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# INDUSTRY REMAINS THE MAINSTAY OF ECONOMIC GROWTH AND THE FORMATION OF GROSS DOMESTIC PRODUCT

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## Abstract

*The industry has suffered due to the pandemic and economic and financial crisis, especially in the context in which SMEs have been severely affected. In addition, a number of large companies, even multinationals, have moderated their production to some extent, taking into account the evolution of the European and world markets.*

*In this article we sought to use a methodology as close as possible to the needs of the analysis and to conclude that the industry is not evolving at the level it should be to cope with the effects of the pandemic and economic and financial crisis.*

*Investment resources are lower. The attraction of foreign direct investment has moderated. Romanian investors avoid placing their resources in any activity, becoming selective in studying those areas that can develop and have an effect in the next period, in the context of Romania, as it happens in Europe and, more broadly, worldwide, aim to improve and adapt their activity by bringing it to the level of robotization required, to introduce the results of research and innovation in these fields so that there is a significant leap.*

*From this point of view, we analysed three elements of the activity in the field of industry, respectively: the production realized in time and in the last period when it had falls, the new orders from the manufacturing industry and the turnover as well as the industrial prices.*

*We have widely used the statistical methodology that of the National Institute of Statistics, on the basis of which the indices and indicators used in these macroeconomic studies are calculated.*

*At the same time, we formalized a series of data series, bringing them and presenting them in a simplified form in order to be easier to interpret and understand by interested readers.*

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*We have also made extensive use of the method of graphical representations, which certainly ensures an easier understanding of the phenomenon under investigation. The logical study, the comparative interpretation, led to the possibility of obtaining results that would be the basis of the assessments expressed by the authors.*

**Keywords:** *industry, production, new orders, turnover, prices, crises.*

**JEL classification:** *E20, E30*

### **Introduction**

This article started from the analysis of industrial production carried out until August 2021 to highlight the increases and decreases that occurred during this time.

A study is conducted in the period from January 2015 to August 2021 which shows the effects of the crisis triggered in November 2019, the return in late 2020 - early 2021, the oscillations that were then perpetuated in July - August of the year 2021.

We analysed in parallel the total achievements in the industry, structured on the extractive industry, the manufacturing industry and energy.

The graphs used highlighted as clearly as possible this evolution of the activity in the most important field of activity for the Romanian economy.

We used comparisons with periods between 2015 and 2018 to suggest that in 2021, until August, there are some increases.

Then, next, we analysed the new orders in the manufacturing industry to reveal that this is the perspective to grow the industry, carrying out activities for export.

I then paid attention to the turnover, how it has changed over time and the price change in this area.

We have used extensively the graphical representations on different terms, for different periods, the tabular representations that reveal the stage, the situation in which the Romanian industry is at the end of August 2021.

Throughout the article we have made extensive use of data provided by the National Institute of Statistics and Eurostat by making comparisons over time precisely to identify future trends, based on which to establish the trend and, say, forecast the evolution of the industry.

### **Literature review**

A number of authors have focused on the evolution of industrial activity, especially since the industry should make the largest contribution to the formation and growth of Gross Domestic Product, even in the current health and financial-economic crisis. Thus, Anghelache C. (2019) analysed

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the evolution of industry in Romania, in an international context in 2019. Anghelache C., Burea D. (2018) published a study on the state of development of industry in Romania. Anghelache C., Anghel M.G, Badiu A. (2018) published a study on the development of Romanian industry in the context of the position of a member state of the European Union. Erosa A., Gabrillana A. (2008) analyzed the role of labor productivity on economic growth, and Grand D., Le Brun Ch., Vidil R., Wagner F (2016) analysed the development of the electricity industry in the context of evolution industry in general. Hoberg G., Phillips G. (2016), as well as Iacob S.V., Dumbrava S.G. (2020) dealt with the analysis of the evolution of the industry in various aspects. Restuccia D. (2010) carried out an extensive analysis of the new European Union regulations on the development of industry in the member countries.

### **Methodology**

In order to more easily understand the study conducted by the authors in this article we will briefly present the main methodological aspects used by the National Institute of Statistics. Thus, the data source is the PROD (Industrial Products and Services) chapter of the Monthly Statistical Survey on Short-Term Indicators in Industry (IND TS), in accordance with European Council Regulation no. 1165/1998, Regulation of the Council and the European Parliament no. 1158/2005 and the Regulation of the European Commission no. 1503/2006 on short-term statistics.

Regarding the statistical research, it is of selective type, and the type of survey used and the sampling procedure is that of the stratified survey with simple random selection without return within each layer, in which the stratification variables are represented by: economic and size class of the enterprise according to the number of employees. Due to the needs regarding the comparability of the results on groups of homogeneous activities as well as at enterprise level from one period to another, the category of economic operators with high economic potential (50 employees and over) is thoroughly researched. The selection basis of the sample ensures a representativeness calculated according to the turnover of 95.25% of the total set of active units. Data are collected from about 11000 economic operators with main industrial activity, and the maximum allowed error of estimates is  $\pm 3\%$ .

