Manufacturing Industry

Sector Report

2022

Spain's industry is facing a more complex environment

Rising energy prices: which sectors are being hit the hardest?

Global value chains: yesterday, today and tomorrow

The pharmaceutical industry, a key and strategic sector for the Spanish economy

CaixaBank Research

SECTOR REPORT
Manufacturing Industry 2022

The *Sector Report* is a publication produced by CaixaBank Research

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Summary 2022

«Every industrial revolution brings along a learning revolution»

ALEXANDER DE CROO

Manufacturing Industry

CaixaBank Research

THE GLOBAL CONTEXT IS LIMITING THE RECOVERY OF SPAIN'S INDUSTRY

The trend in manufacturing was one of gradual recovery in 2021 but the 2022 scenario is affected by the war in Ukraine

	GVA manufacturers	Industrial production index	Registered workers affiliated to Social Security (*)	Turnover	Exports
2020	-12.1%	-10.3%	-7.1%	-12.0%	-13.0%
2021	6.0%	8.2%	5.1%	16.0%	19.7%
2021 *vs.* 2019	-5.0%	-3.0%	-2.4%	1.3%	4.2%

Source: CaixaBank Research, based on data from the National Statistics Institute, MISSM and DataComex.
Note: (*) Non-furloughed registered workers.

WHICH INDUSTRIES PERFORMED THE BEST AND WORST IN 2021?

- Pharmaceuticals
- Chemicals
- Auxiliary sector to construction

- Automotive
- Refining
- Metal product manufacturing
- Textiles

INDUSTRY'S EXPOSURETO RISING ENERGY PRICES

MOST EXPOSED INDUSTRIES

- Oil refining
- Metallurgy
- Chemicals
- Cement and plaster

EXPOSED INDUSTRIES

- Paper
- Wood
- Plastic product manufacturing
- Electronic product manufacturing

LESS EXPOSED INDUSTRIES

- Pharmaceuticals
- Machinery manufacturing
- Textiles
- IT product manufacturing

WHAT WILL GLOBAL VALUE CHAINS LOOK LIKE POST-PANDEMIC?

- Shorter GVCs
- More redundant in key components
- More equipped with new digital technologies
- With more investment in inventories in logistic terms

THE PHARMACEUTICAL INDUSTRY IN SPAIN

5.0% of industrial GVA

4.9% of the goods exported

8.8% of investment in business R&D

	Growth compared to 2019	Annual growth 2021
Turnover	+12.5%	+8.9%
Exports	+5.0%	-0.6%
Employment*	+4.9%	+3.4%

Note: *Non-furloughed registered workers.

Executive summary

Spain's industry is facing a more complex environment

The manufacturing sector continued to recover steadily in 2021 with activity growing by over 8%, turnover up by 16% and exports by almost 20%. Although expectations were for a gradual recovery in the following months, the outbreak of war in Ukraine has intensified some of the drawbacks already suffered by the sector in 2021: rising commodity and energy prices and supply problems in certain industries. It is important to point out that the situation is quite varied within the industry, so an in-depth analysis allows us to assess how some sectors are more exposed than others to these external factors. On the positive side, the recovery in demand for final goods, the effort being made to replenish inventories, the easing of the health crisis and the revitalisation of projects related to the NGEU programme will partly offset such external obstacles.

In view of their huge impact on activity, our analysis focuses on both the energy shock and the problems encountered by global supply chains. Firstly, rocketing natural gas, oil and electricity prices have been affecting the energy bill for all economic agents over the past few months. In this Report we investigate the specific impact of this increase in energy prices on the manufacturing industry, the biggest consumer of electricity in the Spanish economy. Through an analysis of input-output tables, we determine those sub-sectors whose energy bill plays a more significant role in their cost structure, differentiating the sectors that are more exposed and being more affected by the current energy price situation.

Secondly, COVID-19 and, more recently, the conflict in Ukraine have highlighted the problems encountered by global supply chains as a result of major asymmetric shocks at a global level. The fear of shortages in essential goods and products to combat the pandemic during the early stages of the health crisis, and the supply problems of certain inputs following the strong recovery of the economic cycle throughout 2021 have once more made the debate regarding the consequences and benefits of globalisation relevant. This Report reviews the past, present and future of global value chains.

Finally, we also provide a special article focusing solely on Spain's pharmaceutical industry, a key and strategic sector for our economy, as has become evident during the pandemic. In recent decades, the sector has become hugely important thanks to its role as a driver of exports and to the fact that, in the past few years, it has accounted for most of the private investment in R&D for the manufacturing industry as a whole in Spain. Nevertheless, comparisons with other European countries suggest its production capacity has room for improvement. In fact, the trend looks favourable for the sector over the next few years, in an extremely competitive industry with a great capacity to create good quality jobs.

Recovery below pre-pandemic levels

The global context is limiting the recovery of Spain's manufacturing industry

The Spanish economy grew by 5.0% in 2021, a large figure by historical standards but slightly below expectations, considering that GDP growth rates closer to 6.0% had been forecast at the beginning of the year. Several factors, both internal and external, have moderated the strength of this economic recovery. Among the internal factors is the somewhat slower than expected implementation of the NGEU programme, leading to a modest recovery in investment. External factors include higher energy costs and problems in global supply chains, both of which have been considerably aggravated by the war in Ukraine.

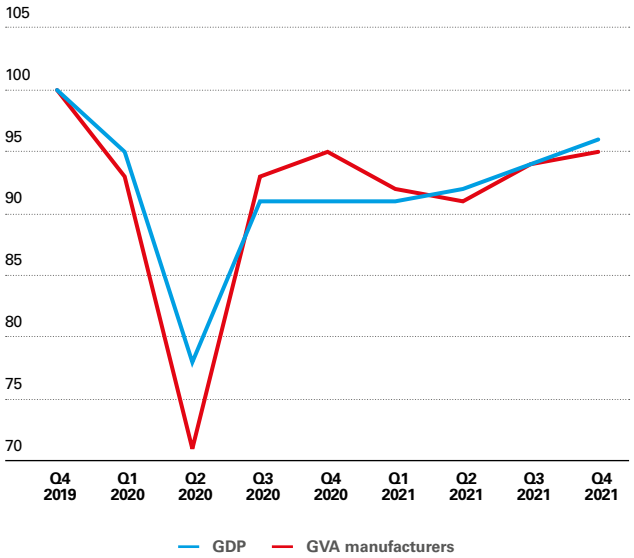
The manufacturing sector continued to recover steadily in 2021 but its activity indicators are still below pre-pandemic levels

Within this general context of gradual recovery throughout 2021, the manufacturing sector has maintained a trend very similar to that of the economy as a whole: manufacturing GVA grew by 6% in 2021 (above the average for the economy), a high figure although not enough to offset the sharp drop posted in 2020 (–12.1%). The quarterly change in GVA shows that the sector's recovery came to a halt in the first half of last year (down by 3.5%), impacted by three factors: (i) rising commodity prices, (ii) higher energy bills and, above all, (iii) problems in supply chains.

