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SPATIAL INTERCONNECTEDNESS OF LOCAL HOUSING MARKETS IN THE TYUMEN REGION

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The work investigates the spatial interconnectedness of local housing markets in the Tyumen Region – a polycentric area marked by pronounced differentiation both between and within its constituent parts. The empirical base draws on official statistics and analytical materials covering the period from March 2011 to 2026. The research methods include an analysis of the average selling price of housing in the Tyumen Region and its quarterly dynamics, aimed at identifying cyclical patterns in the regional market; a characterization of the institutional environment specific to the Tyumen Region; a Pearson correlation analysis between the subregions of the Tyumen Region (the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area); a statistical analysis of the dynamics of price indices on the primary and secondary municipal housing markets of the Tyumen Region (excluding the autonomous areas); and Johansen cointegration tests for primary

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and secondary housing prices in Tyumen, Tobolsk, and Yalutorovsk. The findings show that the housing markets of the Tyumen Region, KhMAA-Yugra, and YaNAA are not interconnected. Within the Tyumen Region excluding the autonomous areas, the spatial organization of the housing market exhibits a hierarchical character. The anchoring role of the city of Tyumen is established, as is the asynchronous dynamics of the peripheral markets, driven by differences in market scale, liquidity, and sensitivity. The second-tier medium-sized cities of Tobolsk and Ishim possess a shallower market depth but retain relative autonomy thanks to their local labor markets. The region's small towns, Yalutorovsk and Zavodoukovsk, are characterized by limited liquidity and a comparatively greater role of the secondary segment and individual housing construction. The region's municipal districts retain the character of peripheral settlement, the secondary nature of which had already taken shape in previous periods. The results obtained attest to a high degree of coherence in the price dynamics of the primary housing markets between the regional center and the secondary cities, albeit with differing speeds and amplitudes of reaction among the local markets within the Tyumen Region excluding the autonomous areas. For the secondary markets, no cointegration was detected. The paper concludes that spatial interconnectedness must be taken into account when designing regional housing policy and housing construction programs.

Housing market, region, periphery, interconnectedness, price differentiation.

Introduction

In Russia, real estate has traditionally been viewed by the public as the most reliable form of investment. According to R.M. Nureev and O.A. Gulyaeva, by the first quarter of the 21st century more than 90% of the population had their own housing (Nureev, Gulyaeva, 2021). The demand for homeownership is shaped by historical and institutional factors rooted in the Soviet legacy. The problem of housing provision remains a focus of state attention yet is still acute in present-day Russia (Chashchina, 2024). For Russians, confidence in the future is closely tied to owning their own home. Property ownership in Russia is so important that it gives rise to a new form of segregation – housing inequality – in which a narrow circle of property owners derives rental income while others face housing precarity (Litvintsev, 2024). In 2019, 54% of Russians lived in their own apartment, 31% in their own house or townhouse, and 13% in rented housing; by 2025 the corresponding figures were 48%, 30%, and 16%¹.

As M.A. Lyubarskaya and K.V. Glazkov note, the real estate market comprises land, housing, commercial, and industrial property markets; constant changes in the legal framework, financing conditions, and forms of ownership make all its segments turbulent while preserving their interconnectedness (Lyubarskaya, Glazkov, 2023). The authors, however, did not test their theoretical claims against concrete, current data.

The object of this study is the local segment of the housing market. The aim is to identify and quantify the interconnectedness of local housing markets in the Tyumen Region as a spatially linked system in which price changes and shifts in supply and demand parameters in some municipalities are statistically and economically related to the dynamics of others. At present, data on local housing market segments are scattered across sources, often difficult to compare, and their availability is steadily declining, making quantitative assessments of local market processes increasingly difficult. Information

¹ Data of linear distributions – VCIOM Navigator. Available at: <https://bd.wciom.ru/datasets> (accessed: 21.02.2026).

asymmetry and methodological gaps in the study of local housing market segments determine the scientific novelty and relevance of this research. The paper develops and tests a methodological approach to identifying interrelations between price changes and supply and demand parameters at the local level.

The housing market simultaneously performs a multitude of functions. On the one hand, it provides housing for the population, serves as a vehicle for saving and capital allocation, and transmits monetary conditions. On the other, it depends on effective demand and demographic conditions, which are in turn influenced by the standard of living in the region and by various federal and regional institutional support programs. Despite the considerable attention paid to the housing market, its submarkets remain insufficiently studied.

For the Tyumen Region, the interconnectedness of local submarkets is especially pronounced, owing to the polycentric structure of settlement and economic activity inherited from the period of oil and gas development in the mid-20th century. The region can serve as a model for assessing intra-regional differentiation because of the history of its spatial development, shaped by oil and gas and transport and logistics specialization. The regional capital and largest city, Tyumen, absorbs the bulk of housing demand, which affects both price competition and the quality of available real estate. The medium-sized cities of Tobolsk and Ishim historically developed as relatively independent local markets, and the dynamically growing regional oil and gas cluster is attracting new migration flows to them. The small towns of Yalutorovsk and Zavodoukovsk are less deeply integrated into the oil and gas

cluster, which is reflected in the more limited potential of their consumer markets. The high dynamism and volatility of the housing sector are confirmed by statistical data. Thus, in 2024 the region commissioned a record 2,603 square meters of housing². Since 2025, however, the housing construction market has entered a risk zone. Analysts point to signs of crisis driven by a slowdown in construction, saturation of demand for new housing, and price gaps between the primary and secondary markets³.

The relevance and significance of this article are also due to the fact that housing market studies are generally limited to the aggregate level, overlooking the interconnectedness of local markets. Such fragmentation reduces the quality of conclusions for regional policy. Given inter-municipal “spillovers” of demand, migration, and mortgage financing, local decisions (for example, targeted stimulation of housing completions or infrastructure) can produce effects in neighboring territories, altering the equilibrium of prices and transaction volumes beyond the target area.

A further methodological challenge lies in the difficulty of empirically analyzing the mechanisms of mutual influence among local housing markets. In practical terms, these mechanisms operate through persistent transmission channels: the mortgage channel (changes in credit availability and debt service burden shift demand and price expectations), the migration and labor channel (the redistribution of population in response to employment and income changes alters the territorial structure of demand), and the investment and construction channel (the flow of development activity and supply between territories affects market balance and the pace of housing completions).

² The Tyumen Region retained leadership in apartment building completions: analytical publication. RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/13/03/2025/67d28ddf9a794718e8162d32> (accessed: 01.02.2026).

³ Market of multi-apartment residential buildings. State Budgetary Institution of the Tyumen Region “Center for Cadastral Valuation and Storage of Technical Inventory Documentation”. Available at: <https://cko.72to.ru/public/uploads/documents/analytics/mkd3kv-2024tmn.pdf> (accessed: 02.02.2026).

Theoretical and methodological foundations of the analysis

The traditional combination of social, investment, and institutional factors in the housing market is constantly shifting. Housing markets are characterized by positive spatial dependence: neighboring territories exert a statistically significant mutual influence on key indicators, and ignoring spatial effects leads to biased estimates and undermines the validity of regulatory measures (Zhu et al., 2013).

Pronounced interregional differences in housing prices remain a hallmark of interregional disparities in living standards and quality of life. The housing market serves as an important indicator of the economic conjuncture, reflecting the state of the construction industry, the financial sector, and consumer demand (Bochenina, 2019), as well as external factors such as the pandemic. At the regional level, this role is reinforced by the territorial heterogeneity of household incomes, employment structures, and investment activity (Sternik, Gareev, 2021).

The housing market occupies a special place in the system of regional markets, combining the functions of a social good, an investment asset, and an infrastructural factor of economic development (Volkov, 2022). The dynamics of the housing sector are strongly influenced by mortgage lending parameters, federal support programs, and regional policy measures (Volkov, 2022; Bedin, 2022; Demidova et al., 2024)⁴.

