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# C O N T E N T

<b>A REPORT OF THE PER-METER-SQUARED HOUSING RENTAL PROGRESSIONS IN TIRANA, AS WELL AS COASTAL AND INLAND AREAS OF ALBANIA, DURING THE 2017-2022 PERIOD</b>	<b>5</b>
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*Orion Garo, Research Department, Bank of Albania*

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# A REPORT OF THE PER-METER-SQUARED HOUSING RENTAL PROGRESSIONS IN TIRANA, AS WELL AS COASTAL AND INLAND AREAS OF ALBANIA, DURING THE 2017-2022 PERIOD

*Orion Garo, Research Department, Bank of Albania*

## INTRODUCTION AND BACKGROUND INFORMATION

Housing rentals are an important component of real estate market dynamics. Rentals and residential property prices share a mutual and inseparable trait, as their progressions are influenced by the same economic drivers, the most important of which is the demand for housing. Renting is a convenient way of property use by non-owners who are not interested, or do not have the financial means, to purchase and own a residential property. Renters represent that category of consumer demand that determines the real value of housing since, while purchasing a residential property is considered both meeting housing needs and a long-term investment in a physical asset, renting simply meets current needs for housing. Concurrently, rental properties are physical assets that provide the owners with periodic and relatively stable income. Unlike real estate purchase payments, which are typically made only once when ownership is transferred from the seller to the buyer, the tenant makes periodic rental payments to the landlord.

Under the conditions of a general trend of increasing real estate prices in Albania, this research report aims to analyze the housing rentals price dynamics in Tirana and other areas of the country, based on data obtained from the Internet through web scrapping methods and big data congregation tools. More specifically, the objective is to identify the average levels of per-meter-squared housing rentals, and to observe their progressions during the investigated time period, for three geographical areas: Tirana, the coastal areas, and the inland areas of the country.

The data were obtained from the website “njoftime.com” (2023), which has stored data covering the entire country’s territory, since 2017. As in the case of Garo (2022), the electronic data gathering procedures include the Python platform and programming language along with its subcomponent Scrapy, while the data congregation tools include the M programming language, MS Excel software and its auxiliary functionalities Power Query and Power Pivot. We included in our analysis a total of over 34,000 online listings of properties for rent, mainly in Tirana<sup>1</sup> as well as other areas of the country. Once through the information processing procedures, we compiled three series of monthly per-meter-squared rental price averages representing the capital and two other territorial divisions of the country.

Our analysis shows that during the last two years an increasing trend of housing rentals is observed, which is in line with the increase in apartment prices affirmed by Garo (2022), respectively by 13.4% per year in Tirana,

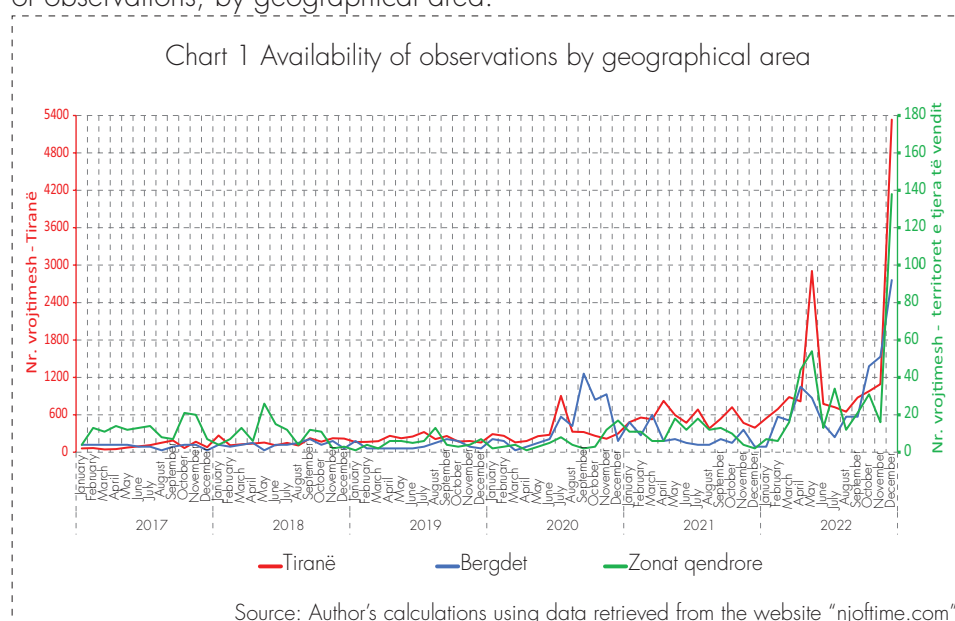
<sup>1</sup> Around 95% of online listings are rental properties offered in Tirana.

