

Estimation of a House Price Index in Albania

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Abstract—Prices are the key component of the market economy playing a crucial role on the society as whole. In a pure market economy, this factor represents the equilibrium between the demand and supply, reflecting a variety of characteristics for those markets such as level of competition, market actor's behavior, the development stage of the economy etc. Among different types of prices, starting from price of goods to bonds interest rate, house prices is considered of particular interest by different researchers and by the economy as well. This factor represents a key element for the economic situation of a country and also the major component of the consumer wealth. It also is related to many other micro and macro variables such as GDP growth, consumer and saving rates, lending growth rate etc., therefore a change in this factor will impact those variables as well.

This paper main objective is to estimate the house price change in Albania calculating the House Price Index for a defined time period. Conditioned by the available data, the latter is restricted in what is considered the beginning of the "crisis" period in Albania, starting from the pre-crisis year, namely year 2007, up to year 2012.

The data consist of primary data collected from bank's external appraisers, using different properties appraisals distributed within the country. The methodology used for calculating the index is based on the comparison of the price with the reference year. Regarding the house price calculation the average price method is used.

Index Terms— Albanian economy, Appraisal price, Credit risk, Economic indicator, House price, House price index, Mortgage lending.

1 INTRODUCTION

In the today world there is a price for almost everything. Prices are determining everybody's life: we use prices in the daily transactions (buying goods, clothes, services etc.), we constantly hear in different media sources and mass communication channels about prices of goods, prices of commodities, increase of prices etc. Moreover, the cost of our living is measured by a price too, the so-called Consumer Price Index.

Prices are the key component of the market economy playing a crucial role on the society as whole. In a free market economy this factor represents the equilibrium between the demand and supply meaning that it is settled at the level where the quantity being supplied is equal to the one being demanded. As such, prices reflect a variety of market characteristics such as level of competition, the behavior of the market actors, the development stage of the economy etc.

Among different types of prices, starting from prices of goods to bonds interest rate, house price is considered of particular interest by different researchers and by the economy as well. This factor represents a key element for the economic situation of a country, being also the major component of the consumer wealth. It also is related to many other micro and macro variables such as GDP growth, consumer and saving rates, lending growth rate etc., therefore a change in this factor will impact those variables as well.

Similar to the Consumer Price Index, which is usually one of the main indicators of the economy, high interest should be paid toward the House Price Index (HPI). Unfortunately, this expectation does not resulted to be true, at least during the research on such topic. The official statistics institution of Albania, INSTAT, make available to the public regular statistics on (information can be found at www.instat.gov.al):

1. Consumer Price Index,
2. Producer Price Index,
3. Construction Cost Index.

The latter considers, as per respective methodology published by INSTAT, "the price development of the production factors raw materials, labour, machinery, transports, energy and other costs that are used in the building projects". Still, this index does not represent the house price development within the country.

Alternative source of information for different economic indicators can be obtained by Bank of Albania, the Central Bank of the country. Consulting different reports and researches, it can be found that information on House Price Index has been depicted in a dedicated sub-chapter in the Financial Stability Report (published two times a year) and also some informative paragraph in the Monetary Policy Report (published four times a year). Both reports refer to the House Prices Index for Tirana only, being restricted in the city area for the time period 2006 up to the end of 2012.

Considering the above problematic, this paper objective is a moderate attempt to estimate a house price index for the whole country. The data used and methodology applied is described below in the respective sections, followed by the obtained outputs, their analysis and conclusions.

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2 CHARACTERISTICS OF THE ALBANIAN HOUSE MARKET

House market represents an important element not only for the Albanian economy, but also from the cultural point of view. Albanian families usually consider the proprietorship of a house as one of the primary and initial needs. Unlike to western countries, Albanian new couples have a clear objective in their mind since the first moment they create a family:

“The need to buy their own house in a short or medium term period, getting rid of the house rent as soon as possible”

The house market has been continuously evolving in the free market economy starting in the last decade of the last century. In the beginning, there was high differentiation among urban and rural area, with not high distinctions among different regions within the country. Nowadays, the first tendency still remains the same, while the second one has been continuously evolved in the opposite direction. Today there are clearly higher preferences for houses located in the capital, Tirana, and other industrial or touristic locations such as Durres, Fieri, Vlora, Shkodra, Saranda etc. Indeed, the prices in such regions, representing as said above the equilibrium between the demand and supply, are considerably higher compared to other less preferred regions. Furthermore, among most part of the high-income families have a second house in the seaside or touristic locations, apart from the one in the city where they live and work.

