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# THE USE OF INDUSTRIAL PRODUCTION INDICES IN THE ANALYSIS OF ECONOMIC EVOLUTION

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## Abstract

*The industry was, is and will remain the main branch of the national economy, which will ensure the formation and growth of the Gross Domestic Product. The authors proposed as their main objective to highlight how, in the use of industrial production indices, this field of activity evolved and the contribution they had to the formation and growth of the Gross Domestic Product. The analysis is carried out through the comparative study of the evolution in dynamics and structure of industrial production. Indices of industrial production reflect a permanent increase compared to similar periods in previous years, being influenced by the restructuring of the executive sector, as well as the decrease in Lohn production, which led to the registration of a slower pace in the manufacturing industry. Referring to the extractive industry and the processing industry, it is highlighted that the two have an approximately similar trend of evolution. From the analysis of the evolution of industrial production, using the indices and indicators provided by the National Institute of Statistics, Eurostat and other data sources, it is possible to highlight, by time segments, the aspects related to the evolution of industrial production, internal and external orders from industry, changing price indices and, last but not least, energy sources, which are produced and used within the national economy.*

**Keywords:** industry, GDP, indices, economic branches, developments.

**JEL classification:** E20, E30

## Introduction

In this article, the authors tried to highlight how industrial production evolved and what was the contribution they had to the formation and growth of the Gross Domestic Product.

To begin with, the monthly evolution of industrial production was analyzed dynamically considering the period between January 2018 - May 2024. Then the evolution of industrial production indices, in total and sections

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of the industry, in May 2024 compared to the month previous and compared to May of 2023.

New orders from the manufacturing industry were taken into account, this being an important component in terms of the evolution of industrial production.

Next, the main primary energy resources were considered and the electricity balance was presented and analyzed.

In the final part of the paper, a comparative analysis was made between the level and prospects of the industry in 1989 and the current one.

The article is sprinkled with a lot of tables and graphs, which reveal the elements that the authors had in mind in their desire to highlight how these indexes of industrial production have evolved. It is easy to understand that industrial production is helped by the number of working days, seasonality, the labor force employed, labor productivity and a number of other factors that play a role in economic development. Of course, their weight and influence sometimes change from one time period to another.

Through the way in which this correlative trend is treated, what the authors proposed is highlighted, namely the highlighting of the way in which the industry has evolved in Romania.

#### **Literature review**

Some of the aspects concerning the activity of the industry in Romania are analyzed by Iacob Ș.V., Dumbravă Ș.G. (2020). At the same time, Anghelache C., Samson T., Stoica R. (2019) are concerned with the policies of the European Union regarding the development of the industry. Anghel M.G., Anghelache C. (2019) are concerned with the effect of the balance of external payments on economic growth, and the main aspects of the development of the gross domestic product in the supercentralized period are treated in their work by Anghel M.G., Anghelache C., Mirea M. (2018). Anghelache, C. (2019) and Anghelache, C. (2018), deepened the evolution of the industry in Romania in a domestic and international context, and in the 2018 paper he presents a synthesis of the Romanian economy of the last 100 years. Erosa A., Gabrillana A. (2008) dealt with the analysis of the role of labor productivity on economic growth, and Grand D., Le Brun Ch., Vidil R., Wagner F. (2016) analyzed the development of the electrical industry in the context of the evolution industry in general. Heberg G., Phillips G. (2016) dealt with the analysis of the evolution of the industry under various aspects. Lee D., Shin H., Stulz R. (2016) Conducted and published studies on international industry development.

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### Data, Results and Discussion

The indices of industrial production reflect an oscillating evolution in the period under analysis, being influenced by the restructuring of the extractive sector, as well as by the decrease in lohn production that determined the recording of a slower pace in the manufacturing industry.