For Russia as a whole, VAR-based analysis has shown that the housing market is sensitive to macroeconomic shocks and that rising interest rates lead to a decline in the housing price index (Nikitina, 2023). Also of interest is a methodology that incorporates the economic policy uncertainty index into

housing price variation; according to N.S. Nikitina, it explains up to 10% of the variance. We may hypothesize that the influence of COVID-related shocks on housing price growth identified through conventional regression models could be offset by policy uncertainty, while traditional macroeconomic indicators may lose their significance. This effect could explain the weakening influence of the dollar exchange rate and oil prices on the housing market. Such an assumption, however, requires further testing, which we plan to carry out in future work.

According to V.N. Berdnikova, the cyclicity of the residential real estate market reflects a transformation from non-market pricing mechanisms in recessionary periods to monopolistic competition during growth phases, while “the protection of participants in shared-equity construction through the introduction of escrow accounts and the implementation of subsidized lending programs for new-build housing have led to an increase in transaction volumes and a doubling of housing prices” (Berdnikova, 2024).

The findings of S.M. Glukhova and A.Yu. Chernov confirm that the influence of the dollar exchange rate on the Russian real estate market has been declining, pointing to the growing importance of domestic factors (Glukhova, Chernov, 2024) or to the effect of non-market forces. Non-market effects, however, may stem not only from government intervention but also from socio-demographic and sociocultural factors. M.Yu. Virtsev draws attention to the fact that the growing attractiveness of real estate in general, and housing in particular, depends on the quality of urban infrastructure (Virtsev, 2025). Research has confirmed that the introduction of escrow

⁴ Housing affordability in cities, urban agglomerations, and regions of Russia: analytical report. Institute for Urban Economics Foundation. Available at: https://www.urbanecomomics.ru/sites/default/files/dostupnost_zhilya_ieg_2025.pdf (accessed: 03.02.2026).

accounts had a substantial impact on housing market supply and demand (Shchepina, 2025). Rising mortgage rates, the shrinking number of subsidized mortgage programs, and the decline in overall effective demand have reduced the attractiveness of real estate investment (Starovoitova et al., 2025).

The methodology for quantifying territorial unevenness and building spatially connected regression models was substantially advanced in the study of the 2009 housing crisis transmission. The literature, however, has focused mainly on macro-regions or interconnected economies (Zhu et al., 2013). For example, a study of 19 regional housing markets in the United States for 1995–2009 showed how crisis shocks propagate across geographically diverse regions (Hong, Wójcik, 2025). Evidence that interactions among geographically interconnected submarkets determine housing prices can be found, for instance, in the authoritative study by M. Helbich and co-authors (Helbich et al., 2025). S. Jeongseop showed, using the U.S. example, how banks influence local housing markets through localized lending policies (Jeongseop, 2025).

The processes that led to global housing market crises taught regulators and banking networks many lessons. Yet the disparity between housing supply and demand cannot be fully eliminated because of the particular social sensitivity of the problem⁵. On the one hand, migration flows expand housing demand, adjusting territorial imbalances. On the other, effective demand raises the acceptable level

of housing prices, while falling real incomes make demand more dependent on mortgage conditions (Jayawardena et al., 2025). High interest rates and stagnant household incomes create a risk of stagnation for the housing construction industry in Russian regions⁶.

Methodology for analyzing housing market interconnectedness

This study combines spatial and institutional approaches, drawing on methods of statistical analysis. The empirical base relies on data from the Federal State Statistics Service for the period from the first quarter of 2014 to 2026; analytical materials and reporting of relevant agencies at the regional level; data from the territorial statistical office (Tyumenstat) on the socio-economic characteristics of municipalities; materials from the Unified Information System for Housing Construction; analytical reviews of the housing market by Dom.RF⁷; and Bank of Russia statistics on the volume and terms of mortgage lending⁸. The key indicator is the average price of one square meter of housing (by market segment). To compare the dynamics of spatial effects, we also examine the regional markets of the Khanty-Mansi Autonomous Area – Yugra, the Yamal-Nenets Autonomous Area, and the Tyumen Region (excluding the autonomous areas) over the period from 2011 to 2025.

Pearson correlation coefficients were used to assess the spatial interconnectedness of housing markets. Spatial analysis is employed to investigate the territorial differentiation of the housing market and to identify spatial patterns in the distribution of real estate prices across the

⁵ Residents of the Tyumen Region save more and borrow less: Press release. Available at: <https://www.cbr.ru/press/regevent/?id=64943> (accessed: 13.05.2026).

⁶ Results of monitoring the market of multi-apartment residential buildings. Available at: <https://cko.72to.ru/public/analytics> (accessed: 13.05.2026).

⁷ Sell-through rates and construction readiness of residential construction projects: analytical data from the Unified Housing Information System. DOM.RF. Available at: <https://xn--80az8a.xn--d1aqf.xn--p1ai/аналитика/распроданность-стройготовность?repYear=2025&repMonth=12> (accessed: 13.05.2026).

⁸ Review of the housing mortgage lending market. Available at: https://cbr.ru/statistics/bank_sector/mortgage/Indicator_mortgage/1224/ (accessed: 13.05.2026).

subregions and municipalities of the Tyumen Region (excluding the autonomous areas).

The study consisted of four stages. In the first stage, we analyzed the average sale price of housing in the Tyumen Region and its quarterly dynamics to identify the cyclical character of the regional market, and we characterized the institutional environment specific to the Tyumen Region. Next, we examined the dynamics of price indices in the primary and secondary housing markets in the three subregions of the Tyumen Region and assessed the spatial interconnectedness of housing markets at the interregional level using correlation analysis.

The interconnectedness analysis included the assessment of means and dispersion measures between the subregions of the Tyumen Region, the Khanty-Mansi Autonomous Area – Yugra (KhMAA-Yugra), and the Yamal-Nenets Autonomous Area (YaNAA); correlation linkages between subregional markets and municipal markets (market interconnectedness); the assessment of price differentiation factors; and the interpretation of effects through the lens of spatial economics.

Next, we analyzed the dynamics of price indices in the primary and secondary housing markets of Tyumen, Tobolsk, Ishim, Yalutorovsk, Zavodoukovsk, and Tyumensky District.

To identify the factors behind price differences across municipal markets, Johansen cointegration tests with lags of 1–4 were performed for primary and secondary housing prices in Tyumen (V02 and V03), Tobolsk (V04 and V05), and Yalutorovsk (V06 and V07), expressed in rubles per square meter.

The model includes 181 observations (twice a month) for the period from March 21, 2019, to March 10, 2026. The observation dates are irregular (holidays are omitted and there are shifts), so the time periods are numbered from 1 to 181.

For the markets of Tyumensky District, Ishim, and Zavodoukovsk, the data contain many gaps, which makes it impossible to construct reliable cointegration functions from these series. For testing purposes, the dynamic variables were log-transformed ($\ln_V$), where V denotes the corresponding local market.

Results

General characteristics of the housing market in the Tyumen Region (broken down by subregions)

The average cost of housing construction is one of the key factors shaping prices in the primary housing market, determining the lower bound of developers' price expectations and the viability of development projects. Analyzing the dynamics of average construction costs makes it possible to assess the influence of inflationary processes, changes in building material prices, labor costs, and financial conditions on housing supply. *Figure 1* presents the dynamics of the average construction cost per square meter of housing in the Tyumen Region (excluding the autonomous areas) for the period from 2014 to 2026.

