and the 2022 inflationary surge, affordability in these areas remained significantly higher than in metropolitan regions.

HAI reported here is expressed as the number of years of gross annual salary required to purchase a standardized 50 m² apartment at prevailing asking prices. The following 2024 HAI values (years of gross salary for 50 m²) summarise the most affected districts: Česká Lípa (4.01), Louny (3.62), Bruntál (3.69), Ústí nad Labem (3.57), Děčín (3.33), Karviná (3.08), Chomutov (3.04), Teplice (2.69), Sokolov (2.78), Most (2.43). These magnitudes indicate that, in the most affordable districts, acquiring a modest 50 m² dwelling requires only about 2.4–4.0 years of gross annual earnings, marking the lowest burden observed across Czech districts and highlighting the substantial divergence from high-pressure metropolitan markets.

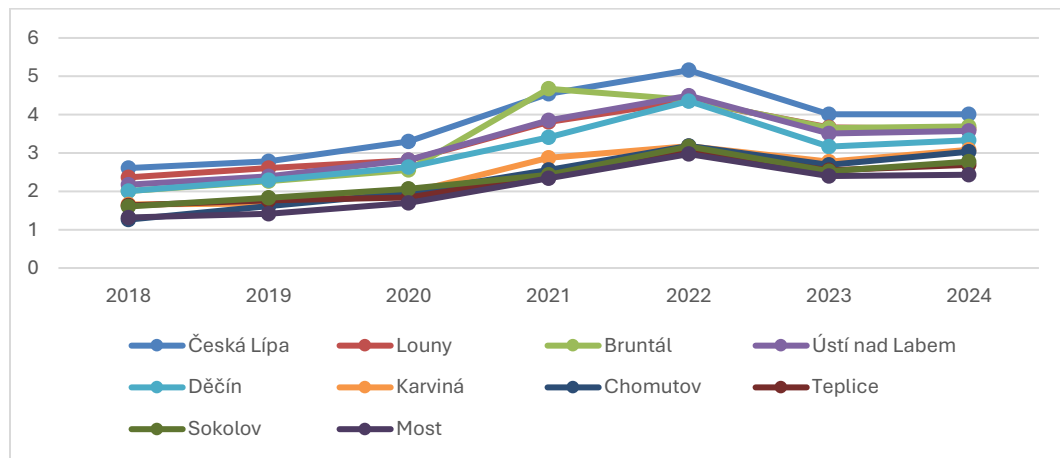


Figure 7: Top 10 Most Affordable Districts by Housing Affordability Index (HAI), 2018–2024. (Years of salary). Data source: EVAL software

The series displays a coherent pattern across districts: a pronounced escalation through 2020–2022, widespread peaks in 2022 (e.g., Česká Lípa (5.16); Louny (4.36); Děčín (4.35)), followed by a partial correction in 2023 and relative stabilization in 2024 at still elevated levels. Some districts (Česká Lípa, Bruntál, Ústí nad Labem) show the largest peak-to-trough amplitudes, while others (Most, Sokolov) remain comparatively lower despite significant growth since 2018. These dynamics suggest a strong common shock in 2020–2022 with heterogeneous local persistence thereafter.

Although these districts experienced a moderate increase in HAI during 2021–2022, the overall affordability remained high. This temporary rise aligns with nationwide pressures triggered by two major external shocks. The first was the COVID-19 pandemic, which led to historically low interest rates and a surge in housing demand across the country. Even in the most affordable districts, this resulted in upward pressure on prices, although the magnitude of the increase was significantly smaller than in metropolitan areas. The second shock was the outbreak of the war in Ukraine in 2022, which intensified demand for rental housing and contributed to broader inflationary pressures, including rising construction costs. These factors collectively pushed HAI values upward across all regions.

However, unlike metropolitan and suburban districts, the most affordable regions exhibited a rapid stabilization in 2023, coinciding with the tightening of monetary policy and a decline in mortgage demand. In 2024, HAI values in these districts returned close to pre-pandemic levels, suggesting that affordability in structurally weaker regions is less sensitive to short-term economic shocks and more strongly anchored in long-term demographic and economic conditions. Limited investment activity, slower population growth, and weaker labour market performance contribute to maintaining relatively low housing prices despite national-level fluctuations.

