

STATISTICAL ANALYSIS OF PRICES EVOLUTION FOR REAL ESTATE URBAN CADASTRE OF IASI

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Abstract: *The real estate market can be defined as the interaction between persons (individuals or companies) that change property rights against other assets such as cash. This market is defined based on the type of property, the potential to produce income, location and investors characteristics. The real estate market has experienced a downward trend in recent years due to the global financial crisis with a stagnation tendency. Thus, was noted that property values have continued to decrease in recent years in Romania, but in a slower tempo. One of the consequences of the national economy general decline can be assimilated with continuous degradation of built housing quality and quantity. This is due, primarily, to the impossibility of individuals (persons or companies) to maintain a high quality standard. The purpose of this paper is to present a statistical analysis of prices evolution for urban real estate market of Iasi. Thus we present the evolution of prices for the years 2012 - 2013 for apartments with 1 to 4 rooms. This analysis will be divided into districts and present average prices development in these areas. It is important to note that professional estimation of the market value of a property is an objective assessment of a specific date. Market value is an estimation based market, conducted in accordance with international standards.*

Keywords: *urban real estate market, statistical analysis, prices evolution*

1. Introduction

The current global trend in the cadastre field is that of ultimately making a 4D cadastre (Faith Do et al. 2011).

This approach is the result of the fact that the cadastre records are linked to the real estate dynamics. At the same time, there is the necessity of answering various queries, in which time is one of the parameters, one characteristic of the estate being important at a certain moment. This type of recordings deals with the so called “dynamic objects” which change some of their characteristics in time. This kind of interpretation refers however to the data which are to be stored on a medium and long run since they don’t represent the necessary conditions for developing a 4D system, yet. Actually, including time as a parameter into GIS in cadastre recordings is done partially in the case of real estate transactions, for instance. The basic idea is, though, to take into account all temporal aspects, if possible, in order to be able to get evolutionary queries regarding trends (for instance a statistic analysis of the evolution of real estate value in a certain period, and eventually making a prediction based on recorded data).

In the Romanian context, this trend leads to the problem that ANCPI has in plan to solve in a few years by constructing a data base in which information about the value of real estate transactions will be stored.

2. Additions

Ways of establishing the market value of housing

The evaluation of real estate is a complex process that takes into account a very large number of factors because its dynamics changes sometimes through means that cannot necessarily be predicted nor stopped. Thus, standardized ways of evaluation have been developed, that can comprise this dynamics and achieve a level of price estimation very close to the real one.

The evaluation of a housing real property is done through two methods that are recommended by the evaluation standards as follows:

1. Direct comparisons on the market
2. Probable income capitalization (efficiency).

Evaluation through direct market comparisons

This comparative approach takes into consideration the sales of similar or fungible properties and the information about the market, and estimates the value through comparison processes. Usually, the evaluated property is compared to the sales of similar properties traded on an open market. The quotes and the selling offers are also considered. The number of transactions in this category is extremely small considering the minimum number of offers; the real estate market being severely constrained by the buyers' capacity of absorption.

Evaluation through capitalization of probable income (efficiency)

This method consists in estimating the value of a real property in relation to the incomes that it can bring in a period of time. This method is based on the fungibility principle that shows the income flow which produces the highest degree of recuperation and fructification, corresponding to a certain risk level, and which leads to the determination of the most probable value of the variable.

The incomes and expenditures were estimated considering common criteria for both the appraised property and the ones used for comparison:

1. The market expectations regarding the selling price, the ownership and taxation period are similar.
2. The financing conditions and the market conditions that influence comparable properties are similar, adjustments not being necessary.
3. In order to estimate the general capitalization rate, we selected properties which, together with the appraised property, comply with the requirements of the method.
4. For comparable properties, the net income from use was determined starting from the incomes and the expenditures registered by each property in similar market conditions.
5. The main elements used to apply this method are: potential annual rent (potential gross income) and the capitalization rate of net incomes available for the owner.