The dynamics of the average cost show three clearly distinguishable stages. The first period is one of stability (2014–2018), when the average cost rose at rates close to inflation (3–5% per year). The market was saturated, and prices for the main construction materials (concrete, rebar) did not undergo sharp fluctuations. The turning point came in 2020 under the pressure of the pandemic, which disrupted traditional logistics chains and boosted demand for more expensive suburban housing. The shift to project financing and escrow accounts added bank interest to the cost, triggering explosive growth between the third quarter of 2019 and the first quarter of 2020 (21% per quarter), followed by a correction in the growth rates in 2021–2023. In 2021, the official standard cost per square meter was set above 48,000 rubles, while the

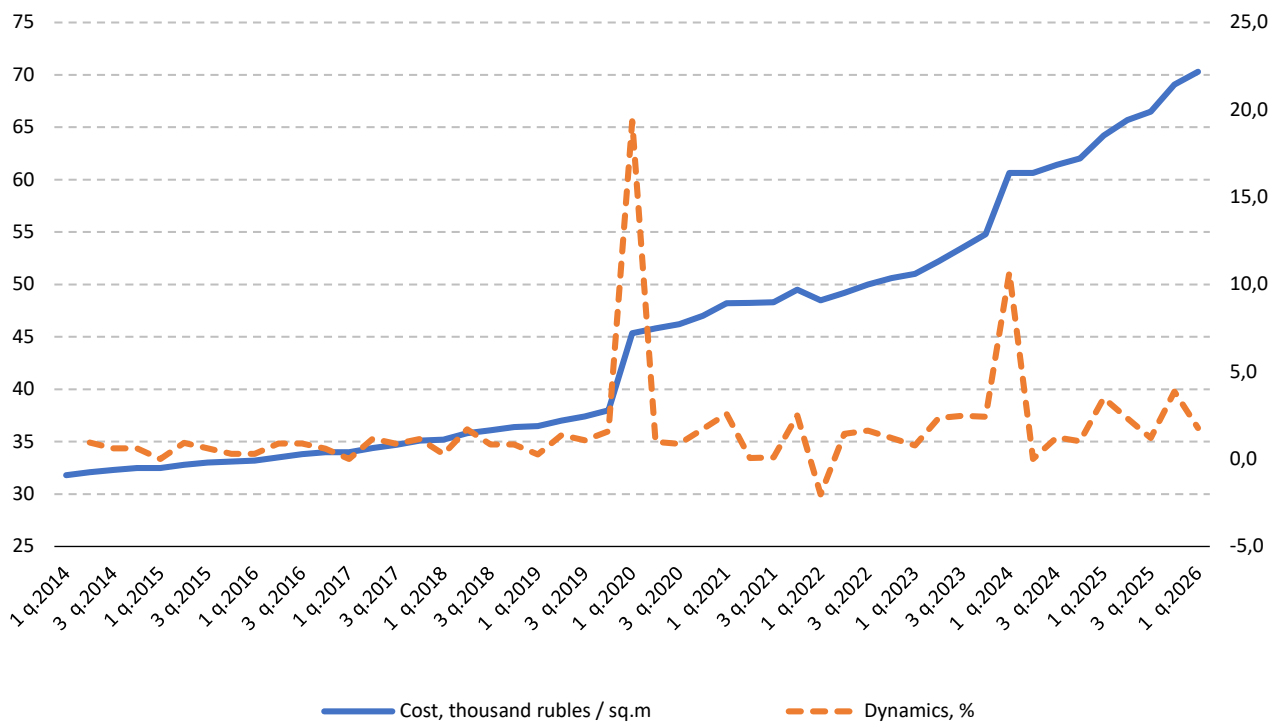


Figure 1. Average sale price of housing in the Tyumen Region (left axis) (excluding the autonomous areas) and quarterly dynamics, thousand rubles per sq. m, % of previous period

Calculated from: <https://rosstat.gov.ru/storage/mediaban>; <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir>; <https://xn--d1aqf.xn--p1ai/price-index/?inflation=y>; The Tyumen Region retained leadership in apartment building completions: analytical report // RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/13/03/2025/67d28ddf9a794718e8162d32> (accessed May 13, 2026).

actual market sale price crossed the threshold of 80,000–90,000 rubles owing to labor shortages and rising logistics costs. The next cost shock occurred in the first quarter of 2024 (10.4%). By March 2026, the average cost in the mass segment had risen by more than 120% compared with the 2014 level, which is broadly in line with inflation, yet the dynamics of market housing prices far outpace consumer inflation.

According to A. Popov, head of analytics at CIAN, the housing market of the Tyumen Region in 2025 is developing under a combination of restraining and compensating factors⁹. On the one hand, high mortgage lending rates and persistent inflation are putting pressure on buyer activity, reflected in a decline in the number of transactions in the primary housing

market. The expert estimates that the number of new-build purchase transactions in the region fell by roughly 37%, while the volume of unsold space in apartment buildings rose by 25.6%. Moreover, in the first months of 2025, housing completions were almost half the level recorded in the same period a year earlier.

On the other hand, the expert emphasizes the absence of pronounced crisis phenomena in the market as a whole. Despite reduced activity in the new-build segment, demand has partially shifted to the secondary market, where the intensity of transactions remains relatively high, pointing to a redistribution of demand between segments rather than its outright contraction. At the same time, the most vulnerable segment in the current environment is the suburban real

⁹ A non-standard region: Alexei Popov on the housing market in the Tyumen Region: Interview. RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/24/07/2025/687f31d29a79472f84dc5758> (accessed: 13.05.2026).

estate market, where the combination of high rates and investment risks weighs more heavily on the financial stability of developers. Taken together, the statistical evidence confirms the specificity of the Tyumen Region as a region with a stable but structurally heterogeneous housing market that is sensitive to changes in financial conditions and the segmental structure of demand (Fig. 2).

For a generalized assessment of spatial differences, the *Appendix* presents summary indicators of price differentiation. The data indicate a persistent gap between the regional center and peripheral territories, accompanied by a slight decline in price variation, showing signs of convergence against the backdrop of a general slowdown in mortgage activity and the adaptation of markets to the new financial conditions.

Let us consider the Pearson correlation (interconnectedness) of price indices in the primary (PM) and secondary (SM) housing markets between the Khanty-Mansi Autonomous Area

(KhMAA-Yugra), the Yamal-Nenets Autonomous Area (YaNAA), and the Tyumen Region (TR, excluding the autonomous areas) for the period from 2011 to 2025 (annual data) to assess market interconnectedness (Tab. 1). Price indices are expressed as % of the previous period, $N = 15$. Descriptive statistics are provided in the *Appendix*.

The interconnectedness of prices between the primary and secondary housing markets in the Tyumen Region (excluding the autonomous areas) is clearly visible, with $\rho = 0.803^{***}$. Weak interconnectedness is observed in the KhMAA housing market ($\rho = 0.559^*$), while the primary and secondary housing markets in the YaNAA are asynchronous (ρ not significant). In the YaNAA, the large share of dilapidated and old housing, along with the high cost of the primary market due to its narrowness, leads to a mismatch between the primary and secondary housing markets. The secondary market of the YaNAA is more closely tied to the primary market of the KhMAA-Yugra; this may reflect

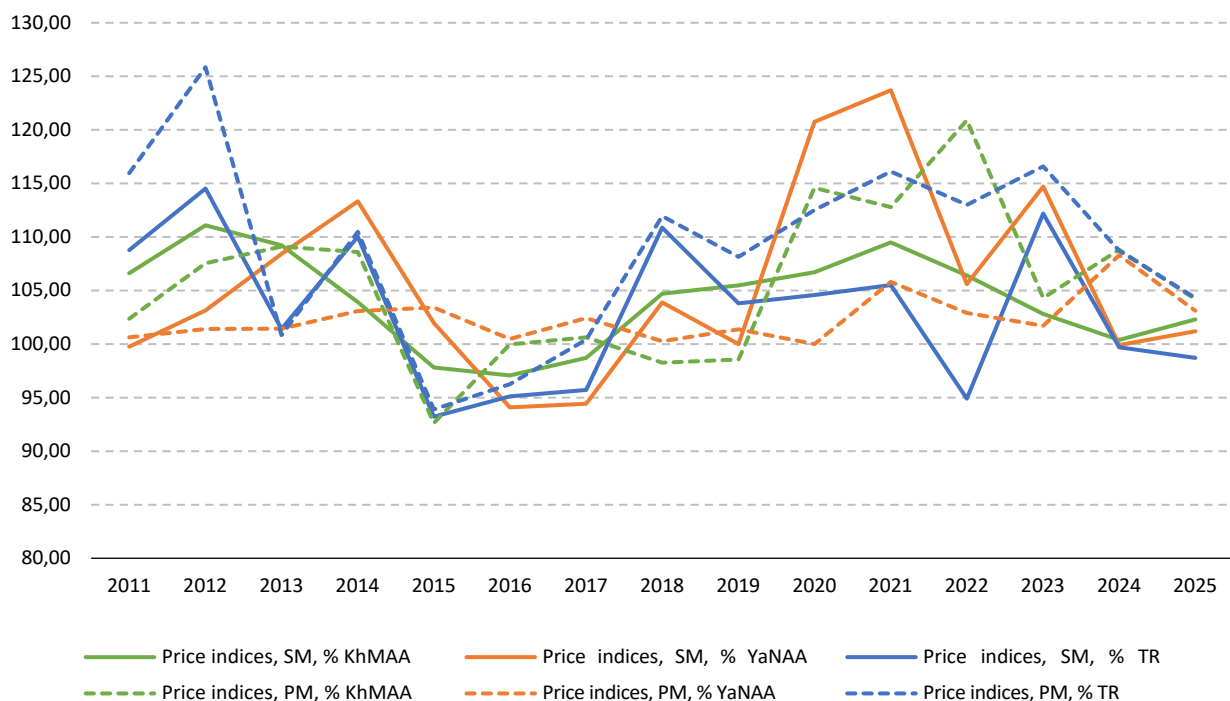


Figure 2. Dynamics of price indices in the primary (PM) and secondary (SM) housing markets in three subregions of the Tyumen Region (KhMAA–Yugra, YaNAA, TR), % of previous period