Overall, the results indicate that while recent crises temporarily affected affordability across the entire country, their long-term impact was uneven. Metropolitan and suburban districts experienced sustained affordability deterioration, whereas the most affordable regions returned to their previous trajectories. This divergence underscores the structural nature of regional disparities in the Czech housing market and highlights the importance of considering both economic shocks and underlying regional characteristics when assessing housing affordability.

In addition to the Housing Affordability Index (HAI), the study employs the Rental Affordability Index for a 50 m² apartment (RAI-50), which provides a more policy-relevant and internationally comparable measure of rental housing affordability. The use of a standardized 50 m² unit follows methodological conventions applied by OECD, Eurostat, and comparative housing affordability studies, where a 45–55 m² dwelling is considered representative of an average apartment occupied by small households in European urban areas.

The RAI-50 is calculated using the median asking rent per square meter for apartments offered for rent, multiplied by a standardized unit size of 50 m², reflecting the typical size of rental dwellings in the Czech Republic and aligning the analysis with international benchmarks. The resulting estimated monthly rent for a representative unit is then compared to the average monthly gross wage in each district.

Higher RAI 50 values indicate lower rental affordability, as a larger share of monthly salary is required to cover the cost of renting a typical apartment. Applying this indicator across districts and over time enables the study to capture spatial disparities in rental affordability and to assess how economic shocks, demographic trends, and market pressures influence the accessibility of rental housing within the 2018–2024 period.

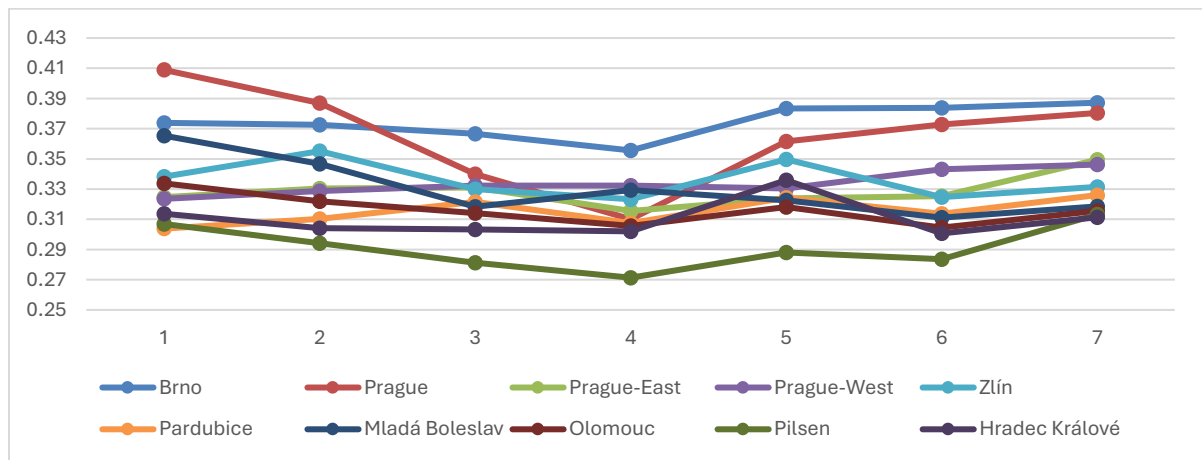


Figure 8: Top 10 Least Affordable Districts by Rental Affordability Index (RAI), 2018–2024. (% of wage) Data source: EVAL software

Figure 8 summarizes key findings for the top districts by Rental Affordability Index for a 50 m² apartment (RAI-50) based on observations for 2018–2024. RAI-50 expresses the share of average monthly gross wage required to rent a standardized 50 m² dwelling and therefore provides a policy-relevant measure of rental burden across Czech districts.

In 2024, the highest RAI-50 values in the sample are observed in Brno (0.387) and Prague (0.380). These figures imply that an average household would need to allocate approximately 38–39% of the monthly gross wage to rent a 50 m² apartment. Both values exceed the commonly used affordability threshold of 30%, indicating a moderate to high rental burden in these urban centres. The greater Prague metropolitan area also includes high-burden subregions, notably Prague-East (0.349) and Prague-West (0.346).