- The capitalization rate was estimated for three comparable properties for which the registered incomes and expenditures of each property were determined, in similar usage conditions.

The market value of a real estate

In order not to create confusions and interpretations on the assessed value, according to the International Standards 2011, the market value is defined as the estimated sum for which a property could be exchanged at the date of the evaluation between a firm buyer and a determined seller in a transaction of an objectively determined price, following an adequate marketing activity in which both parties acted consciously, cautiously and unconstrained.

It is important to mention that the professional estimation of the market value is an objective evaluation of the property rights over some assets at a certain date. In this definition there is implicit the concept of the market on the whole which reflects the activity and motivation of more than one party rather than the image or the preconceived interest of a certain party. The market value is a market based estimate determined according to these Standards.

The real estate market can be defined as being the interaction between the (physical or legal) persons who exchange property rights for other commodities like money. This market is defined based on the type of property, its potential of producing incomes, location, the characteristics of the investors and typical tenants.

The evolution of the prices for the main cities in the country is shown in diagram ... As it can be seen in this diagram (Fig. 1), the variations in the monitored cities were quite low, being actually within the margin of error. Thus, besides Bucharest where the maximum and the minimum prices are between 1300 euro/m² and 1100 euro/m², the other monitored cities present very little variations around the sum of 1000 euro/m².

The statistical analysis used data gathered from a real estate agency during three semesters, divided on flats with 1 to 4 rooms and on residential areas assigned to the already existent districts of Iasi. These are presented in the table 1.

