

# THE IMPACT OF THE COVID-19 PANDEMIC ON GROSS VALUE ADDED BY ECONOMIC SECTORS IN THE EU COUNTRIES

**Asst. Prof. Nikolay Velichkov, PhD**

*University of National and World Economy*

## *Abstract:*

*The paper looks at the impact of the COVID-19 pandemic on gross value added (GVA) by economic sectors in the EU countries. The results obtained indicate the existence of certain specifics in terms of the impact of the pandemic on gross value added in relation to individual sectors of the economy, as well as in relation to individual Member States. In addition, peculiarities are observed in the manifestation of the effects of the pandemic on GVA across different economic sectors over time.*

**Keywords:** COVID-19, gross value added, economic sectors, European Union

## **Introduction**

The COVID-19 pandemic is the source of considerable health and economic problems across countries from all over the world. In order to limit the spread of the virus, unprecedented measures have been implemented that are associated with numerous restrictions affecting various aspects of the social and economic life. These measures have undoubtable negative effects on economic activity and are a source of serious challenges before the states and development of the world economy, including the economy of the EU. In view of the scale of the crisis, both health-related and economic, countries have begun implementing a number of anti-crisis measures aiming at restricting the negative consequences. Initially, these policies of the EU countries may have been better characterized as chaotic, inconsistent and uncoordinated. With some delay, however, the anti-crisis measures in the EU have turned into a more complex coordinated

effort to tackle the crisis.<sup>1</sup> A leading example is the comprehensive Recovery and Resolution Plan for Europe, which is the EU's largest stimulus package thus far, amounting to more than €2 trillion.

The goal of this paper is to study the effects of the COVID-19 pandemic on gross value added (GVA) in the European Union for the period between the first quarter of 2020 and the second quarter of 2021. The analysis focuses on GVA dynamics in individual economic sectors. This way, the similarities and discrepancies with regards to the impact of the crisis on individual economic sectors of the economy are outlined. Moreover, certain specificities relating to the particular GVA dynamics and structure in the different EU Member States are derived.

## Empirical Analysis

In the EU, a decrease in real gross value added was seen in the first quarter of 2020, with an observed decline of about 2.1% compared to the same period in the previous year (Figure 1). This has been the lowest GVA growth rate at that time in the EU for the last 11 years. The first quarter of 2020 was characterized by heterogeneity in the specific values of the GVA rate of change across individual EU countries. This heterogeneity was also associated with the value (positive or negative) of the change. The value of the GVA growth rate was negative in 11 countries (Belgium, Czech Republic, Germany, Greece, Spain, France, Italy, Netherlands, Austria, Portugal and Slovakia), while in the rest of the countries it remained positive.

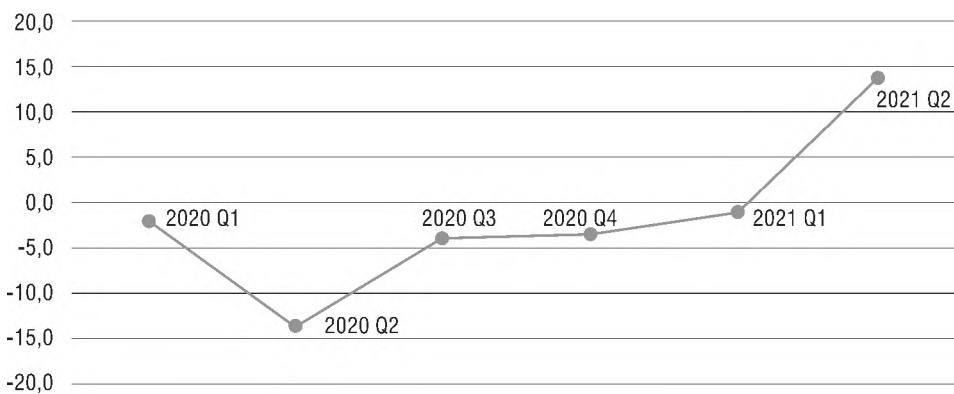
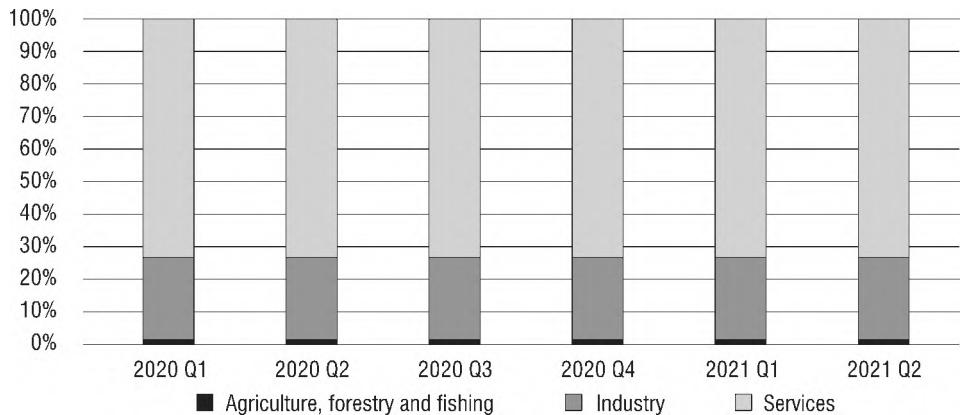