24.1% per year in coastal areas, and 17.3% per year in inland areas of the country. The following of the report proceeds by describing the data and the methodology used, shows the results, and lastly forwards some conclusions on the obtained results.

## DATA AND METHODOLOGY

The sample consists of 34,053 observations (listings of housing rentals), spanning over a time period of 6 years, from January 2017 to December 2022. The data are divided into three groups: [1] capital, for all listings of rental properties within a 5 km radius from the center of Tirana; [2] coast, for all listings in cities, towns and rural coastal areas of the country, and; [3] inland, for all listings in cities, towns and rural areas in central territories of the country.<sup>2</sup> This division of the data mirrors the one used in the analysis pertaining to the Financial Stability Report “Real Estate Market in Albania” (2021) published by the Bank of Albania. The specifics of the observations’ inclusion in the sample are the same as those detailed in Garo (2022).

To summarize, the sample contains listings rentals in apartment buildings, as well as premises of houses and villas from one to five floors in rural and urban areas of the country, but excludes listings of rentals in buildings and facilities: [i] where non-housing activities are carried out, and [ii] which are leased as one with significant land surfaces or natural resources. An additional specificity is that of the rent payment periodicity: if the rent payment is made on a daily or weekly basis, then the observation is excluded from the sample. The sample’s observations’ proportionality is such that 95.2% of listings pertain to housing rentals in Tirana, 2.2% of listings pertain to rentals on the coast, and 2.6% of listings pertain to rentals in the country’s inland areas. In total, an average of 473 observations belong to each month. The analysis’ time frequency is determined to be monthly. Graph 1 presents distribution in time of observations, by geographical area.



<sup>2</sup> Refer to Garo (2022) for reasons of specifying a distance radius for the capital, and for how counties are classified into coastal and central areas.

Cleaning and organizing the data in tabular form was done by defining the variables as well as eliminating observations with outlying or missing values. Variables such as: city/village, pertinent geographic area, surface area in meters squared, and rental price in Lek or Euro per month, were determined by identifying the necessary pieces of information from the raw data through MS Excel's Power Query functionality. For each observation, the per-meter-squared monthly price was calculated in Lek and Euro, referring to the exchange rate during the relevant period.

Regarding the econometric context of the analysis, it is worth clarifying that the series of observed values of per-meter-squared monthly rental price averages (graph 3) show significant fluctuations. This is mostly observed in the series for the coast and inland areas, since the observations belonging to these series are fewer in number compared the observations belonging to the capital. Under these conditions, to clearly examine the price differences between the capital, the coast, and the inland areas, it is more useful to analyze the trends of monthly price averages and not the average values themselves.

One of the well-known applications of this technique is the Kalman filter algorithm, which is an iterative calculation process belonging to the class of unobserved components models, which themselves fit within the broad framework of state space regression models (SAS Institute, 2017). The main quality of this algorithm is the decomposition of the unobserved components of the series – those being trend, seasonality, cyclical, the autoregressive element and residual - with the purpose of the distinctively analyzing their features (Pelagatti, 2016). To this end, our intention is to separate the trend element of each of the three series and, for each trend, to examine the features of its progression so as to more easily identify the differences in level between the series. The specification of the unobserved components model, for the specific needs of our research, is of the form:

$$y_t = \mu_t + \gamma_t + \varepsilon_t,$$

where:

- i.  $\mu_t$  is the trend component, which has a decomposition of its own into two subcomponents, level  $\beta_t$  and slope  $\sigma_t$ , where:

$$\mu_t = \beta_{t-1} + \sigma_{t-1} + \eta_t, \quad \text{where: } \eta_t \text{ NIID}(0, \sigma_\eta^2), \quad (\text{level});$$

$$\sigma_t = \sigma_{t-1} + \xi_t, \quad \text{where: } \xi_t \text{ NIID}(0, \sigma_\xi^2), \quad (\text{slope});$$