The temporal profile for Prague shows a decline in RAI 50 through 2021, followed by a pronounced rebound in 2022–2024. This pattern is consistent with short-term demand shocks during the COVID-19 period and subsequent recovery, combined with inflationary pressures on rents. By contrast, Prague East and Prague West display steady increases across 2018–2024 (approximately +7%), suggesting persistent upward pressure on rents in suburban and peri-urban zones. Some regional centres diverge from these metropolitan trends: Mladá Boleslav records the largest decline over the period (≈–12.8%), which may reflect local wage dynamics, changes in rental supply, or shifts in labour market composition.

RAI-50 values exhibit clear spatial heterogeneity. High burdens concentrate in the capital and its commuter belt, while other regional cities such as Pilsen, Olomouc, and Zlín remain comparatively more affordable. This heterogeneity indicates that determinants of rental affordability are strongly local: regional wage growth, housing supply responses, and demand composition vary across districts. Consequently, national-level summaries risk obscuring important local pressures and vulnerabilities.

We have to add that in the Czech Republic, across 20.8% of districts exceeded the commonly used affordability threshold of 30% of monthly salary spent on housing ($RAI_{50} > 0.30$). This concentration of extreme burdens underscores that while the national median may mask pressures, a non-negligible share of local jurisdictions face acute rental affordability problems.

Figure 9 presents ten districts exhibiting the lowest RAI_{50} values over 2018–2024. RAI_{50} values across these ten districts lie approximately between 0.16 and 0.29, indicating that the estimated monthly rent for a 50 m² dwelling absorbs roughly 16–29% of the average monthly gross wage. The most pronounced decline is observed in Jeseník ($\Delta = -0.065$; -22.6%), whereas Karviná records the largest increase ($\Delta = +0.034$; +21.5%). Additional notable movements include declines in Louny and Ústí nad Labem, and upward trajectories in Teplice and Bruntál; several districts (notably Šumperk and Děčín) remain comparatively stable over the observation window.

The heterogeneity of trajectories indicates that RAI_{50} is driven primarily by local dynamics rather than a single national trend. Declines in RAI_{50} (for example, Jeseník, Louny, Ústí nad Labem) are consistent with one or more of the following mechanisms: relatively faster wage growth, contraction of rental demand, or an expansion of rental supply that exerts downward pressure on asking rents. Conversely, increases in RAI_{50} (for example, Karviná, Teplice, Bruntál) likely reflect upward pressure on rents in the context of constrained supply or stagnating salaries.

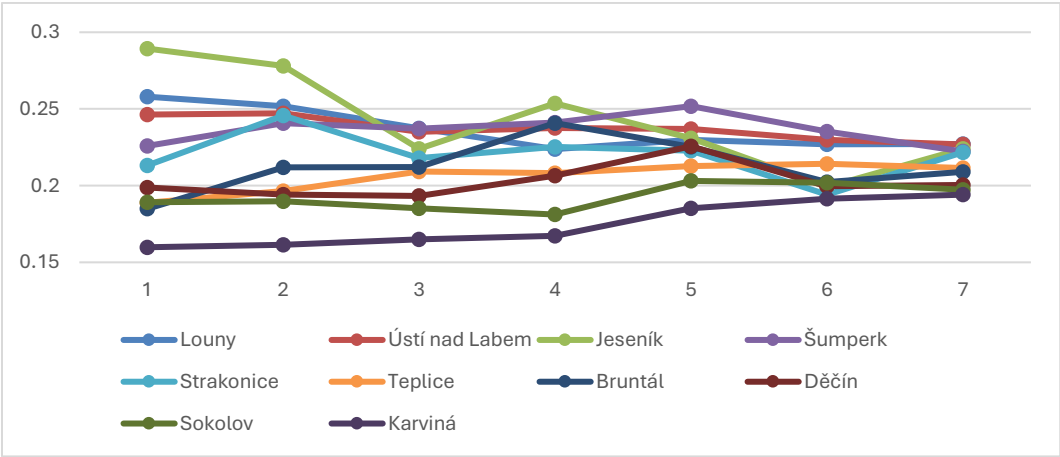


Figure 9: Top 10 Most Affordable Districts by Rental Affordability Index (RAI), 2018–2024. (% of wage) Data source: EVAL software

4.6. Trends in Published Online Listings for Apartment Sales in the Czech Republic: 2018–2024

From 2018 to 2024, the volume of online listings for apartments for sale in the Czech Republic showcased significant fluctuations, highlighting the evolving conditions in the real estate market (Table 2). These listings, reflecting the supply side of residential properties for sale, were influenced by various economic, demographic, and policy-related factors.