Figure 1. GVA growth rate in the EU (%)

Source: author's calculations based on Eurostat data.

<sup>1</sup> For a more detailed description of the tools and mechanisms in the EU for overcoming the consequences of the COVID-19 crises, see Georgieva, E., Velichkov, N., Stefanova, K. (2021), *European Studies: Current Economic Aspects*, Minerva (in Bulgarian); de Vet, J., et al. (2021), *Impacts of the COVID-19 Pandemic on EU Industries*, Publication for the Committee on Industry, Research and Energy, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament.

The drop in the EU's GVA resulted primarily from the reduction in the GVA in the services sector. This is hardly surprising, as the enforcement of the initial lockdowns in the first quarter of 2020 impacted mostly the services sector which had the highest relative weight in GVA (Figure 2). During this quarter, the decrease in the EU's GVA created in the services sector was by about 1.8% compared to the same period in the previous year (Figure 3). The decline was the strongest in France and Italy, amounting to over 4%. The decline in services accounted for about 61.6% of the overall decline in the real EU's GVA, with the negative contribution of the services sector to the GVA growth rate amounting to around 1.3 percentage points (Table 1). The other two sectors – industry, and agriculture, forestry, and fishing, also saw a decline in production. The decline in the industry sector was by 3.1%, and in the agriculture, forestry and fishing sector by about 0.8%. The industry's negative contribution to the GVA rate of change was 0.8 percentage points, which represents about 37.8% of the decline in total GVA. Given the low relative weight of agricultural, forestry and fishing production in the overall EU's GVA, the decline in this sector accounted for only 0.6% of the total decrease in GVA.

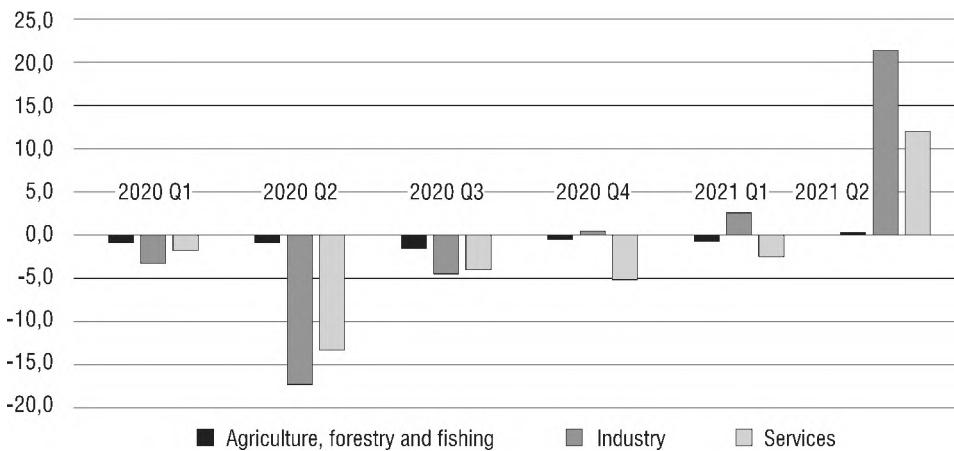


*Figure 2. GVA structure by economic sectors in the EU (%)*

*Source: author's calculations based on Eurostat data.*

In the second quarter of 2020, the decline in EU's GVA amounted to 13.9% compared to the same period in the previous year. During this quarter, a negative GVA growth rate was typical for all EU countries. Spain saw the largest decline, with GVA dropping by about 21.5%. The decrease in GVA was also relatively substantial in France and Italy, by 18.9% and 18.1% respectively. The absolute value of GVA growth rate was the lowest in Ireland, where the weakest decrease in GVA among all EU countries was reported- about 1.3%. In the EU as a whole, a decline in production in the second quarter was typical for all three main sectors. The decline was the strongest in the industrial sector, where the GVA generated by this sector dropped by 17.1%. Italy and France occupied

leading positions with regards to the decline in production in the industrial sector with a decrease of just over 26%. Manufacturing played a key role in the decline in the industry sector. The decrease in manufacturing for the EU in the second quarter of 2020 was about 19.5%. This decline accounts for about 77.4% of the decline in production in the industrial sector and for 24.4% of the decline in the EU's GVA as a whole.