In order to satisfy the high demand in these areas, there has been constructed a lot of houses, mainly high-floor buildings from different construction companies, but also private villas or houses from companies and families as well. The construction sector had high expansion in the last decades and although it has been hit from the last year's crisis, it still remains one of the key sectors in the country.

Another particular characteristic of the Albanian house market is that the price usually is agreed and exchanged in euro. Turning back to the past, it was a phase in the Albanian economy when initially the house prices were transacted in USD currency, known as the “dollarization” phase of our economy. Later on, after the introduction of the EUR currency, the Eurozone countries became the main trade partners for Albanian economy and the house prices were converted in euro. From that period and on, the houses in the majority of the country have been sold and bought in EUR currency. This does not happen with most of the other goods and services transacted in the market.

Concluding the specific characteristics of the Albanian house market there should be mentioned certain problematic issues which will not be analyzed in details since it will require a separate paper. Some of the issues are included below:

1. The proprietorship rights not clearly defined between “old” owners deprived from the communist regime and the new ones currently occupying the property,

2. Legalization issue of the constructed buildings without a proper local authorities permission,
3. Mortgage registration, mortgage lending and mortgage execution process which are particularly related also with the banking practice and legal framework in the country.

3 OVERVIEW ON DIFFERENT METHODS USED TO ESTIMATE THE HOUSE PRICE

Before giving an overview of the different methods used to estimate house price, short paragraphs on the need of such statistics and the some difficulties being faces are presented below.

3.1 The need for statistics on house prices

As mentioned above, the house price is an important factor determining the characteristic of the Albanian economy, and the House Price Index is a widely used indicator from different actors. Such indicators can be harmonized with the Consumer Price Index reflecting a broader picture of the economy. The importance of this indicator is highlighted also in the European legislation being partly integrated in the concept of “Harmonized Index of Consumer Prices”. The interconnected effects of this indicator with other economic and/or social indicators (macro and/or micro level) raise the need for such statistics as well.

Being driven from the user's point of view, such indicator is needed, among others, from the below listed users:

1. Central and local government: The house price index is used as one of the main economic indicators for the country, for fiscal treatment purposes, regional development issues etc.,
2. Banks, other financial institutions and real estate agencies: The House Price Index is an important indicator while financing mortgage loans and other mortgage-secured loans, settling the financed amount, the interest rates, the collateral values etc.,
3. Households: The house prices are used from households in order to make decision on buying a new property and/or selling an existing one.

3.2 Difficulties faced while assessing the house price

There are certain difficulties related to the process of development and implementation of different methods for House Price Index. The main reason behind such difficulties is related with the specific nature of the house characteristics itself and the house market issues as well. More specifically:

1. Each house, apartment or villa has its own characteristics which distinguishes it from the other ones, like different size (the number of rooms may be of high importance for the specific situation of a family compared to another one), different locations (sometimes even 10 meters make the difference), different conditions, fea-

tures etc., while this is not the case for the price of “common” goods having unique characteristics among them.

2. The frequency of house or property transacting is considerably lower compared to the other goods transactions frequency. This may make the life of a statistician much more difficult due to less data possession.
3. Evolution of house price, type of houses or volumes transacted varies in time. For the purpose of price comparison or evolution this may present an issue since this should be done using the same or at least similar goods characteristics.
4. House prices can be widely used for reference purposes and they do not represent the exact price of the property. As mentioned, the price for each property varies depending on numerous characteristics. Furthermore, most of the methods consider or are driven by the average traded price of the house, being not always right for those which are not yet traded in the market.

3.3 Literature review on the methods used to estimate the house price

House price index is a calculated indicator that tracks changes of the price of a property relative to its price in a reference period in time. To calculate such indicator, the time series of average house prices in some defined intervals of time (for example price through years) is used. Changes in time series represent increases or decreases of the house price.

This part reviews four methods used to estimate the House Price Indices, namely Mix-adjustment with Stratification Matrix method, Hedonic Regression method, Repeated Sales Measure method and Sale Price Appraisal Ratio method.