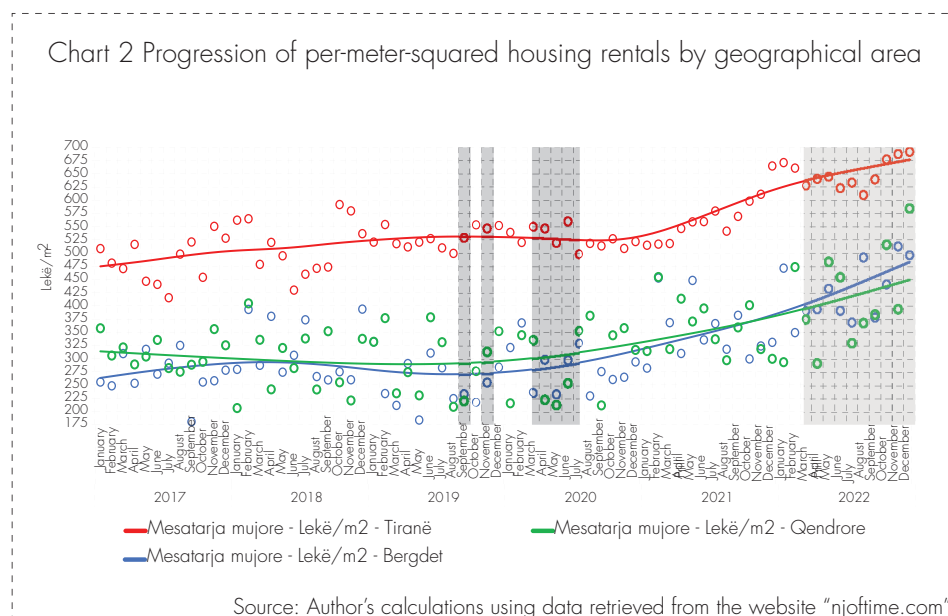
- ii.  $\gamma_t$  is the seasonality component;
- iii.  $\varepsilon_t$  is the specification's residual, consisting of a white noise NIID.

## RESULTS

Graph 2 plots the sample's monthly average values, for the total of observations grouped by geographical area as pertaining to the capital, the coast, and inland areas. In it, the red line represents the trend of per-meter-squared monthly average of rental in Lek for the capital, the blue line represents the coast, while the green line represents the inland areas. As mentioned in the methodology, the three trends were calculated using the SAS "PROC UMC" procedure, based on the Kalman algorithm. We modelled each of these trend series as a sum of the regression's level and slope estimates, stripping seasonality and residual estimates out of them.

It should be noted here that seasonality was present in all three series, and statistically significant in two out of three. Also, cyclicity and autoregression components were left out of the estimation, since, based on the AIC and BIC criteria, they did add value to any of the three models.

The estimated series progressions reveal some interesting cues regarding housing rentals in Tirana and other territories. So at the start of 2017, the per-meter-squared monthly average of rentals starts at 475 Lek for Tirana, as well as 260 and 310 Lek for the coast and inland areas respectively. So, the initial gap between the capital and the rest of the country turns out to be around 190 Lek. In percentage terms, the country's gap level of rentals results at about 60% of the capital's rentals.



As averages progress in time, we note that rentals in Tirana display a continuous gradual increase, and by 2020 reach a level 12% higher than the beginning of series level. Meanwhile, rentals in the coast show a fluctuating trend, initially appearing to be an upward one, but suffering a decline during 2019, and by 2020 resulting in an increase of about 5% compared to the



beginning of the series. Rentals in inland areas of the country stand out; they show a slight downward trend during the aforementioned 4-year period, and in 2020 they turn out to more or less vary at the same level as at the beginning of the series.

Despite differences among average levels of rentals in the capital and the rest of the country, right after 2020 upward trends are observed in all three series. Still referring to Graph 2, if we focus on 2021 and 2022 – the last two years of the analyzed timespan – the average monthly increase in rentals resulted: 1.02% for Tirana, 1.8% for the coast, and 1.3 % for inland areas. These figures indicate a significant acceleration of the increase in rentals on the coast, compared to the capital and the inland territory of the country.