*Figure 3. GVA growth rates by economic sectors in the EU (%)*

*Source: author's calculations based on Eurostat data.*

For the second quarter of 2020, a double-digit decline was also observed in real GVA in the services sector. This decrease amounted to about 13.1%. The services sector continued to play a dominant role in the observed negative GVA growth rate in the EU. It can be noted that the negative contribution of the services sector to the GVA dynamics was at the level of 9.5 percentage points. This amounted to just over 68% of GVA decrease for the EU on the whole. The GVA rate of change in the services sector in the second quarter of 2020 had the highest absolute value in Spain. A significant declining in the services sector was observed in the some groups of services, namely wholesale and retail trading, transport, accommodation and food service activities. For these services, the decline in the EU was about 25% compared to the same period in the previous year. The decrease in this group of services formed about 51.1% of the GVA decrease in the services sector and about 34.9% of the total GVA decrease for the EU. The GVA in the group of services related to arts, entertainment and recreation, other service activities and activities dedicated to household and extra-territorial organizations and bodies, also saw a considerable decline of about 28.7%. It was those two service groups that were mostly affected by the lockdown measures. The decline in GVA in the EU was significantly smaller in the second quarter of 2020 in the information technology services and communication sector, financial and insurance activities and real estate activities with a drop of around 3%.

**Table 1. Weight of economic sectors  
in GVA growth rate in the EU**

	Agriculture, forestry and fishing		Industry		Services	
	Percentage points	Percent	Percentage points	Percent	Percentage points	Percent
<b>2020 Q1</b>	-0.01	0.57	-0.79	37.83	-1.29	61.59
<b>2020 Q2</b>	-0.01	0.08	-4.39	31.59	-9.50	68.32
<b>2020 Q3</b>	-0.03	0.76	-1.09	27.92	-2.78	71.32
<b>2020 Q4</b>	-0.01	0.24	0.00	-0.03	-3.63	99.79
<b>2021 Q1</b>	-0.01	0.89	0.65	-60.05	-1.74	159.16
<b>2021 Q2</b>	0.00	0.02	5.27	37.30	8.85	62.67

*Source: author's calculations based on Eurostat data.*

In the third and fourth quarters of 2020, as well as in the first quarter of 2021, the GVA growth rate in the EU continued to be negative, amounting to -3.9%, -3.6%, and -1.1%, respectively. During these three quarters, a decline in real GVA was typical of most EU Member States with a few exceptions (an increase in GVA in the third quarter of 2020 was observed in Ireland and Lithuania; in the fourth quarter of 2020 in Ireland and Luxembourg; and in the first quarter in 2021 in Estonia, Ireland, France, Italy, Lithuania, Luxembourg, Romania, and Slovenia). The strongest GVA drops during these three quarters were seen in Malta, Spain and Austria, respectively.

The GVA dynamics in the EU in the three main economic sectors during these three quarters demonstrate certain specificities. While the services and agriculture, forestry and fishing sectors saw a negative GVA growth rates for all three quarters, in the industry sector the corresponding growth rate was negative in the third quarter of 2020, zero in the fourth quarter of 2020 and positive in the first quarter of 2021. The latter is an indicative of a sustainable reduction of the negative and formation of a positive effect of industry on the GVA dynamics. It can be noted that in the first quarter of 2021, the positive contribution of the EU industry to the real GVA rate of change, amounted to about 0.7 percentage points. A positive contribution of the industry in the first quarter of 2021 was typical for most EU countries, with the only exceptions being Bulgaria, Czech Republic, Germany, Estonia, Spain, Latvia, and Finland. The strongest negative effects on the industry related to the dynamics of real GVA in the first quarter of 2021 was observed in Bulgaria and Estonia. These are the two EU Member States in which the decline in production in the industrial sector was the highest, 3.3% and 2.9% respectively.