The overall picture for 2021 provided by all available activity indicators for the sector was positive: production grew by slightly more than 8%, employment increased by 1.3%, turnover was up by 16% (cumulative up to November) and exports rose by nearly 20%. However, this improvement in 2021 once again proved insufficient, as only turnover and exports are clearly above their pre-pandemic records (see the chart below), albeit largely thanks to a «price effect».

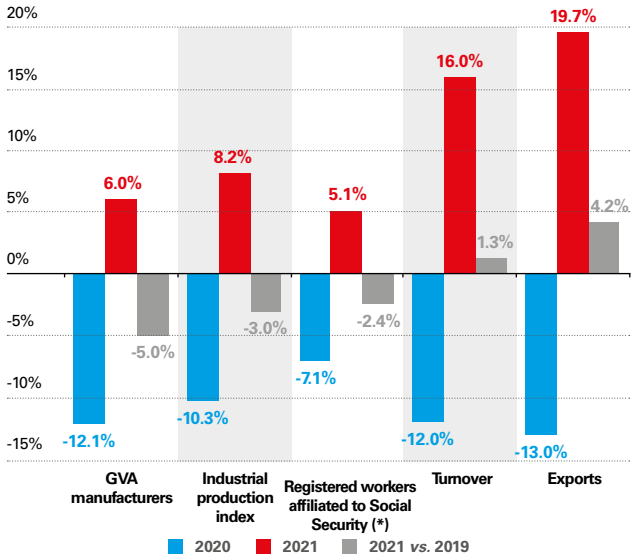
Real GDP *vs.* GVA of the manufacturing sector

Index (100 = 2019)



Indicators for manufacturing sector activity

Year-on-year change



Note: (*) Non-furloughed registered workers.
Source: CaixaBank Research, based on data from the National Statistics Institute, MISSM and DataComex.

Rising commodity prices are putting pressure on the industry

The strong upturn in the global cycle during the first half of 2021 and the relative weakness of the dollar, in addition to the effect of supply problems, led to a generalised rise in commodity prices, particularly industrial metals and energy materials, which are more closely linked to the global economic cycle.

Regarding metals, the price of aluminium (+55% between January and October, its highest since 2008), copper (+34% between January and June, setting record highs) and nickel (+21% between January and September), among others, soared during much of 2021, according to the London Metal Exchange (LME).[1] As for energy prices, in 2021 oil rose by 76%, natural gas by 340% and, by extension, the price of electricity went up by 370%.

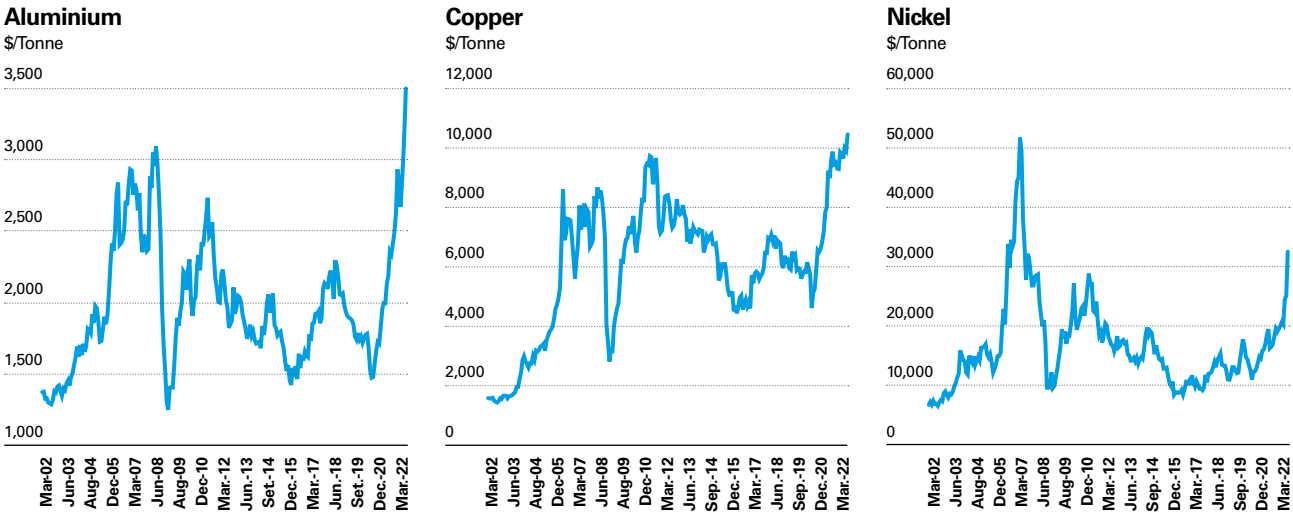
The outbreak of the war in Ukraine has caused both metals and energy commodities to resume their upward trend, as Russia is a dominant producer and exporter of oil (it is the world's second largest producer) and natural gas (it supplies 40% of the gas consumed by the EU).[2] It is also a major producer of key metals for the manufacturing industry, such as aluminium (it exports just over 10% of the world's total) and nickel (28%), whose price rocketed by 200% in the weeks following the outbreak of the conflict. These metals are highly versatile and used as inputs in a wide range of industries. As a result, the sharp increase in their price will substantially push up production costs for the manufacturing industry.

(1) The London Metal Exchange is the European benchmark and, in fact, the world's largest futures and forwards exchange for non-ferrous metals. The LMEX index, a generic benchmark for the industrial metals market, increased by 38% in 2021.

(2) For a more in-depth analysis of the impact of higher energy bills, see the article «Rising energy prices and their impact on industry: which sectors are being hit the hardest?» in this *Sector Report*.

Manufacturing Industry

Spot price for major industrial metals



Source: CaixaBank Research, based on data from Thomson Reuters.

Bottlenecks complicate the arrival of key industry supplies

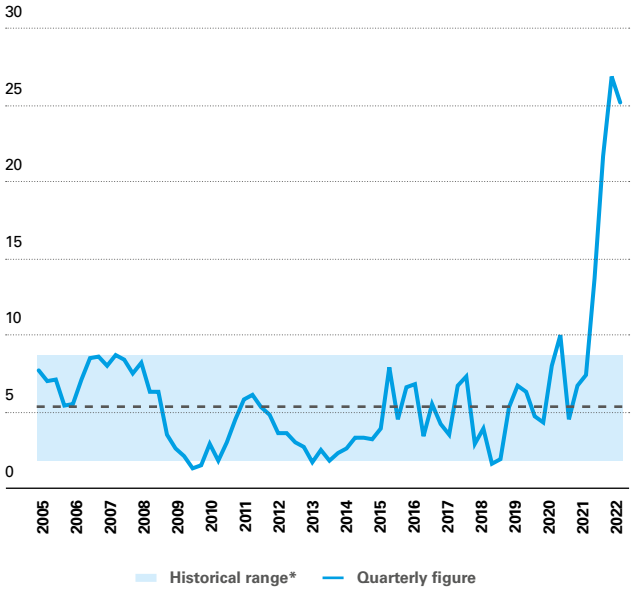
The European Commission's latest quarterly survey of the industrial sector points to shortages in materials and equipment as the main problem for production in recent months. In fact, up to 25% of Spanish industrial companies mention that one factor limiting their production capacity is the shortage of materials, when usually only between 2% and 9% of companies report problems of this type.[3] Nevertheless, although the volume of companies facing material shortages in Spain is high, in other neighbouring countries the problems are even worse. Specifically, 54% of industrial companies in the euro area have reported this kind of difficulty, with this figure soaring to 89% in Germany.