The Industrial Production Index (IPI) is a volume index and measures the evolution of the results of industrial activities from one period to another. In the same vein, the indices of industrial production describe the evolution of the industry as a whole, sections (extractive industry, processing and production and supply of electricity and heat, gas, hot water and air conditioning), CANE Rev.2 divisions, as well as the major industrial groups.

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The calculation of the indices is based on a sample of representative products grouped in 718 elementary subclasses CPSA 2015, for which quantitative data on the realized production are registered. The aggregation of the primary indices is done through a system of successive weights; the first aggregate indices are those at the level of the CANE subclass Rev.2, the following levels being determined as a weighted arithmetic mean of the indices of the immediately lower level.

The calculation of industrial production indices compared to the previous month or compared to the corresponding month of the previous year, starting from fixed base indices (year 2015 = 100), is performed as follows: industrial production indices compared to the previous month by dividing the fixed base index (year 2015 = 100) of the respective month to the fixed base index (year 2015 = 100) of the previous month, multiplied by 100 and the industrial production indices compared to the corresponding month of the previous year by dividing the fixed base index (year 2015 = 100) of a certain months of the respective year at the fixed base index (year 2015 = 100) of the same month of the previous year, multiplied by 100.

In addition to the gross indices of industrial production, indices adjusted with the number of working days and seasonality is calculated monthly, by the regressive method, using the JDEMETRA + v2.2.0 software package (TRAMO / SEATS method).

### **Data, results and discussions**

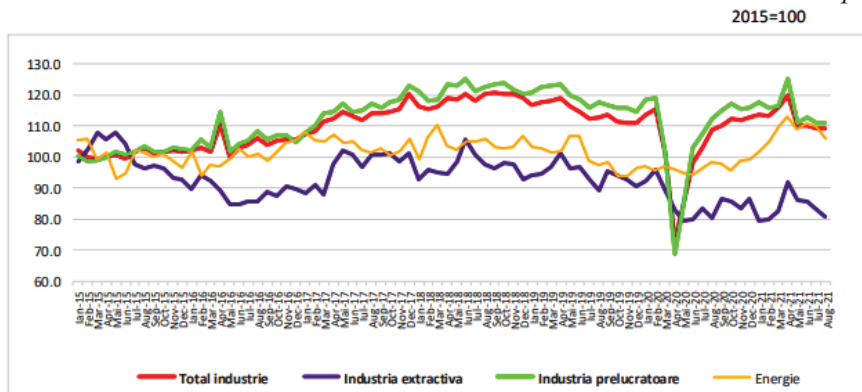
Industrial production decreased in August 2021 compared to the previous month by 9.9% as gross series and remained at the same level as series adjusted according to the number of working days and seasonality. At the same time, compared to the corresponding month of the previous year, the industrial production was higher both as gross series, respectively by 3.0%, and as series adjusted according to the number of working days and seasonality, respectively by 0, 5%.

Analysing the period 01.01.2021 - 31.08.2021, compared to the similar period of 2020, we find that industrial production recorded increases of 12.7% as gross series and 13.1% as series adjusted according to the number of working days and of seasonality.

The data regarding the monthly evolution of industrial production in the period January 2015 - August 2021 were processed and presented in chart number 1.

**Monthly evolution of industrial production during January 2015 - August 2021**

*Graph 1*



The indices of industrial production, total and sections of industry calculated based on the presented methodology are structured in table number 1.

**Industrial production indices, by total and industry sections (%)**

*Table 1*

| Indicele producției industriale - IPI |          | August 2021<br>față de: |              | 1.1-31.VIII. 2021/<br>1.1-31.VIII. 2020 |
|---------------------------------------|----------|-------------------------|--------------|---|
|                                       |          | Iulie 2021              | August 2020  |   |
| <b>TOTAL</b>                          | <b>B</b> | <b>90,1</b>             | <b>103,0</b> | <b>112,7</b>                            |
|                                       | <b>S</b> | <b>100,0</b>            | <b>100,5</b> | <b>113,1</b>                            |
| <b>Industria extractivă</b>           | <b>B</b> | 98,4                    | 100,5        | 98,4                                    |
|                                       | <b>S</b> | 97,4                    | 100,5        | 97,9                                    |
| <b>Industria prelucrătoare</b>        | <b>B</b> | 88,6                    | 102,5        | 113,7                                   |
|                                       | <b>S</b> | 100,1                   | 99,0         | 113,2                                   |
| <b>Energie</b>                        | <b>B</b> | 96,0                    | 107,4        | 112,3                                   |
|                                       | <b>S</b> | 96,5                    | 107,8        | 112,4                                   |