Table 2: Number of Residential Units by Room Type in the Czech Republic: 2018–2024

Year	1-room/1BR	2-room/2BR	3-room/3BR	4-room/4BR	5-room/5BR	Total
2018	32,405	83,175	81,521	23,098	3,699	223,898
2019	27,941	75,026	74,733	22,263	3,747	203,710
2020	22,710	59,922	62,189	19,798	3,533	168,152
2021	16,280	39,883	41,462	13,412	2,425	113,461
2022	30,983	75,065	72,525	18,793	2,757	200,123
2023	38,879	91,781	87,578	23,456	3,147	244,841
2024	28,749	72,438	72,392	21,379	3,182	198,140
Total	197,947	497,290	492,399	142,199	22,490	

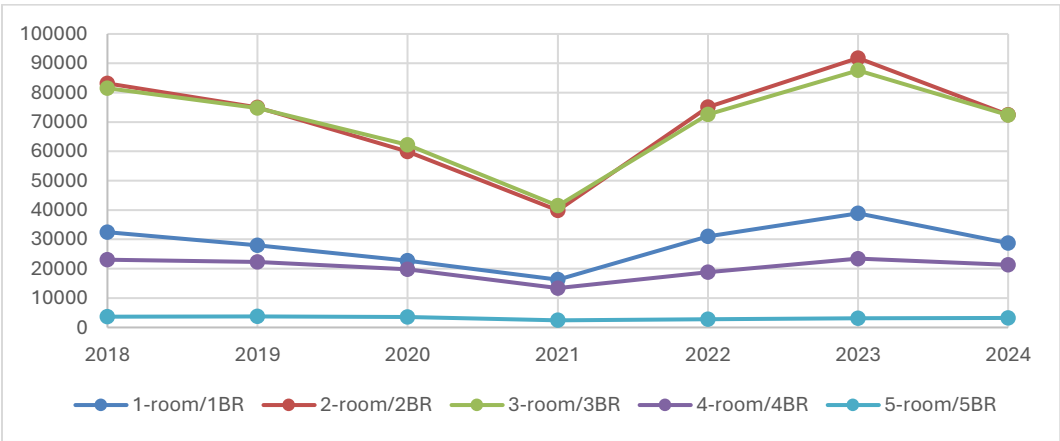


Figure 10: Number of Residential Units by Room Type in the Czech Republic: 2018–2024. (Count of units) Data source: EVAL software

The period from 2018 to 2021 observed a steady decrease in the number of published listings across all apartment size categories. For example, the total number of listings fell from 223,898 in 2018 to just 113,461 in 2021, representing a drop of almost 50% (Figure 10). During this time, rising property prices and tightening mortgage conditions, driven by higher interest rates imposed by the Czech National Bank, made purchasing residential real estate increasingly difficult for an average household. These factors limited buyer activity, discouraging sellers from placing properties on the market. For larger apartments (four- and five-bedroom units), this trend was particularly evident, as their higher prices made them accessible only to a niche group of affluent buyers.

Table 3: Year-over-Year Percentage Change in Number of Residential Units by Room Type (2018–2024)

Year	1-room/1BR	2-room/2BR	3-room/3BR	4-room/4BR	5-room/5BR	Total
2018	-	-	-	-	-	-
2019	-13.78	-9.80	-8.33	-3.62	1.30	-9.02
2020	-18.72	-20.13	-16.79	-11.07	-5.71	-17.46
2021	-28.31	-33.44	-33.33	-32.26	-31.36	-32.52
2022	90.31	88.21	74.92	40.12	13.69	76.38
2023	25.48	22.27	20.76	24.81	14.15	22.35
2024	-26.06	-21.08	-17.34	-8.85	1.11	-19.07
The Average Annual Change Rate (AACR)	-3.42	-3.96	-3.70	-3.22	-3.54	-3.70

Table 3 of year-over-year percentage changes shows how the number of units for different room types changed from year to year. For example, in 2019, the number of units for 1-room apartments decreased by 13.78%, and in 2020, it decreased by another 18.72%. The largest decrease occurred in 2021, with a drop of 28.31%. However, in 2022, the number of units increased by 90.31%, which may indicate a market rebound. Similar patterns can be observed for other room types.