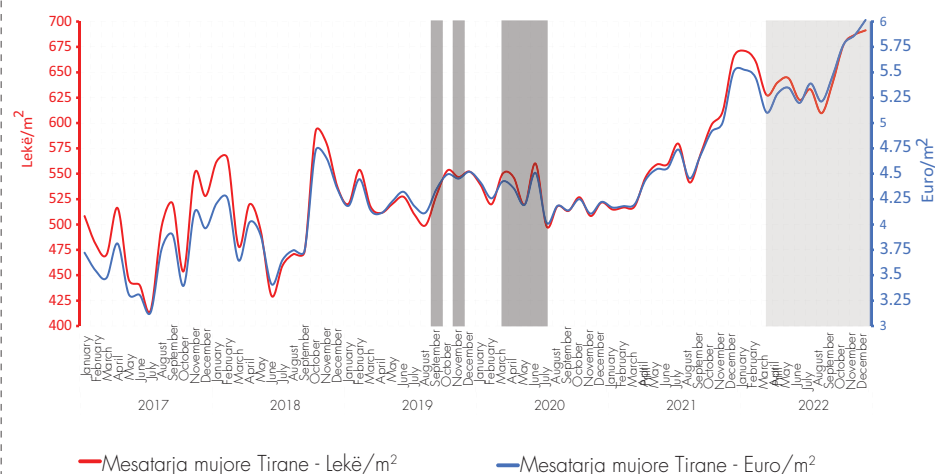
Keeping our focus on the per-meter-squared monthly averages of rentals, which in Tirana - in December 2022 - was 675 Lek, the actual gaps in levels are: about 200 Lek less between Tirana and the coast, and about 225 Lek less between Tirana and inland areas. Referring to the above-mentioned figures for December 2022, the average rental of a typical 85-meters-squared residential apartment, comprised of two bedrooms, a living room, a kitchen corner, a bathroom and a balcony: in Tirana it is 57,375 Lek, on the coast 40,375 Lek, and in inland areas of the country 38,250 Lek. In reference to Tirana's monthly rental level, in percentage terms, rentals on the coast are at 70.3%, while the prices in inland areas are at 66.7%.

Moreover, Graph 2 helps us to understand more clearly rental market fluctuations in coastal and inland areas, during the time of natural disasters in the second half of 2019, and during the economic isolation due to COVID-19 measures, in the second quarter 2020. As can be seen, rental levels during these two periods show decline below trend averages, which makes us infer that natural disasters and policy-driven economic slowdowns exerted a negative impact on rentals in coastal and inland areas of the country.

Meanwhile, as we have already pointed out, this impact was almost negligible on rentals in Tirana. For 2022, the average per-meter-squared monthly rent in Tirana was 653 Lek, on the coast it was 435 Lek, while in inland areas it was 416 Lek. Compared to 2021, the YoY growth in rentals resulted: 13.4% for Tirana, 24.1% for the coast, and 17.3% for inland areas.

Given that most of the observations are rentals in Tirana, we have paid particular attention to the analysis of rentals' progression in this area. Thus, Graph 3 presents the distribution over time of the per-meter-squared monthly averages of rentals in Tirana, denominated in Lek and Euro. Since we are dealing with the same observations, the progressions by each of the currencies are practically the same; partial discrepancies reflect fluctuations in the exchange rate.

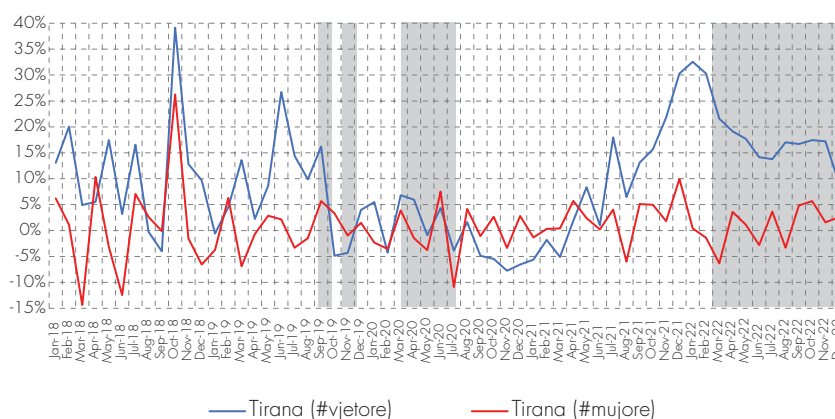
Chart 3 Progression of per-meter-squared housing rentals in Tirana



Source: Author's calculations using data retrieved from the website "njoftime.com".

Concurrently, in Graph 4 we have presented the YoY and MoM growth rates of housing rentals in Tirana. We note that during the natural disasters' time period, the second half of 2019, rent prices in the capital remain relatively unaffected; the economic consequences of the earthquakes seem not to have altered their trend. More or less the same particular is noted during the economic isolation due to COVID-19, the second quarter of 2020; a slight decrease in the rentals trend appears present, but no extreme change is observed.