The services sector continued to dominate the observed GVA decline in the EU in the last two quarters of 2020 and in the first quarter of 2021. The contributions of the services sector towards the GVA change rate during these three quarters were -2.8, -3.6, and -1.7 percentage points, as their relative weight in the GVA dynamics amounted to 71.3%, 99.8% and 159.2% respectively. The discussed GVA dynamics features in the services and industry sector in these three consecutive quarters lead to a decrease in the relative share of services in GVA at the expense of increasing the relative share of industry and a consistent share of agriculture, forestry and fishing. Moreover, there are specifics in the dynamics of individual groups of activities in the services sector. The group of wholesale and retail trade, transport, accommodation and food service activities, as well as the group of arts, entertainment and recreation, other service activities, activities of household and extra-territorial organizations and bodies, are characterized by the strongest reduction in production. The first group of activities also has the strongest contribution to the reduction of GVA. Its negative effects accounted for 45.5%, 57.1%, and 120.5% of the real GVA decline in the third and fourth quarters of 2020 and the first quarter of 2021, respectively. Reduction of production was also seen in the professional, scientific and technical activities and administrative and support service activities, as well as in real estate activities, with the negative effects of real estate activities on GVA change rate being significantly weaker. Only the activities related to information technology and communications saw positive real GVA growth rates in each of these three quarters. This is hardly surprising given the transition to remote operations and the digitalization of a number of activities and processes. It is the growth of GVA in the information technologies and communication activities that has played the role of the most stimulating factor in the GVA dynamics in the EU among the various groups of activities in the services sector.

In the second quarter of 2021, a positive GVA growth in the EU was seen, amounting to 14.1%. An increase in GVA during this quarter was observed in all EU countries. The strongest growth was observed in Ireland, Spain, Italy, and France. This increase was due to the growth of production, both in the industrial sector and in the services sector. The real GVA in the industry in the second quarter of 2021 increased by about 21.4% compared to the same period the previous year. The observed growth in the services sector amounted to 12.1%. These industry and services growth rates generated positive contributions to the GVA dynamics, amounting to 5.3 and 8.9 percentage points, respectively, which in turn formed about 37.3% and 62.7% of the GVA growth in the EU. The contribution of production in the agriculture, forestry and fishing sector to the GVA growth rate during this quarter was close to zero. Italy occupied a leading position among EU countries in terms of GVA growth in the industry sector, while Spain had a leading position in the services sector. This is far from surprising given the observed sharp decline in these two countries during the same period in the previous year.

It should be emphasized that in the second quarter of 2021 the growth of GVA in the group of activities related to manufacturing was about 25.6%. This had a strong positive effect on the GVA growth rate in the EU, which was estimated to be 4.2 percentage points. This contribution of manufacturing accounted for about 29.5% of the GVA growth in the EU. As far as individual groups of activities in the services sector in the EU's economy are concerned, GVA growth was seen for each group. The highest growth rate was observed in the group of activities that include wholesale and retail trade, transport and logistics, accommodation and food services. This growth was about 21.7% and accounted for about 26.1% of the GVA growth in the EU. The group of activities related to public administration, defence, education, healthcare and social work had a relatively strong stimulating effects, as well as the group of professional, scientific and technical activities and administrative support service activities. The contribution of each of these two groups to the overall GVA was a little over 12%.

## Conclusion

The performed empirical analysis demonstrates that the impact of COVID-19 on GVA dynamics in the EU is strong, showing certain specifics in relation to individual economic sectors, as well as some peculiarities over time. Changes in GVA are determined primarily by the dynamics of the services sector. Its negative effects play a dominant role in the GVA decline in the EU observed in each of the four quarters of 2020 and the first quarter of 2021. The positive impact of the services sector was seen only in the second quarter of 2021, which determined the relatively high GVA growth rate in the EU during this quarter.

The individual groups of activities in the services sector show strong peculiarities, which is primarily due to their different sensitivity to measures related to the social and economic restrictions, as well as to the acceleration of the digitalization processes in association with these restrictions.

The dynamics of production in the industrial sector had a negative impact on GVA in the first three quarters of 2020, zero effect in the fourth quarter of 2020, and a positive effect in the first two quarters of 2021. Given the low relative importance of the agriculture, forestry and fishing sector, its contribution to the GVA dynamics is insignificant.

The changes in production in individual sectors are the basis for the observed decline of the relative share of services in GVA at the expense of increasing the relative share of industry with a constant share of agriculture, forestry and fishing in the last two quarters of 2020 and the first quarter of 2021.

### **Bibliography:**

1. Adisson. T., Sen, K., Tarp, F. (2020), *COVID-19: Macroeconomic Dimensions in the Developing World*, WIDER Working Paper, 2020/74.
2. Deb, P., et al. (2020), *The Economic Effects of Covid-19 Containment Measures*, IMF Working Paper, 158.
3. de Vet, J., et al. (2021), *Impacts of the COVID-19 Pandemic on EU Industries*, Publication for the Committee on Industry, Research and Energy, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament.
4. Eichenbaum, M., Rebelo, S., Trabandt, M. (2020), *The Macroeconomics of Epidemics*, NBER Working Paper, 26882.
5. Georgieva, E., Velichkov, N., Stefanova, K. (2021), *European Studies: Current Economic Aspects*, Minerva (in Bulgarian).