INVESTMENT IN CONSTRUCTION

Assoc. prof. Mădălina-Gabriela ANGHEL PhD *(madalinagabriela_anghel@yahoo.com)*
Artifex University of Bucharest
Alexandra PETRE PhD Student *(alexandra.olteanu.s1@anaf.ro)*
Bucharest University of Economic Studies
Daniel DUMITRU PhD Student *(dumitru.teticdaniel@gmail.com)*
Bucharest University of Economic Studies

Abstract

In this article the authors aimed to highlight the importance of investments in this branch of the national economy. Of course, the construction sector in Romania has an upward evolution. Even during the economic and financial crisis of 2008 -2010, due to the investment programs, the specific conditions involved in constructions, as well as the anticipated financing made, increased and had an increased contribution to the realization of the Gross Domestic Product. In this article it is taken into account that the construction field must be encouraged, some forms of investor incentives must be found to ensure that the upward trend is maintained. The sanitary and economic-financial crisis imposed the increase of expenses, inflation determined the same meaning, context in which the value of constructions, especially in the field of housing, office spaces has increased so that we can speak of a price explosion in this area. The formula must be found to ensure the continuation of this activity within the limits imposed by, of course, the financial source available to the companies, but also to the Romanian state.

Keywords: *construction, investments, inflation, national economy.*
JEL classification: E20, E30

Introduction

In the analysis on the evolution of construction works in Romania, we took into account the situation of permits for residential and non-residential buildings in February 2023, which we analyzed compared to the similar period from 2022.

The analysis also went to the construction permits issued for residential buildings, by development region, in February 2023 and January 2023, finding that 69% are for the rural area. At the same time, on construction objectives (residential, non-residential and engineering) we presented a structural analysis highlighting that in the field of residential ones much better results were obtained due to the investment of private capital.

We mention that when the health crisis started, there were investment objectives already financed, staff employed specifically for the qualifications

required in this field, and after the end of these investments, it was more difficult to find sources of financing for new objectives, meaning that we have decreases in all chapters and this is revealed in the structural analysis carried out.

In this article we have made extensive use of graphical representations and data series precisely to understand why in certain periods the activity stagnates, the resources diminish and why the results are still decreasing compared to the year 2022.

Literature review

The constructions is one of the pillars on which the evolution of a nation's economy is based, and a number of researchers have turned their attention to this topic. Thus, Cho and Son (2012) studied the link between the integration of employees in the construction IT industry into the workplace and the evolution of turnover. Herrendorf and Akos (2012) tried to identifywhich sectors of activity with the worst results in developing countries. Love and Irani (2004) conducted a survey of some companies in their construction fielding which they assessed the benefits and their costs in terms of information technology implementation. Pheng and Chuan (2006) addressed a number of issues related to environmental factors and the performance achieved by project managers in the construction industry. Pacheco-Torgal (2014) addressed the caseof building materials related to energy efficiency and materials capable of reusing a high waste content. Testa, Iraldo and Frey (2011) presented the effect of environmental legal regulations on the performance of companies in the construction sector.

Methodologies

In order to facilitate the understanding of the study carried out, we have presented below some methodological aspects used by the National Institute of Statistics and Eurostat. Thus, the data are chapter VAL (Value of construction works carried out in the enterprise, in the country, on structural elements and on construction objects) of the Monthly statistical research on short-term indicators in construction (CON TS), in accordance with the European Council Regulation No 1165/1998, the Council and European Parliament Regulation No 1158/2005 and the European Commission Regulation No 1503/2006 on the term statistics short.

Regarding the value of the executed construction works, it includes new construction works, capital repairs and current maintenance and repair works carried out by the economic operators with main activity in the field (section F of NACE rev.2). This indicator refers to the construction works finished on physical stages.

New constructions are the result of those activities that directly determine the creation of new spaces (for living or with other use) or the creation of new structures for existing civil constructions.

The capital repair works for the existing constructions represent the complex of works that are executed on existing buildings and constructions after the expiry of each operating cycle stipulated in the technical norms and which have as purpose the maintenance of the technical and economic characteristics of the constructions throughout the normal service period.

Current maintenance and repair work on existing buildings and constructions represent the set of operations (painting, painting, repair of insignificant parts) that are carried out on an existing construction to ensure the continuity of its use, preventing a rapid wear and prolongation of the service life.

The construction works can be carried out at residential buildings, i.e. those intended exclusively, or mainly, for living (over 50% of the habitable space or of the volume built is used for living), non-residential buildings, i.e. those intended exclusively for, or mainly, other purposes than residential ones (industrial halls, shops, cinemas, offices, administrative spaces, etc.), engineering constructions, i.e. construction objects that do not meet the characteristics of buildings and are aimed at creating conditions for carrying out production activities or carrying out social-cultural activities (roads, railways, bridges, airports, stadiums, etc.)