A dramatic turnaround occurred in 2022 when the number of published listings surged to 200,123, approaching pre-2020 levels. The easing of pandemic-driven uncertainties and renewed market confidence were primary drivers behind this recovery. Sellers responded to the renewed demand from potential buyers by re-listing properties that had been withheld during the earlier slowdown. Listings of smaller apartments, such as one-bedroom units, grew particularly quickly. These apartments became increasingly attractive because they provided a more affordable entry point for buyers facing rising living costs and economic pressures.

In 2023, the market reached its peak, with a record-breaking 244,841 listings published online. Several factors contributed to this surge: a strong rebound in market activity after years of uncertainty, a growing perception of real estate as a hedge against inflation, and an overall optimism about the economy's recovery following the pandemic. Additionally,

the continued rise in rental yields likely encouraged both private sellers and investors to consider selling properties, particularly smaller units, to capture favourable market conditions.

By 2024, however, the number of published listings had declined to 198,140, reflecting a cooling down of the market. Factors such as increased construction costs and constraints on household budgets amidst ongoing inflation led to a mild contraction in new listings. At the same time, larger apartments gained stability in their share of listings, as the high barriers to entry for buyers prevented significant changes in supply for this segment.

The Average Annual Change Rate (AACR) shows the average annual percentage change for each room type from 2018 to 2024 (Table 3). For example, the AACR for 1-room apartments is -3.42%, indicating an overall decrease in the number of units during this period. Similarly, the AACR for 2-room apartments is -3.96%, also indicating a decrease. Overall, all room types show negative AACR, which may suggest a general downward trend in the housing market during this period.

In metropolitan areas such as Prague, larger apartments tend to be more desirable. This preference is driven by higher salary levels and a greater number of families seeking spacious living accommodations. Conversely, in smaller towns and rural areas, the demand for smaller apartments is more pronounced due to the lower cost of living and the different lifestyle preferences of residents in these regions.

The increasing number of elderly residents is likely to boost demand for smaller apartments. These units are easier to maintain and more suitable for individuals or couples with reduced mobility. This demographic shift underscores the need for housing policies that cater to the specific needs of older adults. Additionally, the migration of young professionals to urban centres is expected to increase the demand for one- and two-bedroom apartments. These units are often preferred by single individuals or young couples who prioritize proximity to workplaces and urban amenities.

Programs providing grants, tax relief, or low-interest loans for home purchases can significantly impact the demand for specific types of housing. These incentives can make homeownership more accessible to a broader segment of the population, thereby influencing market trends. Changes in building codes and regulations can affect the types and availability of new housing. For example, stricter energy efficiency standards or zoning regulations can impact the costs and feasibility of new developments, thus shaping the supply of housing.

When analysed across apartment sizes, two- and three-bedroom units consistently dominated the market, accounting for the majority of listings in each year. These units cater to the broadest spectrum of buyers, including families, couples, and investors. Meanwhile, smaller apartments (one-bedroom) experienced greater volatility due to their sensitivity to macroeconomic factors influencing affordability. Larger apartments (four- and five-bedroom units) remained a relatively niche market segment, maintaining a small but stable presence in the data.

The noticeable shifts in published online listings during this period underscore the importance of external conditions—such as macroeconomic policy, income levels, and buyer confidence—in shaping the behaviour of property sellers. These patterns also illustrate sellers' responsiveness to market demand and their willingness to adjust listings based on prevailing economic conditions and affordability trends. Understanding these dynamics provides a deeper view into the interplay between market forces and the supply of housing in the Czech Republic.

4.6.1. Proportional Representation of Apartment Sizes in Online Sale Listings: 2018 - 2024

The proportional composition of online apartment sale listings in the Czech Republic from 2018 to 2024 highlights shifting market trends across various apartment sizes. Each year, the shares of five key size categories total 100%, reflecting their relative prevalence in annual listings (Figure 11).

Throughout the period, two- and three-room apartments dominated the market, consistently comprising over 70% of total listings. Their appeal to families and middle-income buyers ensured stability, with slight fluctuations driven by

broader economic conditions. Smaller one-room apartments, averaging around 14–16% of listings, saw modest increases during periods of affordability crises, such as 2022–2023, when their share peaked at 15.9%.