Chart 4 Growth rates of per-meter-squared housing rentals in Tirana (YoY and MoM)



Source: Author's calculations using data retrieved from the website "njoftime.com".

Immediately after the COVID-19-related economic isolation period, rentals exhibit a significant hike, which keeps up for about 1.5 years, until January 2022. March 2022 also marked the beginning of inflationary pressures in

every domain of the domestic economy, mainly driven by a supply insufficiency for oil and its by-products in the Eurozone, as a result of the beginning of international conflict and the economic sanctions that followed. Tirana's rentals market during this period reacts with a break in its strong price hike, where the continuity of the trend (to the end of the available data), though upward, no longer shows rapid growth, but fluctuates frequently.

## CONCLUDING REMARKS

This research report offers additional information on the dynamics of the real estate market in Albania, analyzing the per-meter-squared rentals in Tirana, as well as coastal and inland areas of the country during the last 6 years. As in the case of the previous research on residential property prices (Garo, 2022), this study was also conducted using micro data collected electronically through web scrapping methods and big data congregation tools.

The calculation of the average levels of rentals in by geographical area (capital, coast, inland), as well as the observation of their progressions in time, are the objective of this research. The website "njoftime.com" was the source of microdata for about 34,000 observations (online listings of rentals), during the January 2017 - December 2023 timespan.

First, raw data were collected through Python and its sub-component Scrapy, then they were organized into tabular form, defining variables, avoiding unneeded observations, outliers, and missing values. Finally, the trends of the monthly averages of rentals were analyzed, which were obtained through the Kalman econometric technique, part of the unobserved components procedure in the SAS software. Below are the main research findings:

- After grouping the data by geographic area, and referring to the current per-meter-square monthly average of housing rentals in Tirana, which is estimated at 675 Lek:
  - the gap between Tirana and coastal areas is about 200 Lek, thus the average level of rentals on the coast is about 70.4% of that in Tirana;
  - the gap between Tirana and inland areas of the country is about 225 Lek, meaning the average level of rentals in inland areas is about 66.7% of that in Tirana;
  - the gap between the coast and the central areas can be corroborated as negligible.
- After analyzing the pertaining progressions of rentals' average levels, it is noted that:
  - From the beginning of the series, rentals in Tirana show a gradual upward trend until 2020. During this year, the trend displays a certain stationarity, and since the beginning of 2021 onward, it accelerates noticeably. During the last two years of the analyzed timespan, housing rentals in the capital have increased by an average of 1.02% per month.
  - The coast series begins with the lowest level of rentals in the country,

and until 2020 continues with a fluctuation peaking in the middle of 2018, and by the end of 2019 (precisely when the local economy was hit by the two earthquakes) declines again to the level of the series' beginning. As in the case of the capital, during the last two years the trend of housing rentals on the coast is accelerating noticeably, especially during the year 2022. During the last two years, rentals on the coast have increased by an average of 1.8% per month.

- Rentals in inland areas of the country display a relative stationarity with a slight downward trend, up to the end of 2019. They decrease significantly below trend level during the economic isolation due to COVID-19. This finding indicates that the rental market suffered a shock throughout the country, with the exception of the capital. The opening of the economy after the COVID-19 period of isolation marks the beginning of the acceleration of the rentals for this geographical division, which – during the last two years – shows an average monthly increase of 1.3%.
- The capital's rental market shows a visible response to the inflationary pressures involving Europe and our country, starting from the second quarter of 2022, as there is a clear break of the trend's upward continuity and its frequent fluctuations during this recent time period.

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## CALL FOR PARTICIPATION IN THE 17TH SOUTH-EASTERN EUROPEAN ECONOMIC RESEARCH WORKSHOP

On December 4 and 5, 2023, the Bank of Albania will organize in Tirana, the 17th South-Eastern European Economic Research Workshop. This workshop aims to provide a discussion forum for research works on issues related to the central banking and to promote the exchange of views between researchers of the Bank of Albania, central banks of the region and beyond, as well as local and foreign financial and academic institutions.

Interested authors are invited to participate through their research studies, by submitting an extended abstract or the full study, by October 2nd, 2023, to the email address: [BoAresearchworkshop@bankofalbania.org](mailto:BoAresearchworkshop@bankofalbania.org). For further details refer below: "17th South-Eastern European Economic Research Workshop", (in English).

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