③ For a more detailed analysis of the impact of supply chain problems and how they are affecting Spanish and European industries, see the Focus «Supply chains: no escalation in the disruptions» in the *Monthly Report* for February 2022.

The automotive industry stands out particularly among the industrial companies that are suffering the most from material shortages, due to long delays in the shipment of metal parts and shortages of semiconductors. In Spain, 65% of automotive companies reported shortage problems and the trend in recent months does not seem to suggest these are abating (three months ago the figure was 55%). While the automotive is suffering the most from global bottlenecks, there are many other industries that are also encountering shortages, as shown in the table below.

Manufacturing companies reporting that shortages in materials are limiting their production

% of companies



	Data for Q1 2022	Past 3 months	Last year
Automotive industry	65%	↑↑	↑↑
Machinery repair and installation	58%	↑↑	↑↑
Manufacture of electrical equipment	55%	↑↑	↑↑
IT product manufacture	53%	↑↑	↑↑
Metal product manufacture	43%	=	↑↑
Paper industry	39%	↓	↑↑
Cement industry	25%	↑	↑↑
Graphic arts	24%	↑↑	↑↑
Chemical industry	19%	=	↑↑
Machinery manufacture	18%	=	↑↑
Plastic product manufacture	17%	↓↓	↑↑
Transport material (non-automotive)	14%	↓↓	↑↑
Textile industry	11%	↓↓	=
Wood industry	11%	↓↓	↑
Metallurgy	9%	=	↑
Furniture manufacture	8%	=	↓
Food industry	5%	=	=
Pharmaceutical manufacture	4%	=	=
Oil refining	0%	=	=

Notes: (*) Values between the 5th and 95th percentile of the historical series between Q1 1995 and Q4 2020.
Source: CaixaBank Research, based on data from the European Commission.

What has been the relative performance of the different manufacturing sectors?

Given that manufacturing is made up of very different sub-sectors, the rise in commodity prices and the bottlenecks occurring throughout 2021 have affected the various industrial activities very differently. In an attempt to understand these differences, and to determine the position and trend in each sub-sector, we have used the industrial production indicator, which reflects the real activity of each industry without taking into account the significant price effect observed in turnover and exports as a result of the industrial price rises created by the bottlenecks themselves and higher energy prices.

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Heat map of the industrial production index for manufacturing industries

Change compared to the 2019 average

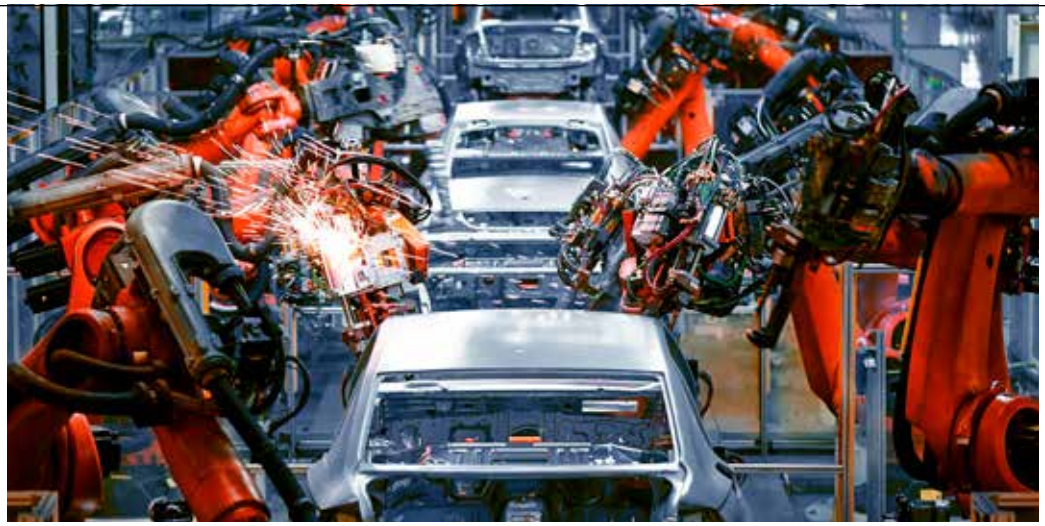
	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Share
Automotive industry	-14%	-57%	-6%	4%	-14%	-22%	-22%	-23%	10%
Transport material (non-automotive)	-16%	-25%	-17%	-19%	-20%	-18%	-16%	-20%	3%
Graphic arts industry	-7%	-37%	-14%	-14%	-15%	-14%	-15%	-10%	2%
Metal product manufacture	-8%	-32%	-8%	-5%	-7%	-3%	-5%	-7%	10%
Oil refining	-5%	-24%	-18%	-16%	-16%	-14%	-7%	-6%	3%
Machinery repair and installation	-7%	-25%	-10%	-10%	-9%	-7%	-8%	-4%	3%
Textile industry	-11%	-48%	-10%	-13%	-14%	-8%	-6%	-3%	4%
Metallurgy	-6%	-32%	-14%	-3%	-3%	0%	-2%	-2%	4%
Plastic product manufacture	-5%	-31%	2%	6%	2%	1%	1%	0%	6%
Electrical equipment manufacture	0%	-20%	1%	4%	2%	6%	2%	0%	4%
Food industry	-2%	-11%	-4%	-4%	-3%	-1%	0%	1%	19%
IT product manufacture	0%	-15%	0%	-5%	-2%	4%	-1%	3%	1%
Furniture manufacture	-12%	-46%	-6%	-7%	-5%	-4%	1%	3%	3%
Machinery manufacture	-10%	-23%	-8%	-8%	-4%	3%	2%	4%	6%
Chemical industry	-1%	-11%	0%	3%	4%	5%	4%	4%	8%
Paper industry	0%	-9%	-5%	0%	1%	3%	5%	5%	3%
Pharmaceutical industry	4%	3%	1%	-1%	9%	11%	0%	8%	5%
Auxiliary sector to construction	-7%	-26%	0%	0%	2%	7%	8%	9%	5%
Wood industry	-10%	-29%	-2%	-4%	-2%	5%	18%	10%	2%
Manufacturing industry as a whole	-7%	-25%	-6%	-4%	-5%	-2%	-3%	-3%	

Source: CaixaBank Research, based on data from the National Statistics Institute.