3.3.1 Mix-adjustment with a Stratification Matrix method

The basis of this method is the stratification of the houses, meaning dividing the sample of houses under study in some groups of similar characteristics, called as strata. The stratification can be elaborated into groups and further subgroups, where the characteristics, prices and volumes transacted are expected to be the same or approximate to each other. An example of the stratification may be a two-level matrix by considering the number of rooms in one dimension and the location in the other one (schematically presented in the figure 1 below).

Location →	Location 1	Location 2
No of rooms ↓			
One room	P11	P12
Two rooms	P21	P22
Three rooms	P31	P32
.....

Fig. 1. Schematics of a two-dimension’ stratification matrix. The first dimension indicates the number of rooms of the house and the other its location.

It is evident that the average price will vary in each cell of the matrix, avoiding in this way the phenomena of comparing different type of transactions performed in the same time. Sub-indices may be also established while the market House Price Index can be calculated and the average of the sub-indices prices.

3.3.2 Hedonic Regression method

This method consists in using a standard statistical technique, the so-called hedonic regression model, widely used for estimating the demand or value and specially used as a pricing method. It decomposes the house price into its constituent characteristics obtaining an estimate of the contributory value of each characteristic. In other words such model measures the weigh or impacts in the total price of certain features of the house, like for example the location of the house, number of bathrooms, the presence of a garden etc. It is clear that those characteristics add value to the property but this value cannot be traded separately, so that can be directly measured. The contribution of each of them in the total price can be measured using the hedonic regression model. The house price can be further calculated by combining different “added values” of different characteristics belonging to the considered house. As a consequence, this can result a very efficient method in defining the price of “unique” houses, meaning those house which have not traded any time during the period. Along with this advantage, the method requires many data and property features which make it difficult to implement it properly in practice. Consulting the literature, some versions of this method is used by the Spanish Statistical Institute and the German Statistical Institute.

3.3.3 Repeat Sales method

As can be understood by the name, this method, initially proposed by Bailey, Muth and Nourse in 1963, consists in comparing the latest price of the house with the previous one, if it is sold more than one time. The difference between the two consecutive selling prices (although they relate to different time intervals) is used to calculate the House Price Index (for the related time interval). It is understandable that this method does not require too many data and properties (such as number of rooms, location, size etc.) since the same house is transacted.

The main disadvantage of the method is that it leaves out of the sample new houses or “one-time” transacted ones. It is also difficult to estimate a total House Price Index since individual house index may vary on time (for a house it is calculated the 5 year price index while another one may correspond to the 20 years period...and time value make a big difference). This method is used in the United States of America.

3.3.4 Sale Price Appraisal Ratio method

This method uses the appraisal values in order to produce the

House Price Index. The appraisers usually consider different aspects of the property characteristics including also location, future developments, environmental or tax issues etc. The index is calculated by comparing the selling price with the appraisal value per square meter, using the latter as a reference point. A general formula is given below:

$$PriceIndex = \frac{Selling\ price}{Appraisal\ value} \quad (1)$$

Quantitative or qualitative aspects should be considered in case of property feature's changing during the period from the appraisal to the selling finalization. This method has been used in the 1960s in New Zealand and later adopted in Sweden, Netherlands and Denmark.

4 ESTIMATION OF A HOUSE PRICE INDEX IN ALBANIA

4.1 The methodology used to estimate the house price in Albania

While trying to estimate the House Price Index for Albania, firstly it should be noted the missing of publically available statistics on this area. There are not available, as mentioned above, any methodology or statistics by INSTAT and also the number or volumes being transacted cannot be found. It is understandable that further stratification by different characteristics is not available.

Considering this situation, such efforts may succeed only by collecting information directly from the market. In fact, this paper consists of primary data collected through a basic template distributed to different bank appraisers within the country. The time period being focused is a five year period 2007-2012, starting from the pre-crisis year of the house prices up to the last year.

4.1.1 Reasoning, development and delivery of the template

The house price and house evaluations are widely used from the Albanian banks for the purpose of crediting the economy (mortgage loans or mortgage-secured loans). The external appraisers are active actors in such area providing a professional service to the banks within the whole country. As a consequence, it is decided to estimate the house price by distributing the template to different banks external appraisers.

A total number of 100 houses have been decided to be considered in the study. The distribution of this sample among different regions has been based on the weight of the population of each region to the country population (using the 2001 statistics published by INSTAT). Tirana region has the main share, 36 cases out of 100.