Source: https://72.rosstat.gov.ru/ofs_cen_hmao; https://72.rosstat.gov.ru/ofs_cen_ynao; https://72.rosstat.gov.ru/ofs_cen_to; <https://www.fedstat.ru/indicator/30925>; https://tochno.st/datasets/regions_collection (accessed: 13.05.2026).

Table 1. Pearson correlation matrix (rho) of price indices in the secondary (SM) and primary (PM) housing markets of the Tyumen Region, KhMAA-Yugra, YaNAA, and two-tailed significance of correlations (sign)

		KhMAA, SM	YaNAA, SM	TR, SM	KhMAA, PM	YaNAA, PM	TR, PM
KhMAA, SM	rho	1	.541*	.604*	.559*	-0.155	.734**
	sign		0.037	0.017	0.03	0.581	0.002
YaNAA, SR	rho	.541*	1	0.424	.561*	0.091	0.446
	sign	0.037		0.115	0.029	0.748	0.095
TR SM	rho	.604*	0.424	1	0.077	-0.258	.803***
	sign	0.017	0.115		0.784	0.354	0.000
KhMAA, PM	rho	.559*	.561*	0.077	1	0.231	0.48
	sign	0.03	0.029	0.784		0.407	0.07
YaNAA, PR	rho	-0.155	0.091	-0.258	0.231	1	-0.033
		0.581	0.748	0.354	0.407		0.908
TR, PM	rho	.734**	0.446	.803**	0.48	-0.033	1
	sign	0.002	0.095	0	0.07	0.908	

* sign <0,05; ** sign <0,01; *** sign <0,001.

Compiled from: https://72.rosstat.gov.ru/ofs_cen_hmao; https://72.rosstat.gov.ru/ofs_cen_ynao; https://72.rosstat.gov.ru/ofs_cen_to; <https://www.fedstat.ru/indicator/30925>; https://tochno.st/datasets/regions_collection (accessed: 13.05.2026).

demand for less expensive housing from shift workers, migrants, and their families. However, this effect requires closer examination, since no interconnection with the market of the south of the Tyumen Region is observed here. The interregional interconnectedness of price indices in the northern constituent entities of the Russian Federation that form part of the Tyumen Region as subregions is very weak. We note the interconnectedness of price indices between the secondary housing markets of the KhMAA-Yugra and the Tyumen Region ($\rho = 0.604^*$), but no such interconnection exists in the primary market.

Spatial differentiation of local housing markets in the Tyumen Region (excluding the autonomous areas)

The interconnectedness of local housing markets is understood as the presence of stable and reproducible linkages between price dynamics and supply and demand parameters in different municipalities of the same region. Under such interconnectedness, changes in

one market are partially transmitted to other territories, ruling out their isolated functioning.

One form of spatial interconnectedness in housing markets is price convergence or divergence. Convergence reflects the narrowing of price levels or price growth rates between territories, whereas divergence is associated with the steady widening of price gaps. At the empirical level, these processes are identified through the analysis of price ranges, the coefficient of variation, and indicators of spatial autocorrelation.

Declining housing affordability in central locations is accompanied by a redistribution of demand and investment flows. Rising prices and tightening purchase conditions are pushing part of effective demand into more affordable territories. This is accelerating price growth and construction activity in towns with populations below 250,000, where, in 2024 and 2025, the ratio of completed to sold housing was higher than in cities with more than 250,000 residents¹⁰. At the same time, applied

¹⁰ Sell-through rates and construction readiness of residential construction projects: analytical data from the Unified Housing Information System. DOM.RF. Available at: <https://xn--80az8a.xn--d1aqf.xn--p1ai/аналитика/распроданность-стройготовность?repYear=2025&repMonth=12> (accessed: 01.02.2026).

Russian housing market research tends to focus on institutional changes, mortgage lending, and interregional heterogeneity, whereas the neglect of the municipal level of analysis and the spatial organization of the market limits the applicability of findings to regional housing policy (Shchepina, 2025). We also corroborate the conclusion that restrictions produced by housing policy and mortgage-cooling measures prompt households to adapt, pushing them toward social stratification (Chen, Li, 2025).

The housing market of the Tyumen Region is shaped by relatively high household incomes, the region's attractiveness to migrants, and the sectoral structure of its economy. According to official federal statistics, per capita monetary income rose by 15% in 2024 compared with 2023, providing a stable foundation for effective demand¹¹. Migration processes exert an additional influence on housing demand. According to official data, the region recorded positive net migration in 2023–2024, which has driven demand primarily in urban centers¹².

The spatial organization of the housing market in the Tyumen Region (excluding the autonomous areas) is hierarchical in nature. The city of Tyumen serves as the regional center, concentrating the bulk of construction, mortgage lending, and investment demand. The second-tier medium-sized cities of Tobolsk and Ishim have less market depth but retain relative autonomy because of their local labor markets. The small towns of Yalutorovsk and Zavodoukovsk are characterized by limited liquidity and a greater role of the

secondary segment and individual housing construction. The region's municipal districts retain the character of peripheral settlement, a secondary status that emerged in earlier periods. The towns and outlying districts of the region continue to serve as areas of resettlement for pensioners and other eligible categories of citizens from the oil- and gas-producing regions of the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area under the ongoing “Cooperation” program, which was first approved back in 2005¹³ and continues to be supported by the regional governments. These preferential programs support resettlement, thereby further heating up prices in the primary and secondary housing markets in the south of the Tyumen Region.

Given the limited availability of municipal statistics, we use average monthly data for the municipalities of the Tyumen Region for March 2018–2026. As in the region as a whole, the housing market of the Tyumen Region developed amid changing mortgage regimes and cyclical demand fluctuations. To assess intra-regional price differentiation, *Figure 3* presents a fragment of housing price dynamics for the region's main municipal centers.

The empirical analysis aims to identify the nature and degree of interconnectedness among the local housing markets of the Tyumen Region. The information base consists of monthly monitoring data on the secondary market of multi-apartment residential buildings by municipality of the region for 2018–2025, published by the State Budgetary Institution of the Tyumen Region “Center for

¹¹ Living standards. Rosstat. Available at: <https://rosstat.gov.ru/folder/13397> (accessed: 03.02.2026).

¹² Results of the city's socio-economic development. Administration of the City of Tyumen. Available at: <https://www.tyumen-city.ru/vlast/administratsiya/struktura-administratsii-goroda-tumeni/departamenty/departament/napravleniya/sotsialno-ekonomicheskie-rezervi-gtumeni/itogirazvitiia/> (accessed: 13.05.2026).

¹³ The “Cooperation” program. Official portal of the government authorities of the Tyumen Region. Available at: https://admtumen.ru/ogv_ru/finance/house_policy/program.htm (accessed: 13.05.2026); The “Cooperation” resettlement program from the Yamal-Nenets Autonomous Area to Tyumen. Tyumen Center for Work with Participants of Social Programs. Available at: <https://sotrudnichestvo72.ru> (accessed: 13.05.2026).