As far as statistical research is concerned, it is of a selective type. The type of survey used and the procedure of sample extraction is that of the stratified survey with simple random selection without return within each layer, in which the stratification variables are represented by the economic activity and the size class of the enterprise according to the number of employees. Due to the needs regarding the comparability of the results by homogeneous groups of activities as well as at the level of the enterprise from one period to another, the category of economic operators with high economic potential (50 employees and over) is investigated exhaustively. The selection base of the sample ensures a representativeness calculated by turnover of 95.25% of the total set of active units. The data is collected from about 2100 economic operators with main construction activity. The sampling volume was determined by imposing, at the country level, an accuracy of estimates of ±3%, at a level of confidence of 95%.

The volume indices in constructions are determined by deflating the value data with cost indices in constructions on structural elements and on construction objects. The volume indices in constructions are calculated on the total construction branch (section F CAEN Rev.2), on structural elements (new construction works, capital repairs and current repair works) and on

construction objects (residential buildings, non-residential buildings and engineering constructions).

The indices of the construction work on the total are calculated as a weighted arithmetic average of the indices on structural elements or of the indices on construction objects. The weights used for aggregation are calculated on the basis of turnover according to the results of the Structural Survey in Enterprises for the reference year (2015).

The cost indices in constructions, used to deflate the value data, are calculated as a weighted average of the price indices of construction materials, construction equipment, transport and indirect expenses, as well as of the index of the gross nominal earnings. The weights used for aggregation represent the structure of construction expenditures resulting from the specific statistical surveys carried out with a periodicity of 5 years (the last one made for the base year 2015).

The cost indices in constructions are calculated on the total construction branch (section F CAEN Rev.2), on structural elements (new construction works, capital repairs and maintenance and current repair works) and on construction objects (residential buildings, non-residential buildings and engineering constructions).

In addition to the volume indices in constructions (gross series), indices adjusted for the number of working days and seasonality are also calculated on a monthly basis by the regressive method, a method recommended by the European regulations on short-term indicators (Council Regulation 1165/1998). For the adjustment of the data series, the JDEMETRA+ v2.2.0 software package (TRAMO/SEATS method) was used, which performs the estimation of the effect of the number of working days different from one month to another and the effect of the calendar (leap year and other national holidays) as well as the identification and correction of extreme values (occasional, transient or permanent level changes) and the interpolation of the missing values. The series adjusted for the number of working days was obtained by eliminating these effects from the gross series by means of correction coefficients, established according to the regression model used (additive or multiplicative).

The determination of the regression models used for each series involves the recalculation of the previously disseminated adjusted series (recalculation due to the modification of the adopted models, the number of regressors used and the number of available observations).

The adjustment of the aggregated levels was made by the direct method involving the direct adjustment of the aggregated series. The use of the direct method may lead to some inconsistencies in the data series (i.e. the aggregates are not always included in the values of the components from which they originate).

The needle of the indices of construction works compared to the previous month or to the corresponding month of the previous year, starting from the fixed-base indices (year 2015 = 100), is made as follows: *the indices of construction works compared to the previous month* by dividing the fixed-base index (year 2015 = 100) of that month by the fixed-base index (year 2015 = 100) of the previous month, multiplied by 100 and *the indices of the indices of construction works compared to the corresponding month of the previous year* by dividing the fixed-base index (year 2015 = 100) of a given month of that year by the fixed-base index (year 2015 = 100) of the same month of the previous year, multiplied by 100.

Data, results and discussions

In February of 2023, 2 were released. 571 building permits for residential buildings, thus restoring an increase of 23.7% compared to January of the same year and a decrease of 27.4% compared to February 2022. In period 1. 01 – 28. 02.2023, 4 have been released. 650 building permits for residential buildings, down by 23.7% compared to the same period of 2022. Table number 1 shows the data on the situation of their building permits issued for buildings in February 2023, compared to the previous month and the similar month of 2022.