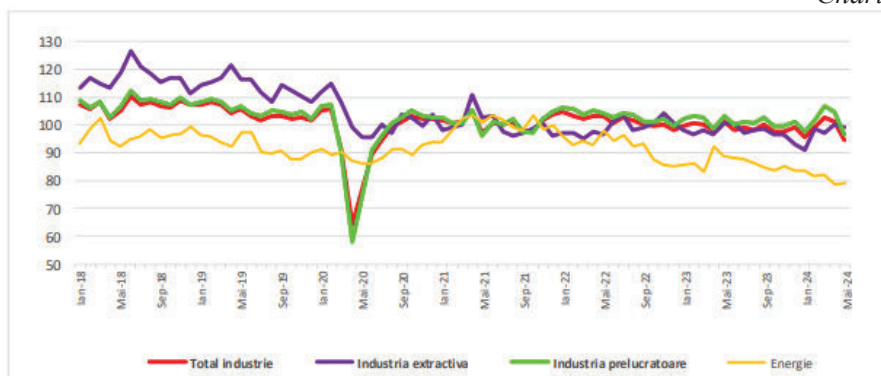
Growth rates in the field of industry decreased and were different, so that, compared to a growth recorded by the manufacturing industry, it is necessary to emphasize the decrease recorded by the extractive industry and the electricity and thermal energy, gas and water sector, registering, however, increases in some categories such as durable goods industry, capital goods industry, intermediate goods industry, consumer goods industry.

It should be noted that these other activities or branches had small shares in the total industrial activity in our country.

Graph number 1 shows the monthly evolution of industrial production in the period January 2018 – May 2024 (series adjusted according to the number of working days and seasonality).

**Monthly evolution of industrial production  
in the period January 2018 – May 2024**

*Chart 1*

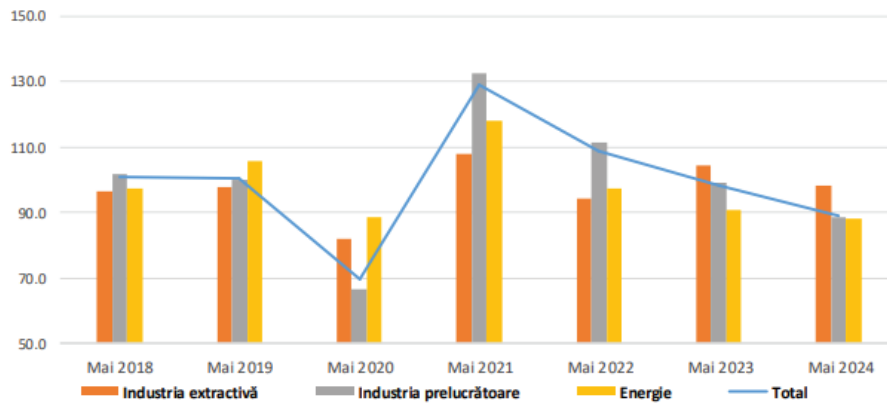


Source: INS release, data processed by the authors.

Graph 2 shows the evolution of industrial production in percentages (gross series).

## Evolution of industrial production, gross series (%)

Graph 2



Source: INS release, data processed by the authors.

In May 2024, industrial production decreased compared to April 2024, both as a raw series (-8.8%) and as a series adjusted for the number of working days and seasonality (-6.3%). Also, compared to May 2023, industrial production was lower by 11.1% as a raw series and by 6.5% as a series adjusted for the number of working days and seasonality.

Table number 1 shows the evolution of the industrial production indices, in total and by sections of the industry in percentages.

## Indices of industrial production, by total and industry sections (%)

Table 1

Indicele producției industriale - IPI		Mai 2024		1.1-31.V.2024/ 1.1-31.V.2023
		față de:		
		Aprilie 2024	Mai 2023	
<b>TOTAL</b>	<b>B</b>	<b>91,2</b>	<b>88,9</b>	<b>98,3</b>
	<b>S</b>	<b>93,7</b>	<b>93,5</b>	<b>98,8</b>
<b>Industria extractivă</b>	<b>B</b>	100,7	98,2	99,3
	<b>S</b>	99,0	98,6	99,3
<b>Industria prelucrătoare</b>	<b>B</b>	90,2	88,5	99,0
	<b>S</b>	92,2	93,5	99,5
<b>Energie</b>	<b>B</b>	94,7	87,9	93,5
	<b>S</b>	100,0	88,8	92,9