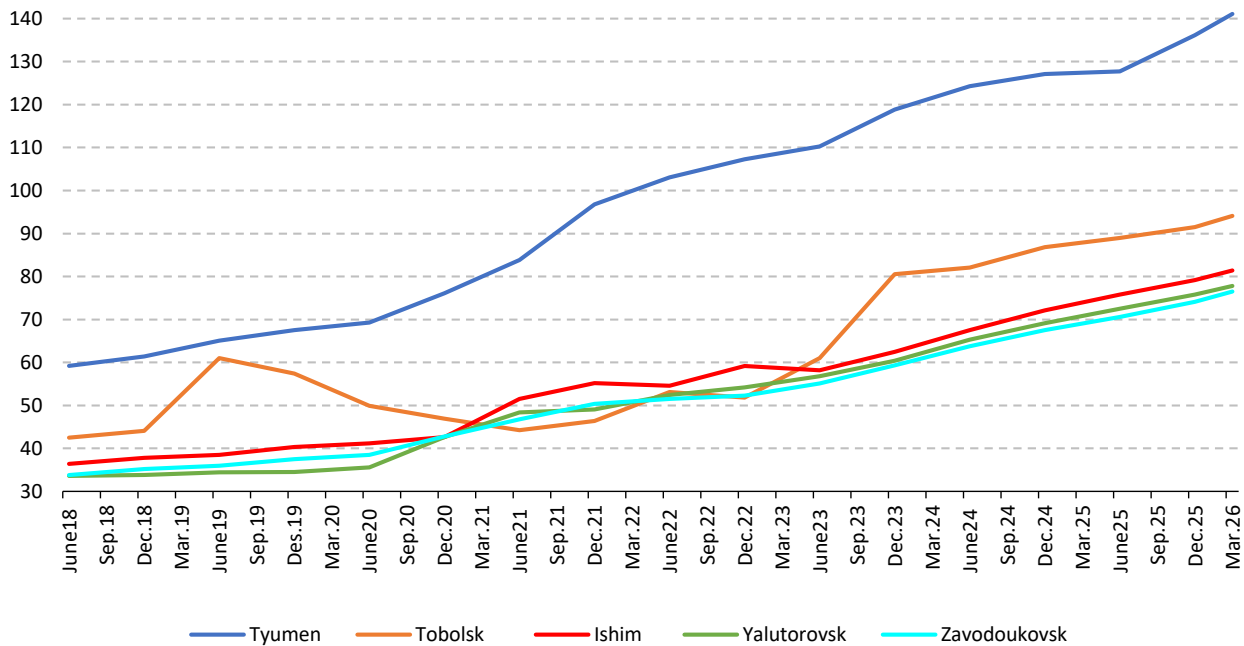


Figure 3. Housing price dynamics in the municipal centers of the Tyumen Region (secondary market), March 2018–2026, thousand rubles per sq. m

Calculated from: rosstat.gov.ru/storage/mediaban; <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://xn--d1aqf.xn--p1ai/price-index/?inflation=y>; The Tyumen Region retained leadership in apartment building completions: analytical report // RBC Tyumen. Available at: <https://t.rbc.ru/tyumen/13/03/2025/67d28ddf9a794718e8162d32> (accessed:01.02.2026).

Cadastral Valuation and Storage of Technical Inventory Documentation” on the municipal statistics website of the regional authorities¹⁴. The main price indicator is the average asking price for housing (rubles per sq. m), aggregated by municipal centers. The calculations were performed in SPSS Statistics (v32). For the analysis, the data were averaged monthly, and the dynamic series were computed quarterly.

Interconnectedness in the municipal market of the Tyumen Region (excluding the autonomous areas) was tested using a matrix of pairwise Pearson correlation coefficients for the city of Tyumen, Tyumensky District, the city of Tobolsk, the city of Ishim, the city of Yalutorovsk, and Zavodoukovsky Urban Okrug for the period from March 1, 2014, to March 10, 2026 (weekly data). The correlations between primary and secondary market prices in Tyumen exceed 0.9,

and within the other municipal areas they exceed 0.8; therefore, we examine only the correlations of secondary housing market prices (*Tab. 2*).

The high correlation coefficients indicate that price dynamics in the regional center and the secondary cities move in the same direction, pointing to the existence of a single regional price circuit. The small towns of Yalutorovsk and Zavodoukovsk in the south of the Tyumen Region exhibit strong mutual interconnectedness and form an agglomeration that stands out in the regional market for its considerably lower prices, high relative volatility, and linkages with the region’s medium-sized cities and the regional capital.

To assess differences in the speed of response of local markets, we calculated the rates of change in average prices for the period from the first half of 2023 to 2025 (*Tab. 3*).

¹⁴ Market of multi-apartment residential buildings. Available at: <https://cko.72to.ru/public/uploads/documents/analytics/mkd3kv-2024tmn.pdf> (accessed: 03.02.2026).

Table 2. Correlation matrix of average prices in the secondary housing market of the Tyumen Region (excluding the autonomous areas), Pearson's rho*

Market	Tyumen	Tyumensky District	Tobolsk	Ishim	Yalutorovsk
Tyumen	1				
Tyumensky District	0.98	1			
Tobolsk	0.85	0.98	1		
Ishim	0.91	0.99	0.98	1	
Yalutorovsk	0.84	0.78	0.89	0.87	1
Zavodoukovsk	0.82	0.81	0.71	0.79	0.97

* All correlations are significant at $p < 0.001$.
 Calculated from: <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://www.realtymag.ru/tyumenskaya-oblast/zavodoukovsk/kvartira/prodazha/prices/2024/>; <https://mirstat.ru/ishim/kvartiry.html>; <https://cko.72to.ru/public/analytics> (accessed: 13.05.2026).

Table 3. Rates of change in the average price in the secondary housing market for 2023–2025

Municipal market	2023, thousand rubles / sq. m	2024, thousand rubles / sq. m	2025, thousand rubles / sq. m	Average change 2024 vs. 2023, % of 2023*	Average change 2025 vs. 2024, % of 2024*
Tyumen	112.0	124.1	129.5	10.8	4.3
Tyumensky District	100.4	115.3	120.4	14.9	4.4
Tobolsk	66.1	82.9	88.3	25.4	6.5
Ishim	60.4	69.8	77.5	15.7	11.0
Yalutorovsk	62.0	72.9	78.3	17.7	7.4
Zavodoukovsk	57.2	65.7	72.4	14.8	10.2

* Average change in the average price over the period, % of the price in the base year.
 Calculated from: <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://www.realtymag.ru/tyumenskaya-oblast/zavodoukovsk/kvartira/prodazha/prices/2024/>; <https://mirstat.ru/ishim/kvartiry.html>; <https://cko.72to.ru/public/analytics> (accessed: 13.05.2026).

Despite the high correlation of price levels, growth rates differ markedly, pointing to the asynchronous response of local markets. Secondary cities show higher housing price elasticity than the regional center, which can be interpreted as the result of demand shifting toward more affordable markets when mortgage conditions change and prices rise in the “anchor” city.

Let us turn to the results of Johansen cointegration testing with lags of 1–4 for primary and secondary housing prices in Tyumen (V02 and V03), Tobolsk (V04 and V05), and Yalutorovsk (V06 and V07), expressed in rubles per square meter. At the first stage,

cointegration was tested for all local markets using six variables (primary and secondary housing in the three cities). The hypothesis of cointegration was rejected. At the second stage, we sequentially excluded problematic variables. Reliable cointegration was ultimately confirmed for the primary housing markets of Tyumen (V02), Tobolsk (V04), and Yalutorovsk (V06) with lags of up to four. The Johansen test identified two cointegrating relationships at rank $r = 2$ (trace test, $p = 0.0116$).

Let us now provide an economic interpretation of the results obtained from testing the cointegration of primary housing prices in Tyumen, Tobolsk, and Yalutorovsk.