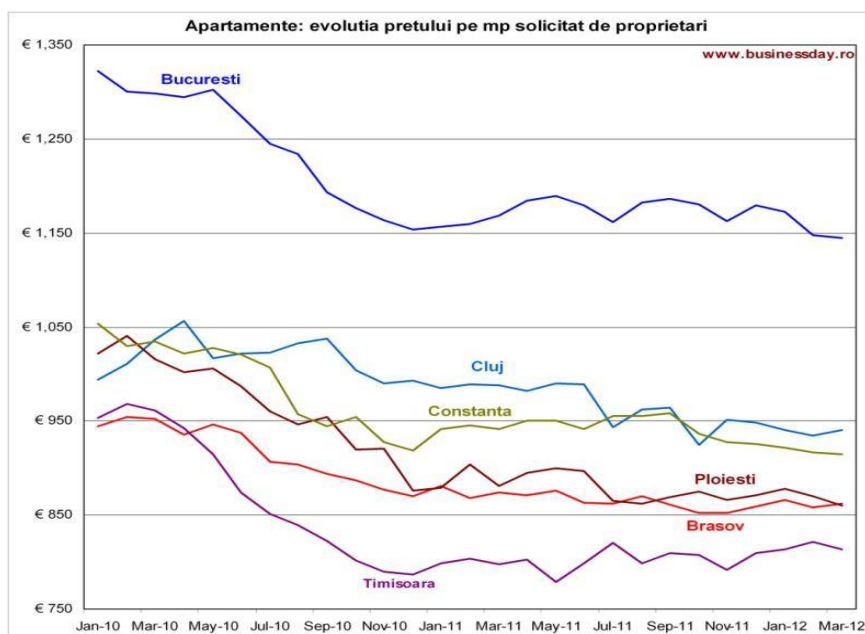


Fig. 1. Price evolution of Romanian central zone

Table 1. Apartment's prices in Iasi

Zone	Period	2012/sem II/ rooms no.				2013/sem I/ rooms no.				2013/sem II/ rooms no.			
	Price/m2	1	2	3	4	1	2	3	4	1	2	3	4
Ultracentral	Price min	1070	1070	1020	1020	1060	1060	1010	1010	1050	1050	1000	1000
	Price max	1170	1170	1120	1120	1160	1160	1110	1110	1150	1150	1100	1100
	Price medium	1120	1120	1070	1070	1110	1110	1060	1060	1100	1100	1050	1050
Median - Pacurari	Price min	840	830	820	820	830	820	810	810	820	810	800	800
	Price max	890	890	880	880	880	880	870	870	870	870	860	860
	Price medium	865	860	850	850	855	850	840	840	845	840	830	830
Median Copou	Price min	930	920	910	900	920	910	900	890	910	900	890	880
	Price max	970	960	950	940	960	950	940	930	950	940	930	920
	Price medium	950	940	930	920	940	930	920	910	930	920	910	900
Semi-central - Podu Ros	Price min.	870	870	860	840	860	860	850	830	850	850	840	820
	Price max	830	830	820	820	820	820	810	810	810	810	800	800
	Price medium	850	850	840	830	840	840	830	820	830	830	820	810
Median Tatarasi	Price min	780	780	770	760	770	770	760	750	760	760	750	740
	Price max	820	820	810	810	810	810	800	800	800	800	790	790
	Price mediu	800	800	790	785	790	790	780	775	780	780	770	765
Median Est - Mircea Galata	Price min	770	760	750	750	760	750	740	740	750	740	730	730
	Price max	800	790	780	770	790	780	770	760	780	770	760	750
	Price medium	785	775	765	760	775	765	755	750	765	755	745	740
Median Nord Vest - Alexandru Dacia	Price min	800	810	790	790	790	800	780	780	780	790	770	770
	Price max	820	810	800	800	810	800	790	790	800	790	780	780
	Price mediu,	810	810	795	795	800	800	785	785	790	790	775	775
Median Sud Vest - Nicolina Cug	Price min	810	800	790	770	800	790	780	760	790	780	770	750
	Price max	830	820	810	800	820	810	800	790	810	800	790	780
	Price medium	820	810	800	785	810	800	790	775	800	790	780	765

In the second semester of 2012 (Fig. 2), we notice a slight decrease of the prices for each type of flats, the trend remaining the same with maximum prices in the ultra-central area and minimum in the semi-central area of Podu Ros.

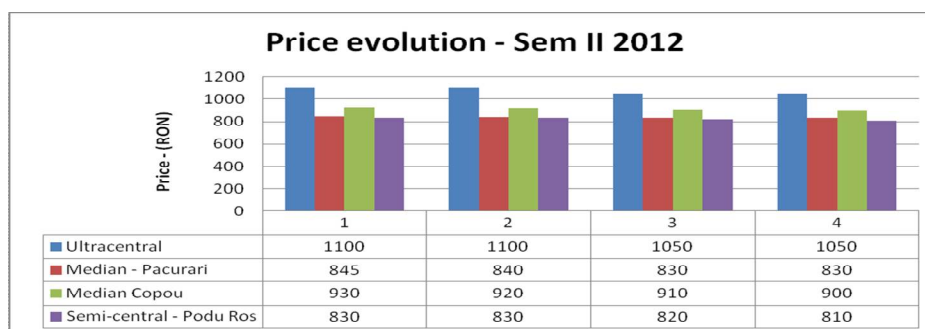


Fig. 2. Price evolution of central zone

In non central districts, the prices vary between 820 euro/m² for a 1 room flat in the Median south-west Nicolina CUG area and 760 euro/m² for a 4 room flat in the Median east Mircea-Galata area (Fig. 3).