The designed template has been delivered to different appraiser's indicating the number of houses corresponding to each region. The template includes the below information

which should be carefully completed:

1. The price per square meter (input). In the template the price is an input to be filled in euro using the respective end of year exchange rate (in case there are some appraisals in Albania currency, called LEK),
2. The surface of the house (input),
3. The house valuation (calculation: 1*2).

An instruction sheet and an explanatory email were also delivered indicating the procedure to be followed:

- a) The information should be based on the appraiser's best knowledge and experience referring to the period 2007 - 2012. Subject to the evaluation are residential mortgages (houses) which should be selected in different area of the region (in case when more than one house should be appraised).
- b) In order to be more objective in the appraisers, for each required house there should be followed the below steps:
 - Firstly, a specific property being appraised in these years should be selected,
 - Secondly, the appraisers were asked to make and appraisal of the same property for the remaining years of the defined period.
- c) For the appraisal for the remaining years there should be used the average prices during each year. In case they have noticed significant differences (the prices have fluctuated significantly within the year) the appraisers will note it specifically.

4.4.2 Average house price and House Price Index calculation

Following different attempts, from the total sample of 100 houses, there were collected back only 71 templates completed by the appraisers. Finally, these responses were used to estimate the paper results on house price. The number of appraisals per regions and the final weight (calculated on the delivered sample) are presented by the chart in Figure 2:

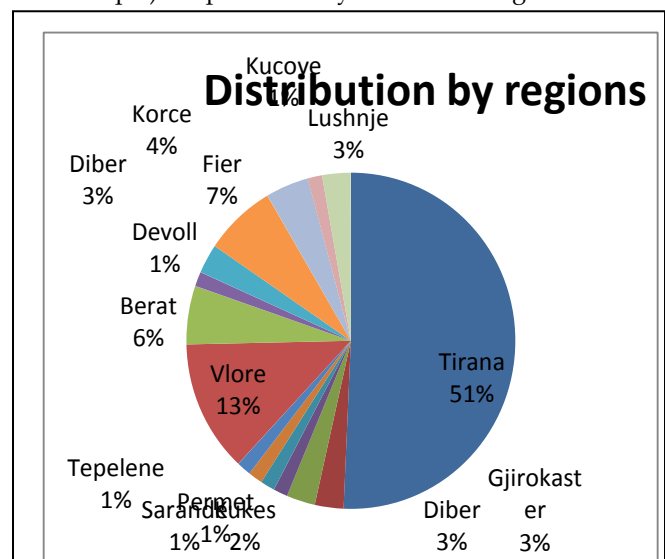


Fig. 2. Distribution of sample received by regions.

The average house price for each year is calculated as the average of the delivered sample in that year. No significant prices fluctuations within the year were reported. Apart from Tirana, average price by regions cannot be retrieved since few numbers of sub-categories can be obtained.

The calculation of the House Price Index is done using a slightly simplified version of the fourth method described above, the Sale price Appraisal Ratio method. Practically, the yearly indices have been calculated using the 2007 appraisal value per square meter as a reference period (2007 = 100), putting the ratio of the respective value to the reference period. For example, the 2012 House Price Index is calculated using the below formula:

$$\text{House Price Index}_{2012} = \frac{\text{Appraisal Value}_{2012}}{\text{Appraisal Value}_{2007}}$$

The deviation from the cited method consists in using the appraisal value and not the selling price in the latter period. The difference should not be significant since the appraiser's value include different market information such as similar property selling prices, property initial characteristics and potential changes (there are not high expectations that the selling price may differ significantly from the market price used in the appraiser reports).

4.4.3 Limitation of the methodology

There are different limitation of the methodology, data processed and the produced results in this paper. Some of them are listed below:

- Limited number of sample: Finally, only 71 templates were delivered back from the appraisers.
- Urban area coverage: The sample used corresponds to the urban area only. This is due to the fact that the bank appraisers were selected to collaborate with, as a consequence being focused in the urban area since it is the only area where banks are active in crediting.
- Only based on appraisal value: There is a deviation from the methodology by using only the appraisal value since no information on possible selling price is available.
- No stratification: Considering the difficulty in applying the more sophisticated methods due to many data required as well as the higher risk of non-response if more data were requested, this paper was limited to the house prices in the whole country.