The first cointegrating vector describes the dynamics of primary housing prices in Tobolsk:

$$\ln_V04 \text{ (Tobolsk)} = 0.91148 \times \ln_V02 \text{ (Tyumen)} + 0.060868 \times \ln_V06 \text{ (Yalutorovsk)}.$$

Thus, a 1% increase in Tyumen prices leads, in the long run, to a 0.91% increase in Tobolsk prices. A 1% increase in Yalutorovsk prices raises Tobolsk prices by only 0.06%. Tobolsk prices almost fully replicate Tyumen's dynamics, with an elasticity coefficient close to unity. Yalutorovsk's influence on Tobolsk is negligible. Tobolsk's primary housing market is thus a satellite of the Tyumen market.

The second cointegrating vector describes the dynamics of primary housing prices in Yalutorovsk:

$$\ln_V06 \text{ (Yalutorovsk)} = 0.44107 \times \ln_V04 \text{ (Tobolsk)} + 1.6518 \times \ln_V02 \text{ (Tyumen)}.$$

A 1% increase in Tobolsk prices raises Yalutorovsk prices by 0.44%. A 1% increase in Tyumen prices raises Yalutorovsk prices by 1.65%. Yalutorovsk thus exhibits a super-elastic response to price changes in Tyumen (coefficient > 1). This may be explained, first, by a catch-up effect: the cheaper market grows faster amid a general rise in prices (see Tab. 3; Appendix). Second, since Yalutorovsk lies within the Tyumen agglomeration at a relatively short distance from the regional center, a demand impulse is at work: buyers who cannot find affordable housing in Tyumen switch to Yalutorovsk, creating additional demand.

The Johansen test also makes it possible to assess how quickly and which city responds to deviations of the price level from long-run equilibrium, using the adjustment coefficients (alpha) (Tab. 4).

The adjustment coefficients confirm the hierarchical structure of the markets. Tyumen acts as the price leader. Tyumen barely adjusts when deviations from equilibrium occur ($\alpha \approx -0.018$), which means that it is Tyumen that sets the long-term price trend for primary housing in the region. Shocks in the Tyumen market propagate to other cities, but not the reverse. Tobolsk acts as a fast follower of the regional capital's dynamics, actively responding to deviations ($\alpha = -0.225$). When the price in Tobolsk is above its equilibrium level relative to Tyumen, it falls. When the price in Tobolsk is below that in Tyumen, it rises. Full adjustment of primary housing prices in Tobolsk takes about 4–5 periods. Yalutorovsk acts as a moderate follower. Its primary housing market adjusts at a moderate speed ($\alpha \approx -0.055$ and -0.080), responding to both equilibrium relationships. Full adjustment takes about 12–18 periods, which is characteristic of markets that function less stably.

Interregional interconnectedness is statistically confirmed for the secondary markets of the KhMAA-Yugra and the Tyumen Region, but not for the YaNAA or for the primary markets. Changes in construction costs in the primary market have only a weak effect on secondary market prices. There is

Table 4. Interpretation of adjustment coefficients (alpha) for municipal primary housing markets

City	α_1 (for vector 1)	α_2 (for vector 2)	Speed of adjustment
Tyumen	-0.018	-0.009	Low (weakly exogenous)
Tobolsk	-0.225	0.027	High (22.5% per period)
Yalutorovsk	-0.055	-0.080	Moderate (5.5–8.0% per period)

Source: own calculations.

clear differentiation by market type, which differs significantly across levels of analysis. A hierarchy of the primary housing market is thus formed among the region's large, medium-sized, and small cities (*Fig. 4*).

Comparative analysis of model specifications with lags of 1–4 showed that the fourth lag is the best. Real estate markets are inertial, so prices respond to shocks with a delay. Lag 4 better captures the actual economic processes.

At the next stage, we tested Johansen cointegration for the secondary housing markets and for the combined primary and secondary markets of the three cities. No statistically significant cointegration was found in the secondary housing markets of Tyumen, Tobolsk, and Yalutorovsk. The trace test for $r = 0$ yields a p-value of $0.0770 > 0.05$, → the null hypothesis is not rejected. The Lmax test for $r = 0$ yields a p-value of $0.1205 > 0.05$, → the null hypothesis is not rejected. At the 10% significance level ($p = 0.077$), there is weak evidence of interconnectedness, but under the strict scientific approach ($\alpha = 0.05$), cointegration is not confirmed.

For Tobolsk, the trace test for $r = 0$ yields a p-value of $0.0670 > 0.05$, → the null hypothesis is not rejected; the Lmax test for $r = 0$ yields a p-value of $0.1580 > 0.05$, → the null hypothesis

is not rejected. For Yalutorovsk, the trace test for $r = 0$ yields a p-value of $0.1265 > 0.05$, → the null hypothesis is not rejected; the Lmax test for $r = 0$ yields a p-value of $0.2805 > 0.05$, → the null hypothesis is not rejected. At the 10% significance level, $p = 0.059$ is observed for $r = 1$, but this pertains to the hypothesis of a second cointegrating vector, which is meaningless in the absence of the first. Controlling for the influence of the Tyumen market as an exogenous variable ($\ln_V02$, $\ln_V03$) does not allow the null hypothesis to be rejected. Both eigenvalues are small, indicating a weak link between the series within each of the local primary and secondary markets.

Unlike the secondary market, the primary market is cointegrated. The primary market is formed top-down (developers → prices → buyers), which is why it is integrated (*Tab. 5*). The primary market is populated by large institutional actors (developers), operates under public rules of the game, and has highly transparent prices. The secondary market is a network of atomized actors, where each seller and buyer acts on the basis of local knowledge and limited information. Cointegration is unlikely in such a system because there is no mechanism that would transmit Tyumen prices to Tobolsk and Yalutorovsk.

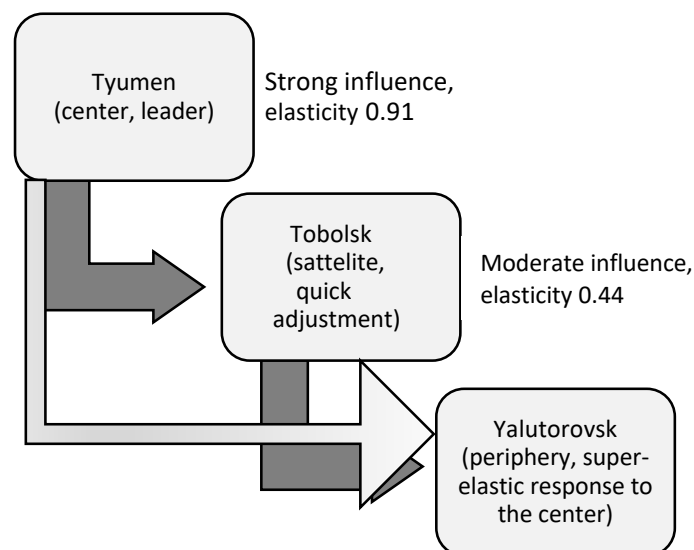


Figure 4. Pattern of price influence in the primary housing market

Source: own calculations.

Table 5. Comparison of interconnectedness for the municipal primary and secondary housing markets of Tyumen, Tobolsk, and Yalutorovsk

Characteristic	Primary market	Secondary market
Variables	I_V02, I_V04, I_V06	In_V03, In_V05, I_V07
Presence of cointegration	Yes ($r = 2$)	No
Price leader	Tyumen ($\alpha \approx 0$)	–
Speed of adjustment of Tobolsk	High	–
Behavior of Yalutorovsk	Anomalous	–
Pricing	Developers	Individual sellers
Transaction costs	Relatively standardized	High (bargaining, valuation, condition)
Influence of local factors	Lower (developer's brand)	Higher (neighborhood, floor, renovation, neighbors)
Demand structure	Investors, young families	Diverse categories (including immobile residents)
Liquidity	High	Variable

Source: own calculations.

The primary and secondary markets of Tyumen are not cointegrated. In Yalutorovsk, as in Tyumen and Tobolsk, the primary and secondary housing markets do not exhibit a long-run equilibrium relationship. This confirms the systemic nature of this phenomenon. Unlike the primary market, where clear cointegration was found with Tyumen acting as the price leader, the secondary markets of these cities do not form a single long-run equilibrium system. Each city has its own independent dynamics of secondary housing prices.