The automotive industry is the most affected by supply chain problems

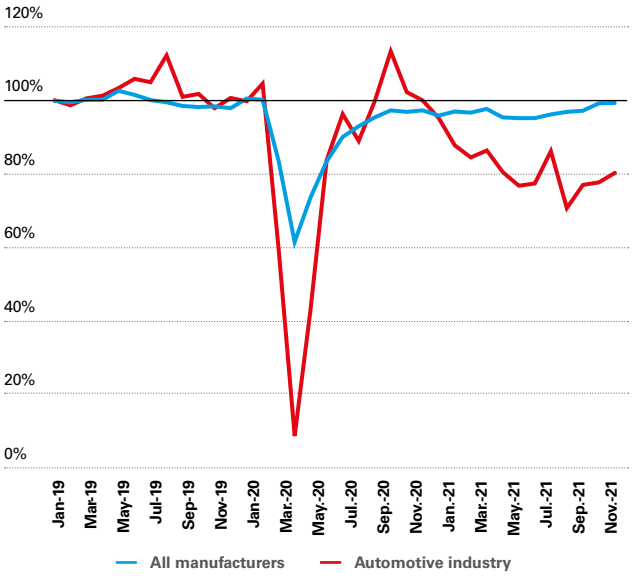
The deterioration observed in the manufacturing industry throughout 2021 was clearly concentrated in the automotive industry, as can be seen in the table above, which also shows a significant gap with respect to the pre-COVID level (–23% in Q4 2021) that has been widening over the months.

In fact, the automotive industry has had to tackle a series of obstacles in recent years. On the one hand, it has been immersed in changing its business and production model since the dieselgate controversy in 2015 and growing environmental awareness on the part of consumers and regulators. On the other hand, the pandemic has increased working from home and reduced the amount people travel, lessening the need to renew vehicles. Moreover, continuing regulatory uncertainty and doubts regarding where the industry is headed are making potential car buyers hesitant about what kind of vehicle is best to buy at present. And, in addition to all these hurdles, there are now problems in the supply of certain components, especially due to the shortage of semiconductors, crucial in the automotive industry for its new models. This ended up delaying production at certain points in 2021.



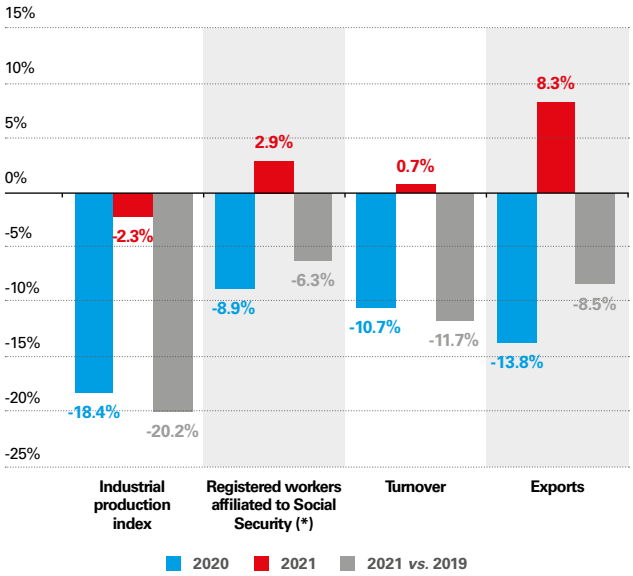
Production in the manufacturing sector

Index (100 = January 2019)



Activity indicators for the automotive sector

Year-on-year change



Note: (*) Non-furloughed registered workers.
Source: CaixaBank Research, based on data from the National Statistics Institute, MISSM and DataComex.

Other branches of the manufacturing industry have also posted relatively weak figures in recent months. A case in point is metal product manufacture (CNAE 25), whose production is still 7% below pre-COVID levels despite its strong relationship with the construction sector, probably weighed down by more expensive industrial metals (accounting for 36% of its cost structure). Nor have the following branches regained their pre-pandemic levels of activity: metallurgy (also affected by rising costs), textiles (hit by a weaker than expected recovery in consumption), oil refining (demand is not picking up as quickly due to the sharp increase in prices)[4] or graphic arts (affected by higher paper prices and less demand from advertising).

④ The price of refining products recovered by 44% in 2021, driven by higher oil prices.

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At the opposite end of the spectrum are a number of sectors that have recovered their pre-crisis levels, helping to offset some of the weakness seen in the aforementioned branches. Some positive examples are the food industry (driven by a change in habits as a result of the pandemic), the auxiliary sector to construction (producers of cement and other non-metallic minerals) and chemicals (closely linked to the pharmaceutical and food industries), among others. Generally speaking, these industries have been supported by the upturn in the cycle and by the characteristics of the post-confinement scenario of recent months, but they are also notable for being somewhat less affected by supply chain problems.

What can we expect for the manufacturing industry in 2022?

How manufacturing will fare over the course of this year is highly uncertain as the outbreak of the conflict in Ukraine has added to the problems of rising energy bills, increasing the sector's costs and potentially becoming a factor that hinders global supply chains.[5]

(5) For more details on the impact of rising energy prices and bottlenecks on the Spanish economy, see the article «Spain 2022, a key year for the consolidation of the recovery» in the Dossier of the *Monthly Report* of December 2021.

International trade in goods in the manufacturing industry (2021)

Million euros and % of total	Total			With Russia		With Ukraine	
	Exports	Imports	Balance	Exports	Imports	Exports	Imports
10 Food industry	33,503	23,103	10,401	0.5%	0.6%	0.4%	2.0%
11 Manufacture of beverages	4,699	1,786	2,913	0.6%	0.0%	0.4%	0.0%
12 Manufacture of tobacco products	167	1,493	-1,326	0.4%	0.0%	0.3%	0.0%
13 Textile industry	4,030	4,211	-181	0.4%	0.1%	0.1%	0.1%
14 Manufacture of apparel	13,350	15,951	-2,601	2.9%	0.0%	0.3%	0.0%
15 Leather and footwear industry	4,175	4,744	-570	1.1%	0.3%	0.1%	0.1%
16 Wood and cork industry	2,057	1,859	199	0.3%	1.5%	0.1%	1.4%
17 Paper industry	5,059	4,687	372	0.6%	0.1%	0.1%	0.2%
18 Graphic arts and recorded media	8	10	-2	0.1%	0.0%	1.3%	0.0%
19 Coke and refined petroleum products	14,689	8,997	5,691	0.0%	23.5%	0.3%	0.1%
20 Chemical industry	31,703	34,417	-2,714	1.0%	0.8%	0.3%	0.1%
21 Pharmaceutical product manufacture	12,825	18,413	-5,588	0.5%	0.0%	0.1%	0.0%
22 Rubber and plastic product manufacture	9,748	10,081	-332	1.3%	0.2%	0.2%	0.1%
23 Manufacture of other non-metallic min. prod.	8,832	3,410	5,422	1.1%	0.5%	0.3%	0.2%
24 Metallurgy	21,182	17,843	3,338	0.1%	1.8%	0.0%	1.1%
25 Metal product manufacture	9,668	7,610	2,058	0.4%	0.1%	0.1%	0.1%
26 IT product manufacture	7,619	23,637	-16,018	0.4%	0.0%	0.2%	0.0%
27 Manufacture of electrical material and equipment	13,281	16,381	-3,100	0.5%	0.0%	0.1%	0.1%
28 Manufacture of machinery and equipment	17,046	21,046	-4,000	1.3%	0.0%	0.3%	0.0%
29 Motor vehicle manufacture	46,910	35,000	11,910	0.5%	0.0%	0.2%	0.0%
30 Manufacture of other transport equipment	8,881	6,840	2,042	0.6%	0.0%	0.1%	0.1%
31 Furniture manufacture	2,332	3,178	-846	0.6%	0.2%	0.2%	0.4%
32 Other manufacturing industries	4,138	8,582	-4,444	0.7%	0.0%	0.2%	0.0%
33 Repair and installation of machinery and equipment	0	0	0	0.0%	0.0%	0.0%	1.0%
TOTAL MANUFACTURING (10-33)	275,901	273,279	2,623	0.7%	1.1%	0.2%	0.3%