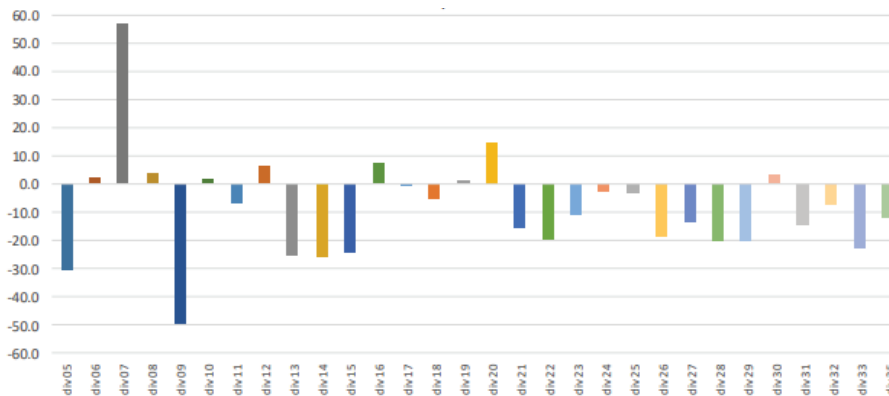
B= serie brută; S= serie ajustată în funcție de numărul de zile lucrătoare și de sezonalitate

Source: INS release, data processed by the authors.

Graph number 3 shows the evolution of industrial production indices in percentages (gross series) comparing May 2024 with May 2023.

### Indices of industrial production, crude series, May 2024 / May 2023 (%)

Chart 3



Source: INS release, data processed by the authors.

Analyzing and interpreting the data presented both tabularly and graphically, we note the fact that in May 2024, industrial production (gross series) decreased compared to the previous month by 8.8%, due to decreases in the manufacturing industry (-9.8%) and the production and supply of electricity and thermal energy, gas, hot water and air conditioning (-5.3%). The extractive industry grew by 0.7%.

Industrial production, series adjusted according to the number of working days and seasonality, was lower than the previous month by 6.3%, as a result of the declines in the manufacturing industry (-7.8%) and the extractive industry (-1, 0%). The production and supply of electricity and thermal energy, gas, hot water and air conditioning remained at the same level.

Compared to the corresponding month of the previous year, industrial production (gross series) decreased by 11.1%, as a result of decreases in the three industrial sectors: production and supply of electricity and thermal energy, gas, hot water and air conditioning (- 12.1%), the manufacturing industry (-11.5%) and the extractive industry (-1.8%).

Industrial production, series adjusted according to the number of working days and seasonality, was lower compared to the corresponding month of the previous year by 6.5%, due to decreases in the production and supply of electricity and thermal energy, gas, hot water and air conditioning (-11.2%), manufacturing industry (-6.5%) and extractive industry (-1.4%).

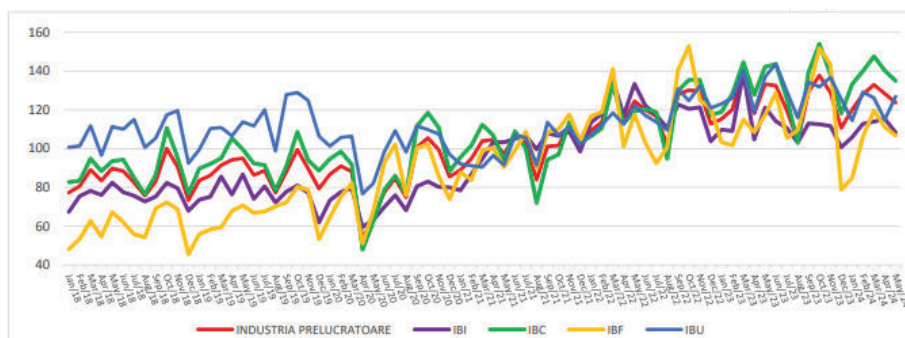
In the period 1.I – 31.V.2024, compared to the period 1.I – 31.V.2023, industrial production (gross series) decreased by 1.7%, as an effect of the decreases in the three industrial sectors: production and the supply of electricity and thermal energy, gas, hot water and air conditioning (-6.5%), the manufacturing industry (-1.0%) and the extractive industry (-0.7%).