In addition, several other effects should be noted. The development and behavior of the market depend on the size and location of the city within the hierarchical settlement system. City size does not affect cointegration between the primary and secondary segments (*Tab. 6*). Even in a large regional center (Tyumen), the two markets

are functionally autonomous. Forecasting housing prices therefore requires separate modeling of the primary and secondary segments.

Discussion of results

The housing market in the Tyumen Region, including the Khanty-Mansi Autonomous Area – Yugra and the Yamal-Nenets Autonomous Area, developed steadily, but problems were accumulating at the same time. The dynamics of housing prices in the region from 2014 to 2024 roughly matched inflation (1–5%), with two shock growth periods: in the first quarter of 2020 (19%) and the second quarter of 2024 (11%). These shock periods were driven by factors external to the market, but ultimately market housing prices exceeded consumer inflation, creating signs of overheating. This overheating was partially offset by the close interconnectedness between the

Table 6. Comparative analysis of the three cities

Characteristic	Tyumen	Tobolsk	Yalutorovsk
Population	~850 thousand	~100 thousand	~40 thousand
Primary market	Developed	Weak	Very weak
Secondary market	Active	Moderate	Weak
Cointegration (primary vs. secondary)	No	No	No
p-value (trace)	0.2924	0.0670	0.1265
Strength of association	Very weak	Weak	Weak

Source: own calculations.

primary and secondary housing markets in the Tyumen Region. In the KhMAA and the YaNAA, no such strong interconnectedness exists, which is most likely due to higher incomes that raise the threshold of marginal utility for buyers. A weak (or absent) territorial interconnectedness is observed among housing market prices in the three subregions (the Tyumen Region, the KhMAA-Yugra, and the YaNAA), which requires more in-depth study.

Local interconnectedness was studied for the Tyumen Region excluding the autonomous areas. The pace of housing completions in the region has been declining over the past three years, raising construction costs and widening the imbalance between supply and demand. The territorial unevenness of the housing market intensified throughout the study period, as local submarkets lag far behind the regional center in the scale of effective demand. The deterioration of housing affordability in such centers was generally accompanied by a redistribution of demand toward more affordable second-tier cities and suburban areas, which led to accelerated price growth in the corresponding local markets¹⁵.

Within the subregion, Tyumen serves as the regional center of attraction, owing to its large labor market and higher incomes. Tyumen shapes expectations about housing prices.

The spatial configuration of the housing market in the Tyumen Region follows the pattern typical of Russian regions, in which the central market functions as the price benchmark and peripheral markets adjust to it with a time lag and varying intensity. The existence of stable inter-municipal linkages means that the housing market should be viewed as a single regional system rather than as a collection of

autonomous local markets. In practical terms, this implies moving away from the isolated analysis of municipalities toward spatially coordinated monitoring.

Consequently, when assessing the state of the housing market, it is necessary to consider not only absolute price levels but also indicators of spatial differentiation and the rates of price change by type of territory. This makes it possible to detect a redistribution of demand between markets at an early stage, especially during periods of changing mortgage conditions.

The management of housing supply (the volume and location of new construction, infrastructure support for projects) must take inter-territorial effects into account. Uncoordinated expansion of supply can lead to local imbalances that do not reflect the actual structure of regional demand. In this context, it is reasonable to use indicators of sell-through rates and construction readiness published in the Unified Housing Information System DOM.RF¹⁶.

Measures aimed at supporting demand and housing construction development require territorial differentiation, with regard to the role of each municipality in the regional settlement system. Ignoring the spatial interconnectedness of housing markets, in turn, can lead to the formation of persistent imbalances.

As mortgage demand cools, the risk of a mismatch between the volume of housing completions and the population's real purchasing power increases, raising the likelihood of an accumulation of unsold units in particular territories.

It should be noted that there is still no unified system for collecting and presenting housing market data at the municipal level,

¹⁵ Housing affordability in cities, urban agglomerations, and regions of Russia: analytical report. Institute for Urban Economics Foundation. Available at: https://www.urbaneconomics.ru/sites/default/files/dostupnost_zhilya_ieg_2025.pdf (accessed: 13.05.2026).

¹⁶ Sell-through rates and construction readiness of residential construction projects: analytical data from the Unified Housing Information System. DOM.RF. Available at: <https://xn--80az8a.xn--d1aqf.xn--p1ai/аналитика/распроданность-стройготовность?repYear=2025&repMonth=12> (accessed: 13.05.2026).

even though its relevance is beyond doubt. Data exist, but they are fragmented and often mutually inconsistent. In our study, we excluded data that deviated excessively (by more than 10%) from the average dynamics. An exception was made for the municipal market of the city of Tobolsk, whose housing market dynamics are heavily dependent on the operations of Sibur, which pays its builders and employees wages that are atypically high for the region. Combined with an unstable work regime, this directly affects the rapid rise in housing costs and strong volatility. The figure below summarizes the methodological foundations and applied orientations of the study, characterizing the region's housing market as a spatially interconnected system of local markets and defining directions for monitoring, housing construction planning, and the differentiation of regional housing policy measures (Fig. 5).

The study's findings confirm the advisability of moving from local regulation to a spatially oriented housing policy based on inter-territorial linkages and differences in how housing markets respond to economic and financial changes. The nonlinear relationships between housing construction and migration trends (Kotlyarova et al., 2025) call for flexible approaches to urban planning and investment policy in the housing sector. For the Tyumen Region, this means taking housing market price parameters into account when designing migration policy from resource-based to non-resource local markets. For example, support for the resettlement of pensioners under the "Sotrudnichestvo" [Cooperation] program could be reoriented from the regional center toward the interconnected peripheral towns of Zavodoukovsk and Yalutorovsk and Tyumensky District. Strengthening institutional channels could revive housing markets and, in turn, local labor markets.

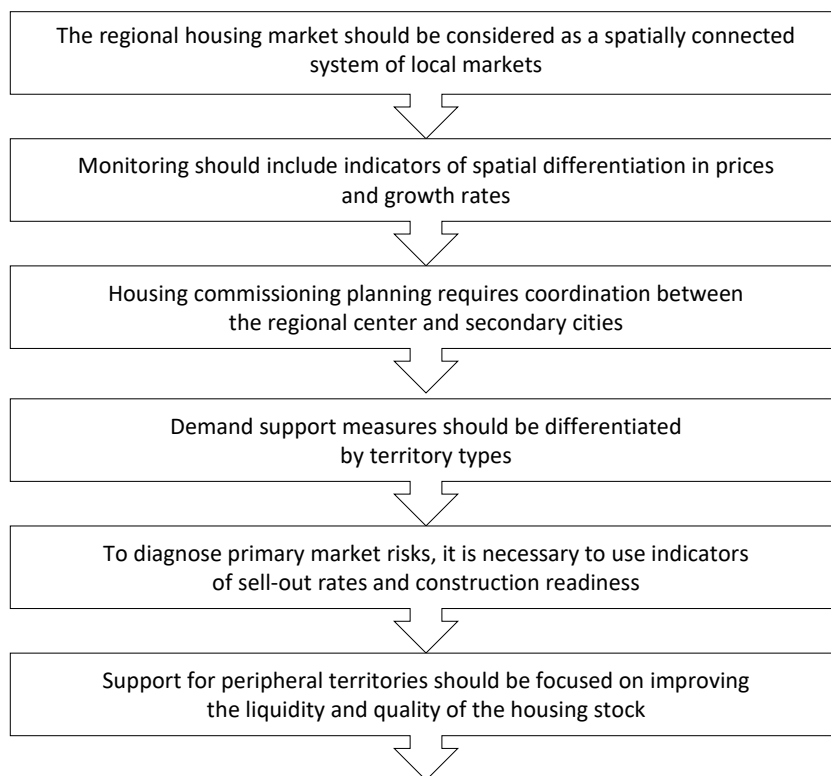


Figure 5. Key managerial implications in light of the spatial interconnectedness of housing markets

Source: own compilation.