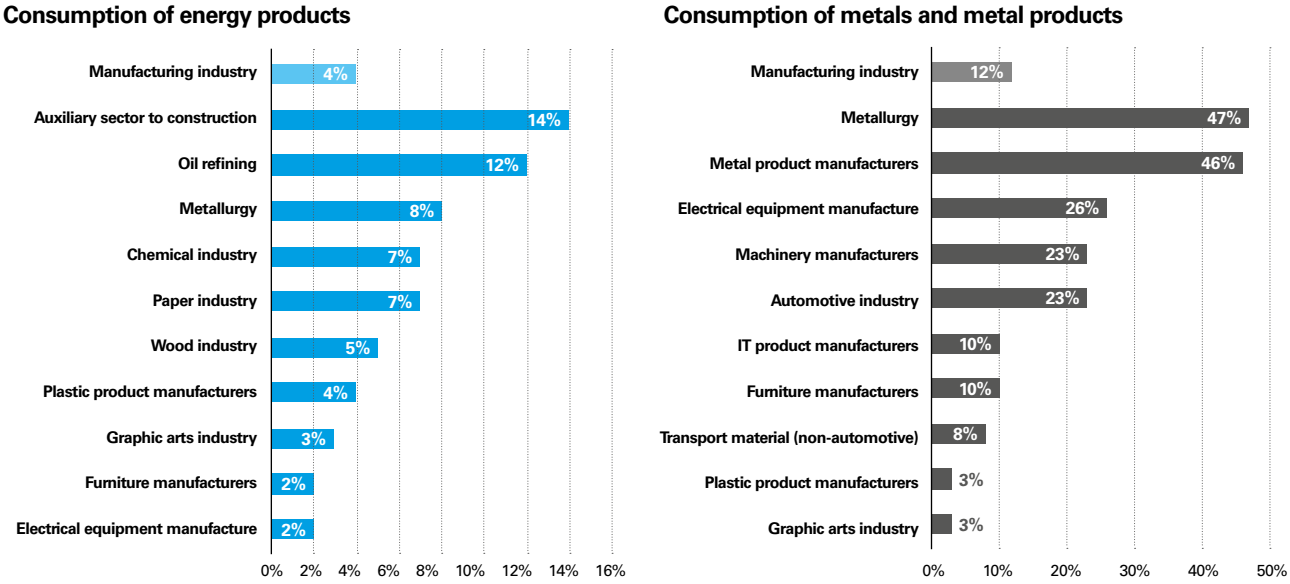
Source: CaixaBank Research, based on data from Aduanas (Spanish Customs).

Russia is the world's second largest oil producer (responsible for 12.5% of global exports) and one of the main producers of natural gas (6% of the total), commodities whose price has soared due to the outbreak of the conflict. It is also a major exporter of aluminium and especially nickel. Spanish industry is not a major exporter to either of the two countries involved in the conflict but imports are relevant for the refining industry, some mining industries, metallurgy and food (Ukraine and Russia account for 30% of wheat exports).

In addition to direct trade relations with Russia and Ukraine, Russia's prominent role in the markets for energy and metal commodities is putting significant pressure on prices that will substantially affect the cost structures of some of Spain's manufacturing industries. The industries most exposed to this shock will be pressurised to pass it on to their sale prices, resulting in less dynamic demand. According to our calculations, exposure to metal input prices is considerably greater than exposure to energy prices in the average manufacturing industry although, as can be seen in the following chart, a substantial number of industrial sub-sectors are notably exposed to both.

Share of energy consumption and expenditure on metal inputs

% of production at basic prices for each industry



Notes: Production value at basic price is a proxy for gross income. Energy products include: electricity and manufactured gas supply, coal and petroleum products, non-oil and non-manufactured natural gas. Metals and metal products include: metallic minerals, basic and manufactured metal products, without machinery.
Source: CaixaBank Research, based on data from the National Statistics Institute.

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In short, all the evidence suggests that industry will continue to be severely affected this year by the rising cost of several of its key production factors and the uncertainty caused by the conflict in Ukraine. However, it should also be noted that the sector will continue to enjoy relatively dynamic demand thanks to the recovery in demand for final goods and the efforts made to replenish inventories, as has already been observed in recent months. The easing of the health crisis and reactivation of NGEU-related projects will also partly offset external burdens and help to lay more solid foundations for long-term growth.[6]

All the evidence suggests that industry will continue to be severely affected by the rising cost of several of its key production factors and the conflict in Ukraine

(6) Spain's policy entitled *Política Industrial España 2030* (Component XII of the 5th lever of its Recovery Plan) aims to promote the sector's modernisation and productivity by digitalising the value chain, boosting productivity and competitiveness and improving the energy efficiency of strategic sectors that are key to the ecological transition and digital transformation. This industrial plan would have a total budget of 6,107 million euros, of which 3,782 million would be requested via the Recovery and Resilience Facility.

Global energy shock

Rising energy prices and their impact on the manufacturing industry: which sectors are being hit the hardest?

The increase in energy prices throughout 2021 as a result of the combination of the sharp rise in global energy demand (due to the reactivation of the economic cycle) and a certain weakness in supply (due to geopolitical problems and the change in the energy model towards non-fossil fuels) has led to a global energy shock. In 2022, the geopolitical context is putting extra pressure on international gas and oil prices, which could aggravate the already significant impact of the energy bill on Spanish industry. This article examines the specific impact of rising energy prices on manufacturing, analysing which sub-sectors are being most affected and to what extent they are exposed to more sustained pressure on energy prices.