Source: INS communiqué number 266/13 October 2021

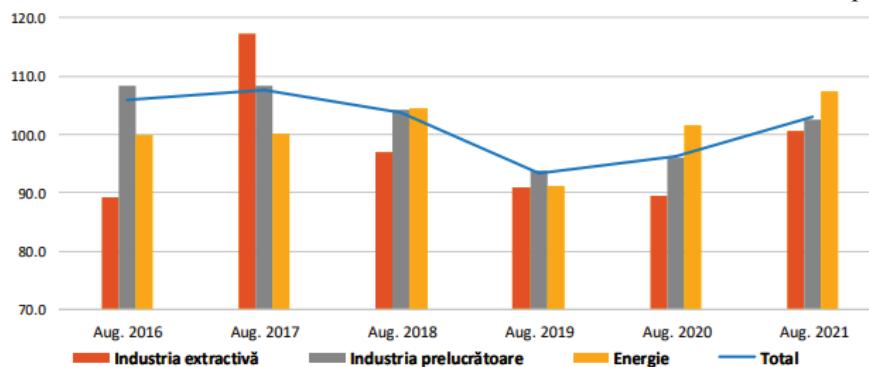
Interpreting the presented data, we find that in August 2021, the industrial production (gross series) decreased compared to the previous month by 9.9% as a result of the decreases registered in the three industrial sectors. Thus, the manufacturing industry decreased by 11.4%, the production and supply of electricity and heat, gas, hot water and air conditioning decreased by 4.0% and the extractive industry decreased by 1.6%. At the same time,

industrial production, the series adjusted for the number of working days and seasonality, remained at the same level as in the previous month. The manufacturing industry increased by 0.1%, while the production and supply of electricity and heat, gas, hot water and air conditioning and the extractive industry decreased by 3.5% and 2.6%, respectively.

In order to have an overview of the evolution of industrial production in total and by branches in the period 2016-2021, graph number 2 was sketched.

**Evolution of industrial production (%) - gross series**

*Graph 2*



Analysing and interpreting the data presented in tables and graphs, we find that compared to the corresponding month of the previous year, industrial production (gross series) increased by 3.0%, as a result of increases in production and supply of electricity and heat, gas, water hot and air conditioning, respectively 7.4%, manufacturing, respectively 2.5% and extractive industry, respectively 0.5%.

At the same time, industrial production, series adjusted according to the number of working days and seasonality, was higher by 0.5%, due to the increase in production and supply of electricity and heat, gas, hot water and air conditioning, respectively 7, 8% and the extractive industry, respectively 0.5%, and the manufacturing industry decreased by 1.0%.

Comparing the period 01.01.2021 - 31.08.2021 with the similar period of 2020, the industrial production (gross series) increased by 12.7%, as a result of the increases registered by the manufacturing industry, respectively 13.7% and the production and supply of energy electricity and heat, gas, hot water and air conditioning, respectively 12.3%. During this time, the extractive industry decreased by 1.6%.

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In the same order of ideas, the industrial production, series adjusted according to the number of working days and seasonality, in the period 01.01.2021 - 31.08.2021, compared to the similar period of 2020, was higher by 13.1%, as effect of the increases registered in the manufacturing industry, respectively 13.2% and the production and supply of electricity and heat, gas, hot water and air conditioning, respectively 12.4%. During this period, the extractive industry decreased by 2.1%.

### **Conclusions**

From this article, carried out through an extensive study based on data provided by the National Institute of Statistics and Eurostat, a number of very important conclusions can be drawn. First of all, the industry is and will have to remain the main branch of activity (field of activity) on the basis of which to grow the Gross Domestic Product.

Including here the energy that currently has an explosive evolution as prices, it must be borne in mind that we want this increase not only in value, as a result of increasing the harmonized price index, but also as a result of increasing physical volume of activity. industrial.

The extractive industry must develop because there are sufficient areas and places in which Romania can develop through well-defined investments a superior evolution in the next period.

Energy needs to be developed, especially renewable energy. Energy imports must be transformed or changed into energy exports, which in this period of very deep crisis can bring additional revenues, both to exporting companies and to the Romanian state.

Another conclusion in the field of industry is that the situation of taxation where multinational enterprises make a profit should be investigated. We know that most of them locate their taxation system in the countries of origin of the shareholders or owners who have invested in Romania.

A very important conclusion is that Romania, in the process of improvement by introducing new achievements in technology, science, technology, invention and innovation, must focus on those that are sustainable over time, so as to ensure an active presence. of Romania on international markets.

Last but not least, industry must be the place where domestic investment, foreign direct investment, subsidies and support from the European Union, create new jobs for the absorption of unemployment and the unemployed population. It is an area that needs to be given a lot of attention in the process of economic programming and forecasting for the future.

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