Industrial production, series adjusted according to the number of working days and seasonality, in the period 1.I – 31.V.2024, compared to the period 1.I – 31.V.2023, was lower by 1.2%, as a result of decreases in the production and supply of electricity and thermal energy, gas, hot water and air conditioning (-7.1%), the extractive industry (-0.7%) and the manufacturing industry (-0.5%).

An important component in terms of the evolution of industrial production is represented by new orders from the manufacturing industry, including the capital goods industry, the durable goods industry and the consumer goods industry, and in the fork number 4 this situation is presented during January 2018 - May 2024.

#### Monthly evolution of new orders in the manufacturing industry during January 2018 – May 2024

Chart 4



Industria bunurilor intermediare (IBI); Industria bunurilor de capital (IBC); Industria bunurilor de folosință îndelungată (IBF); Industria bunurilor de uz curent (IBU).

Source: INS release, data processed by the authors.

It is noted that the industry, as a whole, has remained in a positive position, in the sense that it has a constant increase in its contribution to GDP. Also, the evolution of industrial production represents the sector that positively marked the process of evolution of the national economy. This characteristic is specific to the manufacturing industry which, through its overwhelming share in the total industry production, determined the same trajectory of the entire industrial production.

Table number 2 shows the value indices of new orders in the manufacturing industry in percentages.

**Value indices of new orders in the manufacturing industry, gross series (%)**

*Table 2*

	MAI 2024 în % față de :		1.I-31.V.2024/ 1.I-31.V.2023 -%
	APRILIE 2024	MAI 2023	
<b>Industria prelucrătoare care lucrează pe bază de comenzi – total</b>	<b>96,4</b>	<b>92,8</b>	<b>100,8</b>
<b>- pe marile grupe industriale:</b>			
Industria bunurilor intermediare	94,0	89,5	95,3
Industria bunurilor de capital	96,3	94,8	105,1
Industria bunurilor de folosință îndelungată	96,0	90,9	96,8
Industria bunurilor de uz curent	110,3	92,6	94,8

*Source: INS release, data processed by the authors.*

Analyzing and interpreting the data presented both tabularly and graphically, we note that as regards new orders from the manufacturing industry, they decreased in nominal terms, in May 2024, compared to the previous month, overall, by 3.6%, as a result of the decreases recorded in the intermediate goods industry (-6.0%), the durable goods industry (-4.0%) and the capital goods industry (-3.7%). The consumer goods industry grew by 10.3%.

New orders in the manufacturing industry decreased in nominal terms, in May 2024, compared to the corresponding month of the previous year, overall, by 7.2%, as a result of the decreases recorded in the intermediate goods industry (-10.5%), the durable goods industry (-9.1%), the current goods industry (-7.4%) and the capital goods industry (-5.2%).

New orders in the manufacturing industry increased in nominal terms, overall, in the period 1.I-31.V.2024, compared to the period 1.I-31.V.2023, by 0.8%, due to the increase recorded in capital goods industry (+5.1%). Decreases were registered in the industry of current use goods (-5.2%), the industry of intermediate goods (-4.7%) and the industry of durable goods (-3.2%).

The indices of industrial production show, in total and in the branches of the extractive industry and the manufacturing industry, decreases compared to the first branch.

The manufacturing industry, electricity and thermal energy, gas and water, as major sections on the one hand and the capital goods industry, the

intermediate goods industry and the energy industry, with important increases, are responsible for the mentioned increases at the industry level, on the other hand.

Table number 3 shows the main primary energy resources (thousands of tons of oil equivalent).

### Main primary energy resources (thousand tonnes of oil equivalent)

Table 3

	1.I-31.V.2024			1.I-31.V.2024 față de 1.I-31.V.2023					
	Total	Producție	Import	Diferențe (±)			- % -		
				Total	Producție	Import	Total	Producție	Import
<b>Resurse – total</b>	<b>12800,7</b>	<b>7247,9</b>	<b>5552,8</b>	<b>-669,8</b>	<b>-347,7</b>	<b>-322,1</b>	<b>95,0</b>	<b>95,4</b>	<b>94,5</b>
din care:									
Cărbune net	858,7	771,6	87,1	-222,6	-203,8	-18,8	79,4	79,1	82,2
Țiței	3700,6	1132,6	2568,0	-940,6	-44,2	-896,4	79,7	96,2	74,1
Gaze naturale utilizabile	3867,4	3206,0	661,4	+122,1	+52,2	+69,9	103,3	101,7	111,8
Energie hidroelectrică, eoliană, solară, caldură nucleară, și energie electrică din import	2537,9	2137,7	400,2	-7,6	-151,9	+144,3	99,7	93,4	156,4
Produce petroliere din import	1723,9	–	1723,9	+344,7	–	+344,7	125,0	–	125,0

Source: INS release, data processed by the authors.