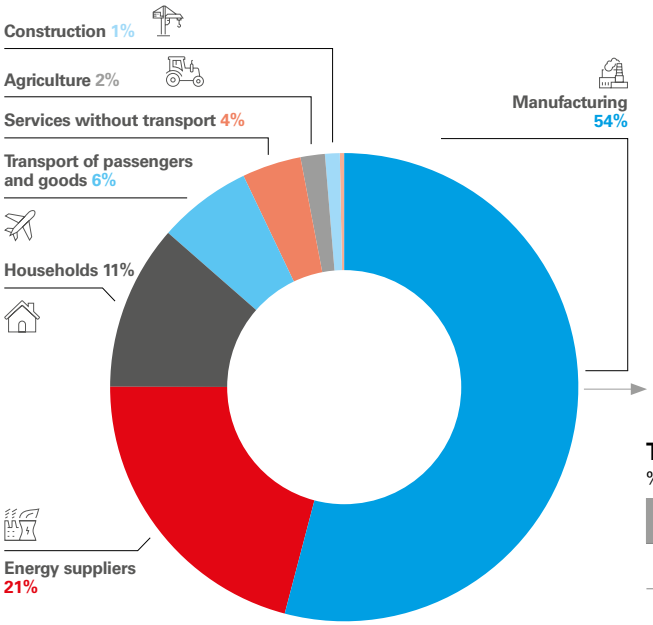
Manufacturing, a major consumer of energy

First, we must determine how the different sectors and agents in Spain's economy consume energy. A survey of physical energy flows provides useful information on energy consumption, disaggregated by energy type and sector of activity. In this case, we have analysed the consumption of electricity, natural gas and oil, the three products whose prices are currently experiencing the largest hikes.[7] As can be seen in the charts below, manufacturing industry as a whole is a major consumer of energy from these three sources, accounting for slightly more than half of the total energy consumed, well ahead of energy suppliers, which account for 64% of the natural gas consumed in Spain to generate electricity, and households, consumers of 26% of the electricity. Other very important sectors for the Spanish economy, such as hospitality services which are closely related to the key sector such as tourism, and the transport of goods, a major consumer of oil products, come a distant second in terms of energy consumption. We can therefore deduce that industry's energy consumption is indeed very high and energy prices are therefore key to its performance.

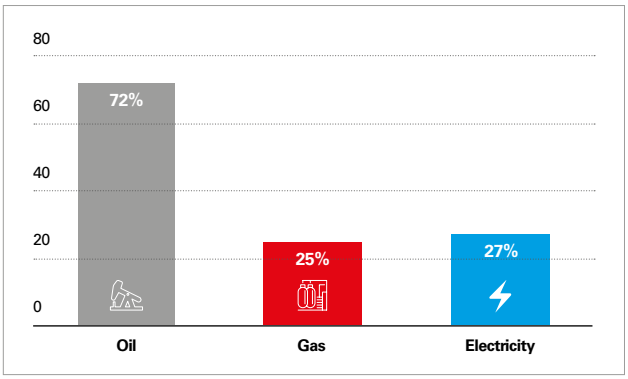
(7) According to Spain's industrial price index (INE) for February 2022, the supply price for gas grew by 99% year-on-year, that of oil refining products by 59% and electricity by 62%.

Manufacturing Industry

Energy consumption of oil, gas and electricity by businesses and households
% of total energy consumed by households and businesses



Manufacturing industry consumption by energy type
% of total energy consumed by households and businesses



Top 3 biggest consuming industrial activities
% of total consumed by manufacturing industry

Oil		Gas		Electricity	
Oil refining	95%	Oil refining	43%	Metallurgy	28%
Chemicals	2%	Chemicals	24%	Food and beverages	14%
Auxiliary sector to construction	1%	Auxiliary sector to construction	11%	Chemicals	11%

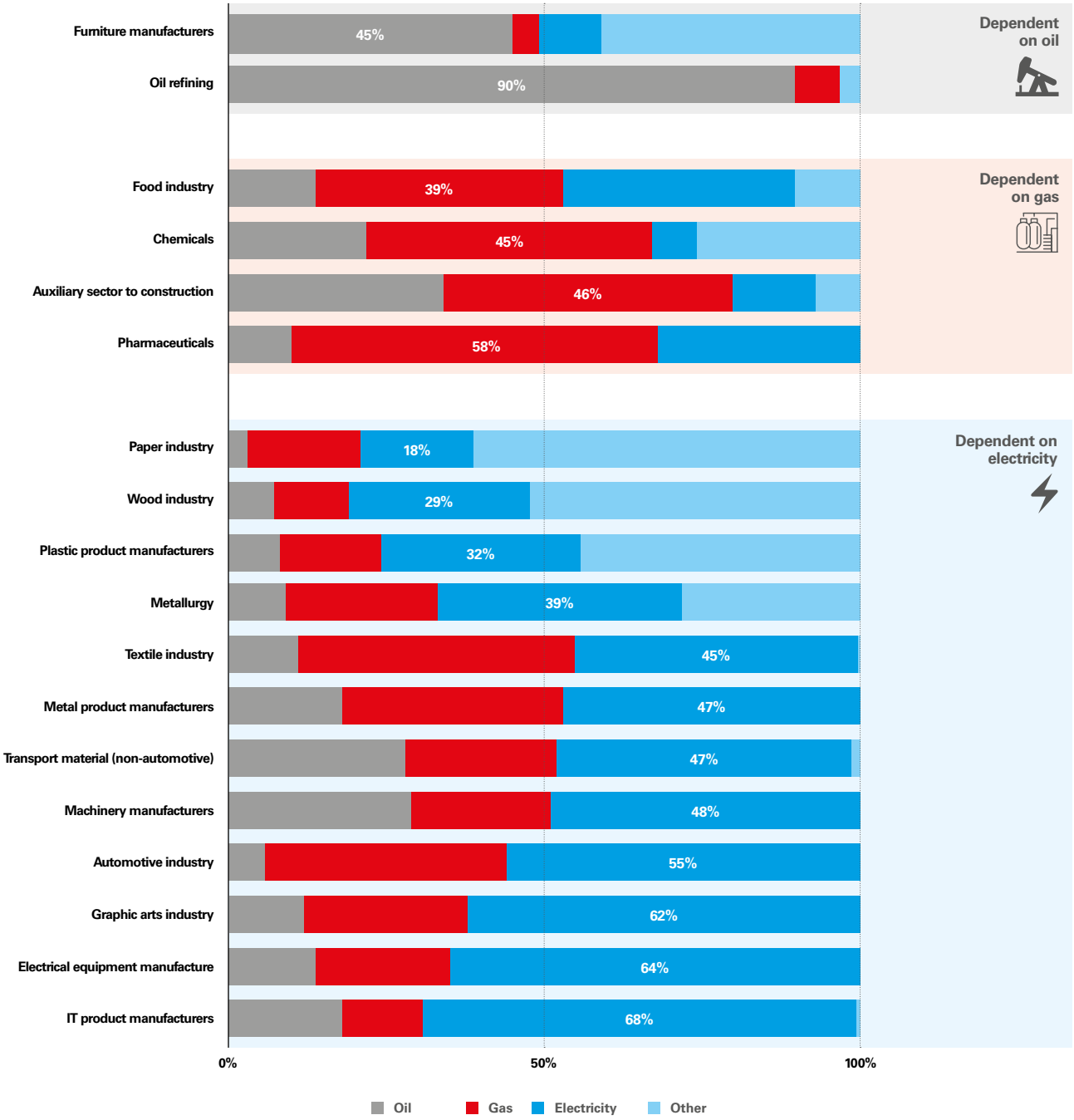
Source: CaixaBank Research, based on data from the National Statistics Institute.