Conclusion

In this study, the housing market of the Tyumen Region is examined as a spatially linked system of local markets in which price dynamics and supply and demand parameters are formed not in isolation but in interaction among municipalities. The empirical results show a high degree of alignment in the direction of price changes between the regional center and secondary cities, along with differing speed and amplitude of response across territories. The primary housing market has a regional hierarchical structure, with Tyumen exercising price leadership. The secondary market is fragmented both across cities and across segments within the same city. The primary and secondary segments are functionally autonomous and do not form a single long-run equilibrium system even within the same municipality.

The study establishes the anchoring role of the city of Tyumen, which sets the overall price contour for the primary housing market, as well as the asynchrony of secondary and peripheral market dynamics, reflecting differences in market scale, liquidity, and sensitivity to financial and migration factors.

For example, in settlements with populations below 250,000, housing sells more actively because these markets are less sensitive to the financial factors that weigh more heavily on large cities such as Tyumen, where the share of housing sales relative to peripheral markets is lower. These findings confirm that spatial price differentiation coexists with stable inter-territorial linkages, a fact that must be taken into account in analyzing and regulating the regional housing market.

Prospects for further research lie in deepening the spatial econometric analysis by extending the time horizon and moving from aggregated price indicators to actual transaction data, as well as in separately modeling the primary and secondary housing market segments. In addition, future work plans to examine methods of coordinating housing completions planning between the regional center and secondary cities; measures and instruments for supporting housing demand and their differentiation by type of territory; and mechanisms and instruments for supporting peripheral territories with a view to improving the liquidity and quality of the housing stock.

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Table 1. Spatial interregional differentiation of housing market price indices in the Khanty-Mansi Autonomous Area – Yugra, the Yamal-Nenets Autonomous Area, and the Tyumen Region (TR) (annual data, 2011–2025), % of previous period

Descriptive statistics	Minimum	Maximum	Mean	Std. deviation	Skewness	Kurtosis
Secondary market price indices, %, KhMAA	97.07	111.09	104.18	4.32	-0.20	-0.89
Secondary market price indices, %, YaNAA	94.09	123.70	105.66	8.88	0.80	-0.13
Secondary market price indices, %, TR	93.22	114.52	103.27	6.96	0.09	-1.33
Primary market price indices, %, KhMAA	92.63	120.90	105.55	7.29	0.35	0.12
Primary market price indices, %, YaNAA	100.00	108.30	102.42	2.22	1.52	2.58
Primary market price indices, %, TR	93.90	125.85	109.00	8.59	-0.10	-0.18
Compiled from: https://72.rosstat.gov.ru/ofs_cen_hmao ; https://72.rosstat.gov.ru/ofs_cen_ynao ; https://72.rosstat.gov.ru/ofs_cen_to ; https://www.fedstat.ru/indicator/30925 ; https://tochno.st/datasets/regions_collection (accessed: 13.05.2026).						

Table 2. Spatial differentiation of prices in the secondary housing market of the Tyumen Region (2019–2026)

Year		Tyumen	Tobolsk	Ishim	Yalutorovsk	Zavodoukovsk
2019	Mean	65.8	54.3	39.2	34.5	36.8
	Variance	611.6	43914.2	39522.8	35570.5	32013.4
	Minimum	64.6	48.2	32.5	21.8	22.3
	Maximum	67.1	66.3	48.4	33.8	23.7
2020	Mean	69.8	50.8	41.9	48.8	48.6
	Variance	6535.2	36282.5	32654.3	29388.8	26450.0
	Minimum	62.6	47.0	32.5	22.7	15.9
	Maximum	76.1	82.4	48.4	33.8	23.7
2021	Mean	85.6	45.7	53.4	50.8	51.0
	Variance	33258.7	1670.5	23281.1	16296.7	11407.7
	Minimum	77.1	43.7	48.4	33.8	23.7
	Maximum	96.8	71.6	68.3	66.1	61.5
2022	Mean	102.7	52.3	56.9	33.6	51.9
	Variance	9405.4	17458.8	12221.2	13967.1	9776.9
	Minimum	97.0	46.9	22.4	33.0	21.5
	Maximum	107.3	65.3	58.8	65.7	59.1
2023	Mean	112.0	66.1	60.4	62.0	57.2
	Variance	11216.6	65584.9	52468.0	128691.2	115822.1
	Minimum	107.9	55.1	32.4	34.4	28.9
	Maximum	118.8	80.5	69.1	72.4	71.8
2024	Mean	124.1	82.9	69.8	72.9	65.7
	Variance	5586.8	2994.4	3593.2	9084.0	898.3
	Minimum	119.2	80.9	42.1	65.1	39.5
	Maximum	127.4	86.8	79.2	77.3	71.2
2025	Mean	129.5	88.3	77.5	78.3	72.4
	Variance	5851.5	7468.2	10455.5	11169.4	9708.7
	Minimum	127.0	84.4	71.2	73.0	45.9
	Maximum	136.2	94.2	81.8	83.3	79.6

End of Table 2

Year		Tyumen	Tobolsk	Ishim	Yalutorovsk	Zavodoukovsk
Bcero	Mean	100.3	64.4	65.6	68.0	62.9
	Variance	578634.0	300256.2	390333.0	217598.0	360307.4
	Minimum	62.6	43.7	22.4	33.0	22.3
	Maximum	141.1	94.2	77.5	83.3	72.3

Calculated from: rosstat.gov.ru/storage/mediaban/; <https://tyumen.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://tobolsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://yalutorovsk.restate.ru/graph/ceny-prodazhi-kvartir/>; <https://xn--d1aqf.xn--p1ai/price-index/?inflation=y>; Market of multi-apartment residential buildings // State Budgetary Institution of the Tyumen Region "Center for Cadastral Valuation and Storage of Technical Inventory Documentation." Available at: <https://cko.72to.ru/public> (accessed: 13.05.2026).

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ПРОСТРАНСТВЕННАЯ ВЗАИМОСВЯЗАННОСТЬ ЛОКАЛЬНЫХ РЫНКОВ ЖИЛЬЯ В ТЮМЕНСКОЙ ОБЛАСТИ

В работе исследуется пространственная взаимосвязанность локальных рынков жилья в Тюменской области как полицентричном регионе с выраженной дифференциацией как между регионами, так и внутри региона. Эмпирическая база сформирована на основе данных официальной статистики, аналитических материалов за март 2011–2026 гг. Методы исследования включают анализ средней стоимости продажи жилья в Тюменской области и ее поквартальной динамики для выявления характера цикличности на региональном рынке, а также характеристику институциональной среды, специфичной для Тюменской области, корреляционный анализ по Пирсону между субрегионами Тюменской области (Ханты-Мансийский автономный округ – Югра, Ямало-Ненецкий автономный округ). Выполнен статистический анализ динамики индексов цен на первичном и вторичном муниципальных рынках жилья Тюменской области (без автономных округов), проведены тесты на коинтеграцию Йохансена для цен на первичное и вторичное жилье в Тюмени, Тобольске, Ялutorовске. Показано, что рынки жилья Тюменской области, ХМАО-Югры и ЯНАО не взаимосвязаны. Внутри Тюменской области без автономных округов пространственная организация рынка жилья имеет иерархический характер. Установлена якорная роль города Тюмени, а также асинхронность динамики периферийных рынков, обусловленная различиями в масштабах рынка, ликвидности и чувствительности. Средние города второго уровня Тобольск и Ишим обладают меньшей глубиной рынка, но сохраняют относительную самостоятельность за счет локальных рынков труда. Малые города региона Ялutorовск и Заводоуковск характеризуются ограниченной ликвидностью, более высокой ролью вторичного сегмента и индивидуального жилищного строительства. Муниципальные районы региона сохраняют характер периферийного расселения, вторичность которого сложилась еще в прошлые периоды. Полученные результаты свидетельствуют о высокой согласованности ценовой динамики первичных рынков жилья между региональным центром и вторичными городами при различающейся скорости и амплитуде реакции локальных рынков

внутри Тюменской области без автономных округов. Для вторичных рынков коинтеграция не обнаружена. Сделан вывод о необходимости учета пространственной взаимосвязанности при разработке региональной жилищной политики и программ жилищного строительства.

Рынок жилья, регион, периферия, взаимосвязанность, ценовая дифференциация.

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