Analyzing and interpreting the data presented, we find that the main primary energy resources, in the period 1.I-31.V.2024, totaled 12800.7 thousand tons of oil equivalent (toe), decreasing by 669.8 thousand toe compared to the period 1.I-31.V.2023.

Domestic production amounted to 7247.9 thousand toe, decreasing by 347.7 thousand toe (-4.6%) compared to the period 1.I-31.V.2023, and the import was 5552.8 thousand toe, in decrease by 322.1 thousand toe (-5.5%).

In the period under analysis, the electricity resources were 27855.2 million kWh, decreasing by 697.1 million kWh compared to the period 1.I-31.V.2023.

Table number 4 shows the electricity balance.



## Electricity balance

Table 4

	1.I-31.V.2024	1.I-31.V.2024 față de 1.I-31.V.2023	
	milioane kWh	Diferențe (±) - milioane kWh -	%
<b>Resurse – total</b>	<b>27855,2</b>	<b>-697,1</b>	<b>97,6</b>
- Producție	23202,2	-2374,8	90,7
- în termocentrale clasice	7000,2	-501,9	93,3
- în hidrocentrale	7245,2	-1790,5	80,2
- în centrale nucleare-electrice	4676,7	+57,4	101,2
- în centrale electrice eoliene	3063,0	-583,9	84,0
- în centrale solare fotovoltaice*)	1217,1	+444,1	157,5
- Import	4653,0	+1677,7	156,4
<b>Destinații – total</b>	<b>27855,2</b>	<b>-697,1</b>	<b>97,6</b>
- Consum final	20656,1	-52,0	99,7
- în economie	15646,0	-22,0	99,9
- iluminat public	194,1	-10,1	95,1
- populație	4816,0	-19,9	99,6
- Consum propriu tehnologic în rețele și stații	2258,5	-103,4	95,6
- Export	4940,6	-541,7	90,1

Source: INS release, data processed by the authors.

We find that the production from thermal power plants was 7000.2 million kWh, down by 501.9 million kWh (-6.7%). Production from hydropower plants was 7,245.2 million kWh, down by 1,790.5 million kWh (-19.8%), and that from nuclear-electric plants was 4,676.7 million kWh, up by 57.4 million kWh (+1.2%).

The production from wind power plants, in the period 1.I-31.V.2024, was 3063.0 million kWh, decreasing by 583.9 million kWh compared to the period 1.I-31.V.2023, and the energy solar energy produced in photovoltaic installations during this period was 1217.1 million kWh, increasing by 444.1 million kWh compared to the period 1.I-31.V.2023.

The final consumption of electricity in this period was 20656.1 million kWh, 0.3% lower compared to the period 1.I-31.V.2023, while the final consumption of electricity in the economy decreased by 0.1%; public lighting decreased by 4.9%, and population consumption decreased by 0.4%.

Electricity export was 4940.6 million kWh, down by 541.7 million kWh.

Own technological consumption in networks and stations was 2258.5 million kWh, decreasing by 103.4 million kWh.

To highlight the level and prospects of the industry in 1989, I will do a brief analysis of what we had, what was sold out and where we are after 33 years of free market. Thus, in table number 5, a series of statistical data from different fields were presented.