4.4.4 The outcome of the house price estimation methodology

Considering the completed and delivered template and the abovementioned methodology, there have been calculated the average house price for Albania during the period 2007 - 2012. The results (in EUR currency) and year-to year changes (in percentages) are presented in the Table 1.

TABLE 1
ALBANIA AVERAGE HOUSE PRICE BY YEAR

Year_Albania	2007	2008	2009	2010	2011	2012
Price*	666.76	688.81	686.6	684.46	671.1	653.45
Change**	-	3.31%	-0.3%	-0.31%	-1.95%	-2.63%

Source: Author calculation

*Average price expressed in euro

**Yearly change expressed in percentage.

The average prices for Tirana region and year-to year

TABLE 2
TIRANA REGIOS AVERAGE HOUSE PRICE BY YEAR

Year_Tirana	2007	2008	2009	2010	2011	2012
Price*	927.64	954.58	939.86	925.97	895.83	866.67
Change**	-	2.90%	-1.54%	-1.5%	-3.25%	-3.26%

Source: Author calculation

*Average price expressed in euro

**Yearly change expressed in percentage.

changes are presented in the Table 2.

Analyzing the results, it is noted the "peak" year is reached in year 2008, corresponding to the higher average house price for the country and Tirana specifically. This is a result also from the very high demand and the credit boom happening before this period. It also reflects a delayed effect of the financial crisis in the country, considering that 2008 has been cited as the starting year of the crisis in Europe.

Analyzing the yearly changes, it is noted that after 2008 those indicators have constantly increased. In other words, the decreasing trend has been increased in the following years. This trend is more evident in Tirana compared to the whole country, mainly related with the higher transactions, not only banking ones, being concentrated in the capital. More specifically, during 2012, the average house price has declined with 2.63% in the country and 3.26% in Tirana.

The House Price Index for whole country and for Tirana is

TABLE 3
HOUSE PRICE INDEX (HPI) FOR ALBANIA AND TIRANA BY YEAR

Year_Tirana	2007	2008	2009	2010	2011	2012
Price_Alb.*	666.76	688.81	686.57	684.46	671.08	653.45
HPI_Alb*	100%	103%	103%	103%	101%	98%
Price_TR**	927.64	954.58	939.86	925.97	895.83	866.67
HPI_TR**	100%	103%	101%	100%	97%	93%

Source: Author calculation

*Abbreviation for Albania

**Abbreviation for Tirana

presented in the Table 3 (2007 = 100).

The 98% indicator for the country for the year 2012 means that the ratio of 2012 average price to the reference period (year 2007) is 98%, showing a lower level. If the index would have been calculated using the "peak" year as a reference period (meaning year 2008), the House Price Index would have decreased to 94.87%. The deepening of the decreasing trend in Tirana compared to the whole country can be retrieved by the analysis of the House Price Index too.

5 CONCLUSIONS

House prices and house price index can be considered as highly important micro and macro indicator in economics. Such indicator is even more important considering the specific economic and social factors in Albania. The time series of this index, based on best practices, is needed to be calculated from a competent institution in the country and then to be publically available to different market actors. As mentioned, up to now no such time series is published, except the one from Bank of Albania including only Tirana city data. The whole country House Price Index and further stratification need to be calculated.

This paper may be considered as an effort to estimate the House Price Index in Albania during the period 2007 -2012, using a simplified version of the Sale Price Appraisal Ratio method applied in a sample of 71 properties being evaluated by the bank's external appraisers.

Analyzing the outcome, it is noted the "peak" year is reached in year 2008, corresponding to the higher average house price for the whole country and Tirana specifically. This is a result also from the very high demand and the credit boom happening before this period. It also reflects a delayed effect of the financial crisis in the country, considering that years 2007-2008 have been cited as the starting years of the crisis in Europe. Analyzing the yearly changes, it is noted that after 2008 the decreasing trend has constantly increased, meaning that the prices later on have decreased continuously. The same result can be retrieved analyzing the calculated house price index too. The decreasing trend is higher in Tirana region compared to the whole country, reflecting the higher numbers as well as high concentration of transacted volumes in the capital.

Further studies on more detailed stratification based on location, different properties characteristics, reviewing the sale price and other factors may be elaborated in the future.

ACKNOWLEDGMENT

The author wishes to thank the external appraisers collaborating with Alpha Bank Albania which completed the template used to estimate the House Price Index in Albania.

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