Consumption of the three types of energy source (oil, gas and electricity) is not homogeneous across the sector. For example, within the total oil consumed by manufacturing industry, 95% is consumed by the oil refining industry itself, which uses this energy source mainly as an input to produce oil derivatives (two thirds of its consumption is crude oil). Such idiosyncrasies do not occur in the rest of the manufacturing sectors, so the exposure of each sector to the prices of the three utilities is very different. This is shown by the chart below, where great variability can be seen in the type of energy products consumed by each industry, although there is a larger number of industries that consume more electricity. There are also some industries with a higher consumption of other types of energy products, such as the plastics industry which consumes a relatively large amount of thermal energy, and the cases of the furniture, wood and paper industries, which consume wood for energy purposes (i.e. the burning of wood waste), as well as for production.

Great variability can be seen in the type of energy products consumed by each industry, although there is a larger number of industries that consume more electricity

Energy consumed by the manufacturing industry, by product

% of total energy consumed



Source: CaixaBank Research, based on data from the National Statistics Institute.

Manufacturing Industry

Rising energy prices are putting pressure on production prices

The intensive use of energy products has left the manufacturing industry highly exposed to the current energy shock. One of the main effects of this shock has been some sub-sectors passing on higher energy costs to their industrial production prices, showing a certain capacity to raise the prices of their products. Spain's Industrial Price Index (IPRI), which is compiled monthly by the National Statistics Institute, recorded a 10% rise in 2021 in manufacturing industry prices, the highest since 1985. Moreover, the year-on-year rates showed a clear upward trend throughout the year, in line with the intensification of the energy shock in recent months, ending December with 15.5% growth. It should be noted that this upturn in industrial prices is occurring on a global scale, so it has not translated into a worrying or significant loss of international competitiveness on the part of Spanish industry.

The oil refining, metallurgical and chemical industries have seen the largest increase in their product prices

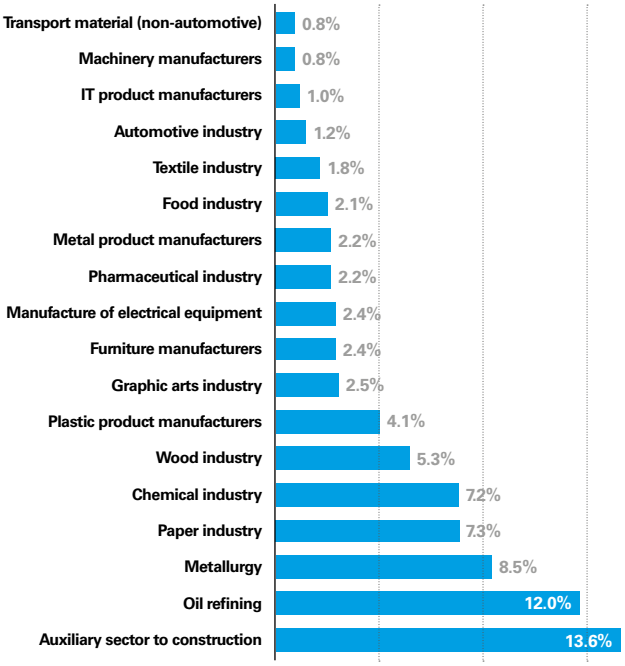
However, to fully understand the impact of the energy shock on each industry, it is not enough to know what types of energy they consume; we must also analyse the relative weight of energy consumption within their cost structure. For this purpose, we have used the input-output tables prepared by Spain's National Statistics Institute (INE) to calculate what proportion of each industry's revenue is used to pay for intermediate energy consumption, broken down by industrial branch.[8]

(8) The INE input-output tables correspond to 2018. This analysis takes the following products into account: Coke and refined petroleum products, Consumption of electricity, steam and air conditioning, and Consumption of manufactured gas.

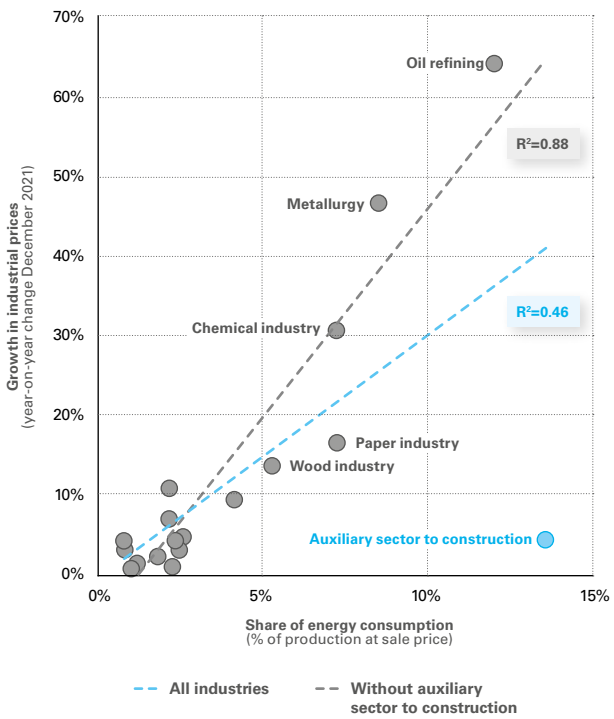
The auxiliary sector to construction, metallurgical, paper and refining industries are the biggest consumers of energy

The results of this analysis indicate that expenditure on energy inputs accounts for 4.1% of total manufacturing industry revenues (output at sales price). A priori, this figure would not reveal whether energy is a production factor that uses too large a share of the sector's resources. However, there are five industrial branches (chemicals, metallurgy, oil, paper and the auxiliary sector to construction) that are relatively energy-dependent, ranging from 7.2% (chemicals) to 13.6% (auxiliary sector to construction). These more exposed industries were under more pressure to increase the sale price of their products given the rise in energy prices experienced in 2021. This can be seen in the scatter chart where, if we exclude the case of the auxiliary sector to construction, the correlation between the increase in industrial prices and the relative weight of energy consumption have a very clear positive correlation. In the specific case of the auxiliary sector to construction (manufacturers of cement and other non-metallic minerals), their greater exposure to energy has not been passed on to prices due to the fact that a large part of the sector's sales were made at prices agreed at the beginning of 2021, although by 2022 we should start to see their sale prices rise.

Share of energy consumption
% of production at sale price



Share of energy consumption and increase in industrial prices



Source: CaixaBank Research, based on data from the National Statistics Institute.