Larger apartments, including four- and five-room units, maintained lower but relatively stable proportions. Four-room apartments ranged from 9.4% to 11.8% annually, while five-room units consistently represented the smallest share, fluctuating between 1.3% and 2.1%. These categories primarily catered to wealthier buyers and investors, reflecting niche demand for high-priced properties.

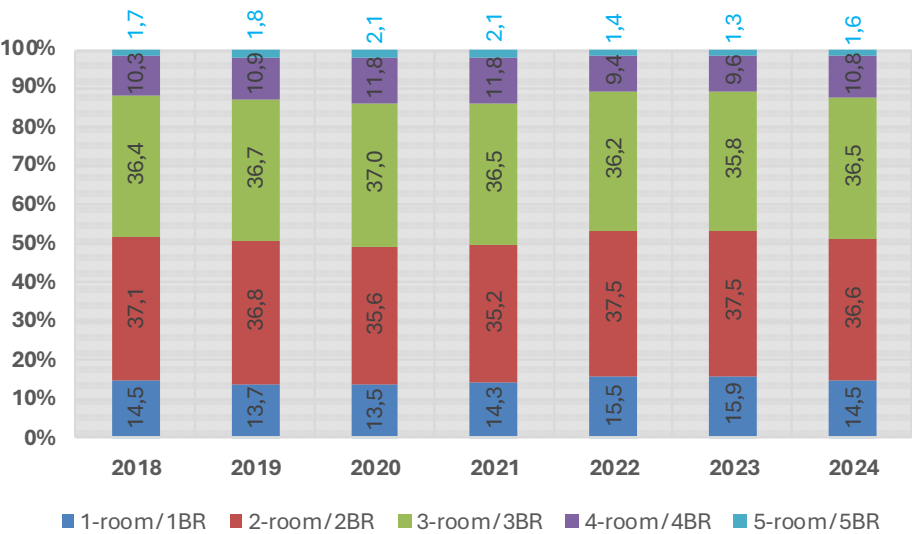


Figure 11: Proportional Distribution of Apartment Sizes in Online Sale Listings in the Czech Republic, 2018 – 2024. (%) Data source: EVAL software

The distribution stabilized in 2024, with proportions of all categories returning to pre-pandemic levels. Two- and three-room apartments remained heavily represented at 36.6% and 36.5%, while the shares of one-room, four-room, and five-room apartments settled at 14.5%, 10.8%, and 1.6%, respectively. This balance suggests a normalization of the market following years of economic fluctuations.

5. Conclusions

This study aims to provide a detailed analysis of the Czech real estate market in the turbulent period between 2018 and 2024, in the context of significant economic and social changes. This study provides a detailed analysis of the Czech real estate market between 2018 and 2024, a period marked by significant economic fluctuations, shifting demand-supply dynamics, and the impact of global and domestic events. Using data collected via the EVAL Software, an advanced tool designed to analyse offer prices and track detailed property parameters, the research offers valuable insights into the trends that have shaped the market over these years. By focusing on offer prices, we captured the real-time dynamics of the housing market while bypassing the distortions often present in transaction prices.

The results of the study highlight the trajectory of both sale and rental markets during this period. Between 2018 and 2022, offer prices of apartments for sale experienced a sustained increase, driven by historically low interest rates, heightened demand for urban properties, and a pervasive housing shortage. This upward trend peaked in mid-2022 as inflationary pressures and increased mortgage rates dampened demand. From late 2022 to 2024, offer prices stabilized amid growing borrowing costs and shifting market conditions, reflecting a period of cooling after years of rapid growth.

The rental market exhibited a contrasting, yet interconnected, trajectory. Rental prices experienced a significant dip during the COVID-19 pandemic due to reduced demand for urban rentals driven by remote work, online university attendance, and plummeting tourism. However, this trend reversed sharply by 2023 as life normalized and demand surged. The rental market not only recovered but, by the end of 2024, exceeded pre-pandemic levels, buoyed by the return of international tourism, population recovery in urban centres, and the accommodation needs of refugees following geopolitical turmoil.

Geographical disparities played a significant role in shaping the real estate landscape. Prague, as the country's economic and cultural hub, consistently outperformed other regions in terms of both price growth and rental yields. High demand, coupled with constrained supply, solidified its position as the focal point of real estate activity, attracting both domestic and international investors. Meanwhile, smaller towns and regions exhibited more varied trends, with slower price growth but greater affordability. These findings underscore the diverse housing conditions across the Czech Republic, driven by local economic, demographic, and geographic factors.