Building permits issued for buildings

Table 1

		Permits for residential buildings			**Permits for non-residential buildings**					
					administrative buildings			**other non-residential buildings**		
		feb. 2022	**ian. 2023**	**feb. 2023**	**feb. 2022**	**ian. 2023**	**feb. 2023**	**feb. 2022**	**ian. 2023**	**feb. 2023**
TOTAL	**number**	**3542**	**2079**	**2571**	**13**	**7**	**5**	**527**	**397**	**494**
	Useful area - mp -	**803035**	**560129**	**796996**	**39694**	**1396**	**13080**	**390102**	**226489**	**343558**
Urban	number	1098	615	797	8	3	2	176	133	163
	Useful area - mp -	398354	307887	495649	37045	874	12458	241445	131375	216218
Rural	number	2444	1464	1774	5	4	3	351	264	331
	Useful area - mp -	404681	252242	301347	2649	522	622	148657	95114	127340

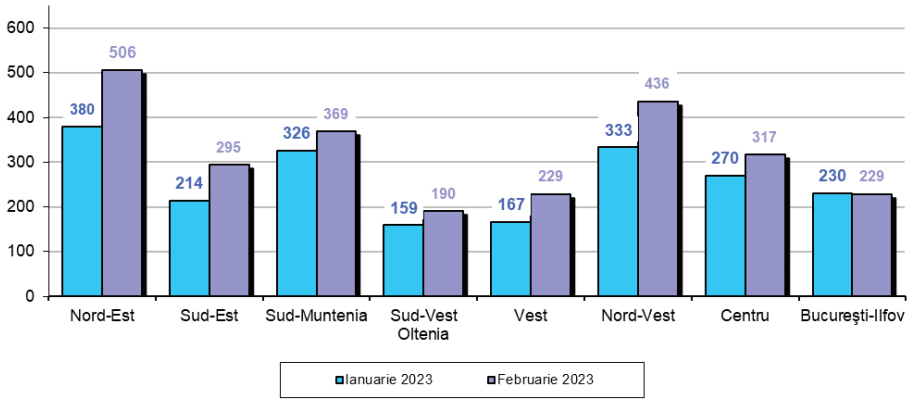
Source: NIS press release nr. 79 / 31 March 2023

Interpreting the data presented in table number 1 we find that in February of 2023, 2 were released. 571 building permits for residential buildings, i.e. an increase of 23.7% compared to January 2023, with a total useful area of 796. 996 sqm (+42.3%).

Chart number 1outlines the situation that reflects the construction facilities issued for residential buildings, by development regions, in February 2023 and January 2023.

Building permits issued for residential buildings, by development region, in February 2023 and January 2023 (number)

Graphic 1

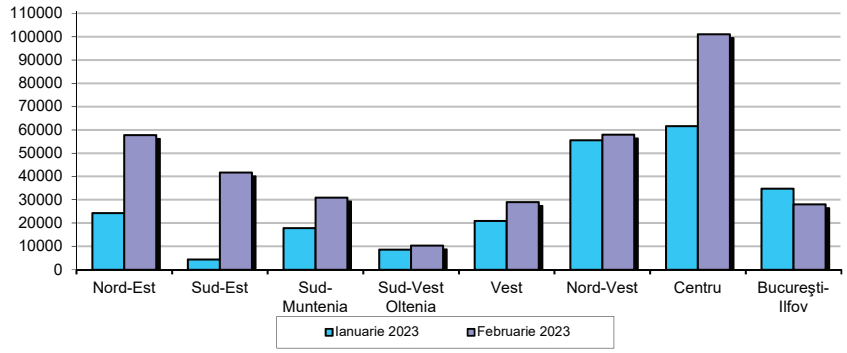


Of the total building permits for residential buildings, 69.0% are for rural areas. In the same month, there is an increase in the number of building permits issued for residential buildings compared to the previous month (+492 permits). In territorial profile, this growth is reflected in the following development regions: North-East (+126 permits), North-West (+103), South-East (+81), West (+62), Center (+47), South-Muntenia (+43) and South-West Oltenia (+31). An insignificant fall was registered in the Bucharest-Ilfov development region (-1 authorization).

Chart number 2 shows the situation of their construction authorities released for non-residential buildings, by development regions, in February 2023 and January 2023.

Building permits issued for non-residential buildings, by development regions, in February 2023 and January 2023 (supraface util - sqm)

Chart 2

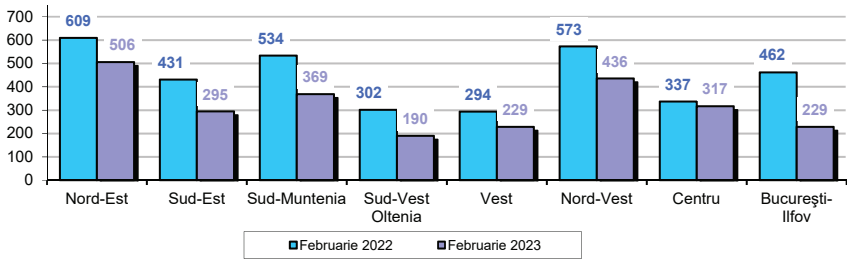


It is established that in February 2023, 499 building permits were issued for non-residential buildings (+23.5% compared to January 2023), with a total useful area of 356. 638 sqm (+56.5%). Compared to the previous month, in February 2023 there was an increase in the useful area of the building permits issued for non-residential buildings (+128. 753 sq.m.). In territorial profile, this increase is reflected in the following development regions: Center (+39. 396 sqm), South-East (+37. 276), Northeast (+33. 517), South Muntenia (+13. 115), West (+8. 044), Northwest (+2. 474) and South-West Oltenia (+1. 645). Decrease was registered in the Bucharest-Ilfov development region (-6. 714 sq.m.).