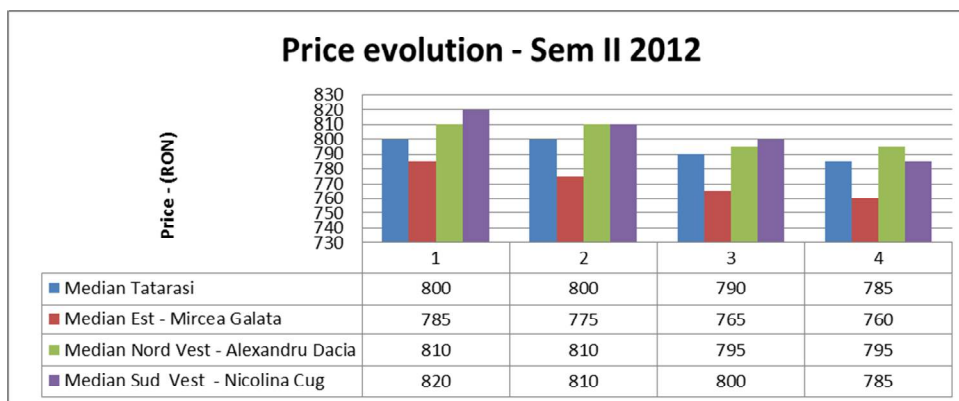


Fig. 3. Price evolution of median zone

In the first semester of 2013 (Fig. 4), the evolution of the prices for the flats in the central area vary between 1110 euro/m² for the ones with 1 and 2 rooms in the ultra-central area and 820 euro/m² for 4 rooms flats in the semi-central area of Podu Ros.

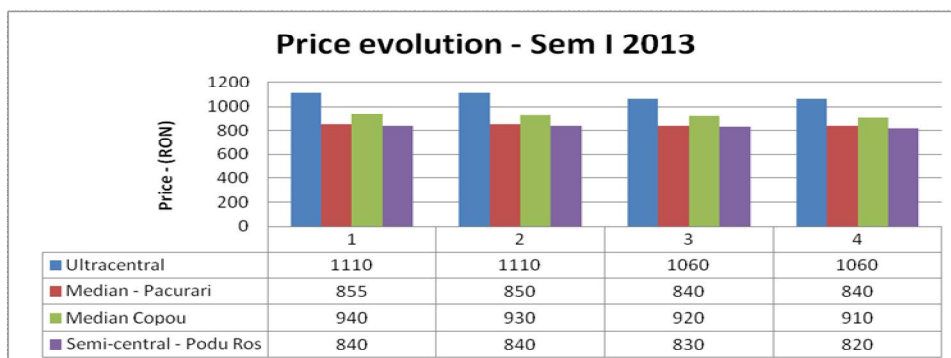


Fig. 4. Price evolution of central zone – 2013 sem I

In the median areas (Fig. 5), there is to be noticed a significant increase for Nicolina-CUG area, 810 euro/m² for the 1 room flats and a relatively low price of 750 euro/m² for the 4 rooms flats from Mircea-Galata area.

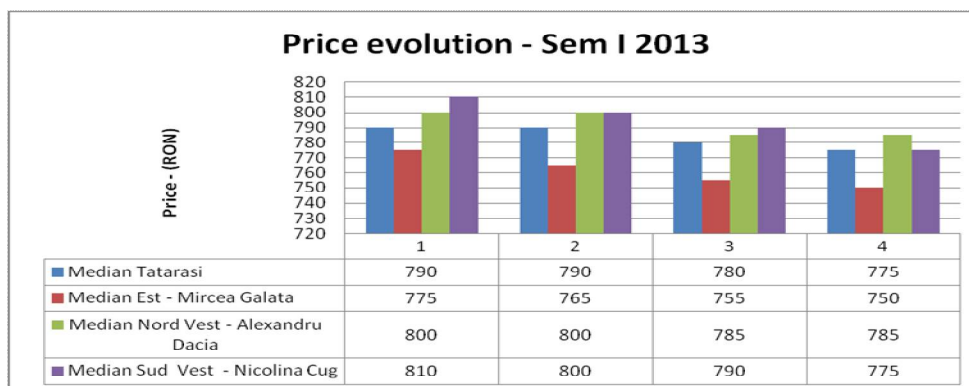


Fig. 5. Price evolution of median zone – 2013 sem I

The diagram presents the evolution of the prices on districts in relation to the number of rooms per flat in the second semester of 2013 (Fig. 6). One can notice that the highest prices are for the 1 room and 2 room flats in the ultra-central area and Copou area. For the median areas (Fig. 7), there is a maximum price of 800 euro/m² in Nicolina-CUG area and a minimum of 740 euro/m² in Mircea-Galata area.