The significant mismatch between supply and demand emerged as one of the key challenges throughout the studied period. Delays in new housing construction, rising material costs, and cumbersome regulatory frameworks further exacerbated affordability issues. This directly validates our first hypothesis (H1), quantifying that structural supply constraints in civil engineering and construction act as primary causal drivers that disproportionately inflate the Housing Affordability Index (HAI) in metropolitan areas compared to peripheral regions. Despite clear demand for both ownership and rental properties, the limited pace of residential development contributed to sustained pressure on housing costs, highlighting the urgent need to address systemic barriers in the market.

The study also illuminates the strong correlation between sale and rental prices, validating our second hypothesis (H2). The regression models demonstrate that this correlation strengthened significantly - reaching an R^2 of 0.8147 in 2024—when structural barriers restricted mortgage accessibility, reflecting the interconnectedness of these two segments. As purchase prices rose, rental rates increased proportionally, ensuring steady or improving yields for investors, particularly in premium markets like Prague. This relationship emphasizes the importance of affordability in both sectors, as rising costs in one segment inherently impact the other.

Economic conditions and policy interventions, such as actions taken by the Czech National Bank to counter inflation through higher discount rates, significantly influenced the market during this time. While these measures stabilized long-term growth in property prices, they also shifted many potential buyers toward the rental market due to the increasing unaffordability of home loans. From a theoretical perspective, this quantifies a profound market substitution effect: the rental sector ceased to be merely transitional and became the primary structural alternative for middle-income households. This further intensified competition in the rental market, underscoring the need for future housing strategies to balance supply and affordability effectively.

A key contribution of this study is the integration of the Housing Affordability Index (HAI), which provides a standardized measure of the relationship between housing prices and household incomes. The HAI results reveal pronounced regional disparities. Metropolitan areas such as Prague, Brno, and their surrounding suburban districts consistently exhibit the highest HAI values, indicating severe affordability constraints. These regions experienced the strongest price pressures during the pandemic and the 2022 inflationary surge, reflecting both intense demand and limited supply. In contrast, structurally weaker regions—particularly in Ústecký, Moravskoslezský, and Karlovarský kraj—maintained the lowest HAI values throughout the period, with average apartment prices often remaining below one annual gross salary. Although these districts also experienced temporary affordability deterioration during 2021–2022, they returned to pre-pandemic levels more quickly, underscoring their resilience to short-term shocks and the structural nature of regional disparities. These findings provide a validated structural explanation: regional inequalities are not just driven by income differences, but by the spatial inelasticity of housing supply.

Overall, the RAI-50 results reveal a rental market marked by strong spatial divergence. The highest burdens concentrate in Prague, Brno, and their commuter districts, where households routinely exceed the 30% affordability threshold. Around one-fifth of Czech districts also cross this benchmark, indicating that elevated rental burdens extend beyond the metropolitan core.

In contrast, the most affordable districts show substantially lower rental-to-income ratios (16–29%) and, in several cases, gradual improvement over 2018–2024. The mixed trajectories across districts—rising in some suburban and industrial areas, falling in others—underscore that rental affordability is shaped primarily by local wage dynamics, demand pressures, and supply responses rather than a single national trend.

Our findings strongly indicate the need for interventions to increase housing supply, simplify regulatory processes, and promote affordable housing solutions. Ultimately, the results of this research provide a comprehensive understanding of the Czech real estate market's evolution from 2018 to 2024, highlighting the intricate interplay of economic drivers, policy decisions, and market behaviour. The findings emphasize the urgent need for targeted interventions to unlock housing supply, streamline regulatory processes, and promote affordable housing solutions. By leveraging data-driven insights, stakeholders across the public and private sectors can develop strategies aimed at creating a balanced and sustainable real estate market. Furthermore, this study demonstrates the value of continuous and systematic data collection, as exemplified by the EVAL Software, in fostering evidence-based policymaking and investment planning. Future research should build on these foundations to explore both new market opportunities and long-term solutions to housing challenges in the Czech Republic.

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Author Contributions

E.H. conceived and designed the study and developed the EVAL software. **K.C.** conducted the experiments and collected the data. **A.L.** performed the statistical analysis. **S.K.** and **B.K.** contributed to data interpretation and manuscript drafting. All authors critically reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

Disclosure of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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