Chart number 3 shows the situation of their construction facilities released for residential buildings, by development regions, in February 2023 and February 2022.

Building permits issued for residential buildings, by development region, in February 2023 and February 2022 (number)

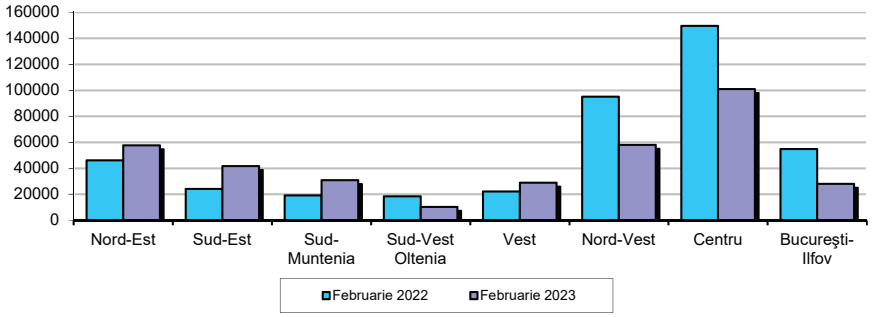
Graph 3



It is noted that in February 2023 there is a decrease both in the number of building permits issued for residential buildings (-27.4%) and in the total usable area (-0.8%), compared to February 2022. In the territorial profile, this decrease in the number of building permits issued for residential buildings (-971 permits) is reflected in all development regions: Bucharest-Ilfov (-233 permits), South-Muntenia (-165), North-West (-137), South-East (-136), South-West Oltenia (-112), North-East (-103), West (-65) and Center (-20). Chart number 4 shows the situation of their construction authorities released for non-residential buildings, by development regions, in February 2023 and February 2022.

Building permits issued for non-residential buildings, by development regions, in February 2023 and February 2022 (usable area - sqm)

Graphic 4



Analyzing the data in comparison with February 2022, in February 2023, there was a decrease both in the number of building permits issued for non-residential buildings (-7.6%), and in the total usable area (-17.0%). In territorial profile, this decrease in the useful area for building permits issued for non-residential buildings (-73. 158 sq.m. is reflected in the following development regions: Center (-48. 564 sq.m), Northwest (-37. 208), Bucharest-Ilfov (-26. 740) and South-West Oltenia (-8. 290). Increases were registered in the following development regions: South-East (+17. 601 sqm), Sud-Muntenia (+11. 698), Northeast (+11. 653) and West (+6. 692).

Conclusions

From the study carried out and presented in this article, a number of conclusions emerge. First of all, the construction field will develop in close accordance with the evolution of the entire economic and social activity in the country, in the sense that those constructions for office spaces in the field of

business, housing, the extension of economic objectives are made on the basis of investments and these can only be achieved on the basis of an anticipated study on the future perspective.

Another conclusion is that investments decreased even more in the first quarter of 2023, influenced by the concrete framework of the economy and the legislative framework, but also due to socio-political convulsions, which drag on and determine investors to be more attentive to the way in which they place new capital on the Romanian market.

Bibliography

1. Cho, D.H. and Son, J.M. (2012). *Job Embeddedness and Turnover Intentions: An Empirical Investigation of Construction IT Industries*. International Journal of Advanced Science and Technology, 40, March 2012, 101-110
2. Herrendorf, B. and Akos, V. (2012). *Which Sectors Make Poor Countries so Unproductive?*, Journal of the European Economic Association, 10 (2), 323–341
3. Love, P. and Irani, Z. (2004). *An exploratory study of information technology evaluation and benefi ts management practices of SMEs in the construction industry*. Information & Management, 42 (1), 227-242
4. Pacheco-Torgal, F. (2014). *Eco-efficient construction and building materials research under the EU Framework Programme Horizon 2020*. Construction and Building Materials, 51, 151-16
5. Pheng, L.S. and Chuan, Q.T. (2006). *Environmental factors and work performance of project managers in the construction industry*. International Journal of Project Management, 24 (1), 24-37
6. Testa, F., Iraldo, F. and Frey, M. (2011). *The effect of environmental regulation on firms' competitive performance: The case of the building & construction sector in some EU regions*. Journal of Environmental Management, 92 (9), 2136-2144

- *** https://insse.ro/cms