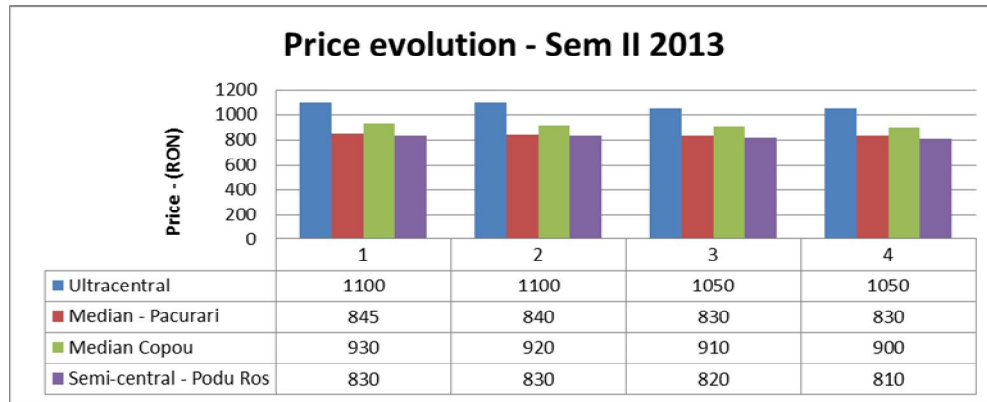


Fig. 6. Price evolution of central zone – 2013 sem II

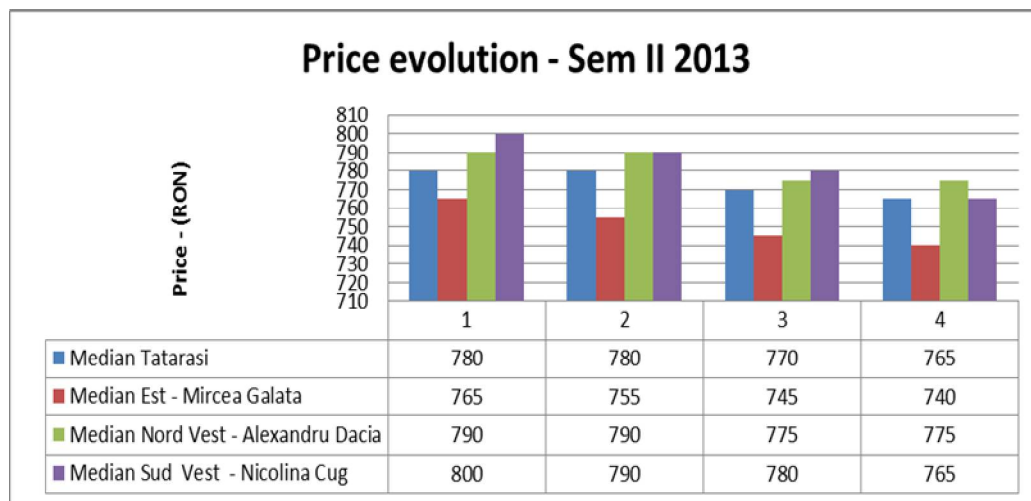


Fig. 7. Price evolution of median zone – 2013 sem II

3. Conclusions

This paper presents a statistical analysis of the evolution of prices for the residential flats in the city of Iasi during three consecutive semesters. Thus, we noticed that the prices slightly increased with 5% /semester, which indicates a decrease of the real estate market of Iasi.

In the estimation of the average prices of various real estates, certain inherent errors may occur due to situations like:

- Differences between the documented situation and real life
- Use of different currency
- Elements that are not analyzed in the process of price estimation and their occurrence probability
- Significant variations connected to the non-analyzed elements

These errors can be minimized if one chooses methods and information which improve the quality of these data.

In the future, we intent to use a more complex data base with data from more sources so the accuracy of this kind of analysis should be closer to real life.

4. References

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