**Statistical data from different fields 1989/2022**

*Table 5*

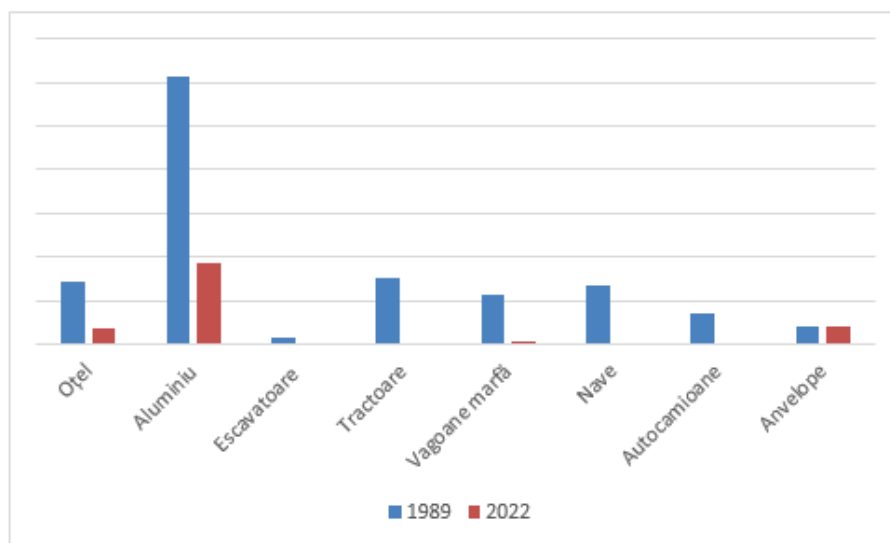
Indicator	UM	1989	2022
Oțel	Mil. Tone	14,415	3,390,00
Aluminiu	Tone	611.000	185.222,00
Escavatoare	Bucăți	1.600	-
Tractoare	Bucăți	151.745	-
Vagoane marfă	Bucăți	11.274	800,00
Nave	Bucăți	13.515	-
Autocamioane	Bucăți	12.505	-
Anvelope	Bucăți	6.838	3.813,00

Source: INS release, data processed by the authors.

For an easier understanding of the values presented above in the table, the following graphic was drawn.

**The level of indicators in the years 1989/2022**

*Chart 5*



Source: INS release, data processed by the authors.

Interpreting the recorded and presented data, we conclude:

- In 1989, Romania produced 14.415 million tons of steel, and today it produces only 3 million tons;

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- In that pre-December period, 1,600 excavators left the gates of the factories, which, as a rule, were exported, and today none are left;
  - Also, at the end of December 1989, Romania produced 151,745 tractors, most of which were exported, and today everything has been scrapped and nothing is happening anymore;
  - We built tractor factories in Egypt and Iran that are still operating, while in Romania this sector was relegated to the scrap heap;
  - Romania produced 11,274 freight wagons, and currently produces around 800 more;
  - In the category of ships of all capacities, Romania produced, especially for export, 13,515 pieces and in 2022 it will no longer produce anything;
  - Romania used to produce a whole series of trucks, at a level of 12,505 pieces, and currently almost nothing;
  - In the tire category, all varieties including high capacity, in 1989, Romania produced 6,838 thousand pieces, and currently it produces only 3,813 thousand pieces.

Why these phenomena happened is hard to say. But we can specify the fact that a number of consultants came, on behalf of our competitors in the field, who suggested to us that it is good to focus on small, medium and micro-enterprises and in this way ease the economy by laying off workers from big businesses and autonomous kings, let's shut down the industrial mammoths, possibly produce Kits of components and not integrated products, and make products such as cables, radiators, braking systems or tires, but not locomotives or wagons.

### **Conclusions**

Some conclusions emerge from the study made and presented by the authors in this article. A first conclusion that emerges is that the evolution of the industry going in this direction, the so-called Romanian investors had nowhere to go and aligned themselves with these desires that have proven and will continue to prove particularly damaging for the Romanian economy. It follows that, although there was no political vision of development but only one of change and somewhat improvement, the effect was completely harmful for Romania's economy.

Another conclusion that emerges from everything I have presented in this article in relation to the industry, using only a small number of comparative data, highlights that the closing of factories, the sale of assets, very harmful to our country, the effects being clearly seen, especially today, when Romania does not have a domestic system of investors capable of relaunching the economy.

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Last but not least, we can appreciate, without fear of thinking that we are nostalgic, that the governors after 1990 carried out missions with excess zeal, but there are no arguments to be able to convince that these programs were totally subordinated to the interests of Romania and had as an effect, economic growth on its own basis, especially through domestic investments, foreign direct investments and access to community funds. All this would have been auspicious and would have shown a fairly well-tuned economy today.

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