Manufacturing Industry

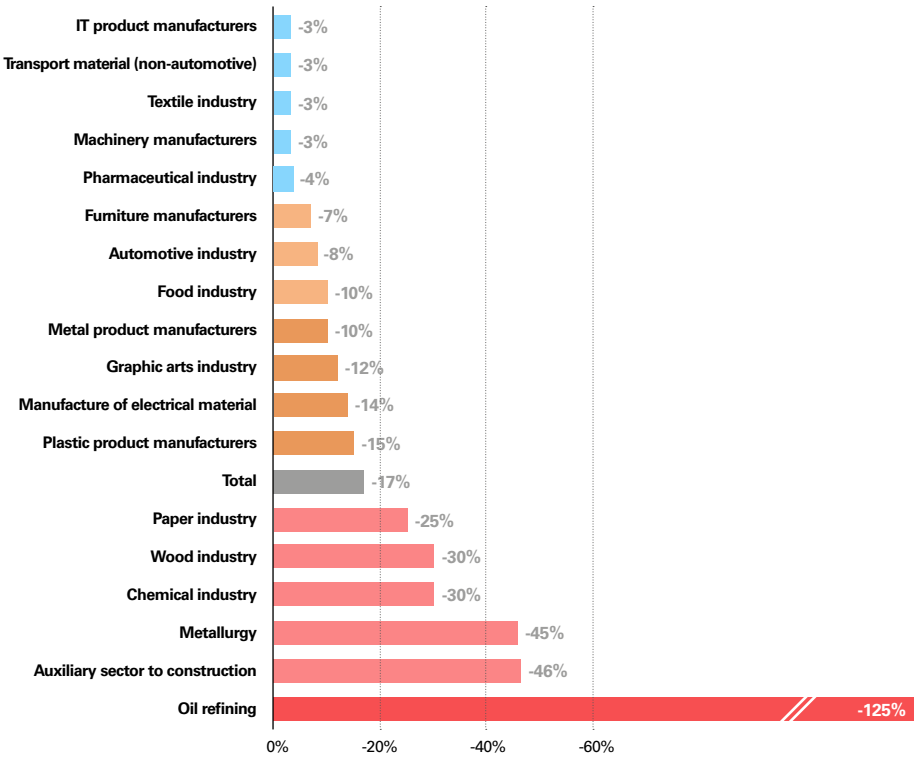
Although this analysis is very illustrative, given the situation we are experiencing in 2022 with the war in Ukraine putting pressure on energy prices, we must necessarily go a step further and determine the pressure that could be felt by each industrial sector to raise its prices, seeking to safeguard their margins but sacrificing part of their demand. We have therefore also analysed the sensitivity of the sector's economic performance to an increase in the supply price of gas, electricity and oil in Spain. Consequently, we are no longer only considering the relative weight of energy in the factors of production but also its share the total cost structure, including employee remuneration. To do so, we have cross-referenced the energy consumption exposure calculated from the input-output tables above with the national accounting data for each industry available for the year 2019. This allows us to analyse how the gross operating surplus (GOS) of each industry would vary in a scenario of increased costs due to higher energy prices, in the hypothetical case they do not adjust their sale prices.[9] Specifically, for this exercise we assume an annual increase in energy prices of 50% for gas, oil and electricity, similar to what was observed in 2021.[10]

(9) Gross operating surplus is equal to production at market price minus the total cost of intermediate consumption, employee remuneration and net tax payments. It can be assumed to be an estimate of the sector's profits.

(10) At the close of 2021, the increase in energy prices in Spain was 60% for oil (Brent) and 47% and 53% for the sale price of gas and electricity, respectively.

Sensitivity of the gross operating surplus to a 50% increase in energy prices, with sale prices remaining constant

Change in gross operating surplus



Note: A 50% increase in oil, gas and electricity prices has been applied, keeping everything else constant (sale prices, production, non-energy factor costs and wages).
Source: CaixaBank Research.

According to our results, under the energy price increase scenario we have defined, the manufacturing industry's GOS would fall by 17% if prices were not adjusted to sale prices, revealing that the industry is obviously under pressure from electricity, gas and oil prices in terms of its margins and therefore its sale prices. As can be seen in the chart above, the sectors identified previously as being most exposed to energy prices are also experiencing significant pressure on their GOS. In this case, the most prominent case is the oil refining industry which, if it did not pass on the shock to its sale prices, would see its margins become negative (a drop of more than 100% in its EBITDA), indicating the industry's need to adjust prices as much as possible to the changes in gas and oil prices, something which, on the other hand, it is able to do thanks to the low elasticity of its demand. One of the key findings of this analysis is that, in addition to the average impact being high, in just one third of the industries are their profits only moderately sensitive to higher energy prices, with pharmaceuticals being the least exposed to energy costs.

In just one third of the industrial sectors are their profits only moderately sensitive to higher energy prices

On balance, it seems clear that manufacturing is considerably exposed to increases in energy prices. According to our analysis, the metallurgical, chemical and refining industries (12% of manufacturing production in Spain) are highly exposed to the energy shock. Moreover, these are also the industries that are most likely to pass on the current rise in energy bills to their sale prices, taking advantage of the fact that their demand is relatively inelastic over the short and medium term.

On the other hand, there are a number of industries where the increase in the cost of energy products is having a major impact on their profits but these have not yet passed on their higher costs to their prices, although we expect them to do so during the course of this year. These would be sectors such as the auxiliary sector to construction (in fact, this is a frequent demand by the sector), the wood industry and paper industry. Such sectors account for between 20% and 25% of all manufacturing activity.

Manufacturing Industry

At the opposite end of the scale are those industries whose energy consumption appears to be somewhat lower, such as the manufacture of electronic and computer products, pharmaceuticals and textiles, among others. In this case, pressures on energy prices should not have a direct impact on their sale prices, although there is likely to be some kind of knock-on effect due to price hikes for other industrial intermediate products coming from industries more affected by energy prices.

Exposure to the energy shock

	Energy cost pressure*	Share of energy consumption**	Growth in prices (Dec. 2021)
HIGHLY EXPOSED INDUSTRIES, WITH LARGE PRICE HIKES			
Oil refining	Extreme	12%	64%
Metallurgy	Very high	8.5%	47%
Chemical industry	Very high	7.2%	31%
EXPOSED INDUSTRIES, WITH RISING PRICES			
Auxiliary sector to construction	Very high	14%	4%
Paper industry	High	7.3%	16%
Wood industry	High	5.3%	14%
Plastic product manufacture	Medium	4.1%	9%
Metal product manufacture	Medium	2.2%	11%
Manufacture of electrical equipment	Medium	2.4%	4%
Food industry	Medium	2.1%	7%
LITTLE EXPOSED INDUSTRIES, WITH STABLE PRICES			
Graphic arts industry	Moderate	2.5%	4%
Automotive industry	Moderate	1.2%	1%
Transport equipment (non-automotive)	Moderate	0.8%	4%
Textile industry	Low	1.8%	2%
Furniture manufacture	Low	2.4%	3%
Pharmaceutical industry	Low	2.2%	1%
Machinery manufacture	Low	0.8%	3%
IT product manufacture	Low	1.0%	1%

Notes: (*) Pressure of energy costs: sensitivity of gross operating surplus to an increase in oil, gas and electricity prices.
(**) Share of energy consumption: the relative weight of the intermediate consumption of oil, gas and electricity in the total revenue of each industry (production at basic price).
Source: CaixaBank Research, based on data from the National Statistics Institute.

Trade flows and manufactured goods

Global value chains: yesterday, today and tomorrow

Made in Spain, Made in the USA and even *Made in China* labels make less and less sense in today's world. Since firms decided to fragment their production processes and move them to other countries, the label *Made in the World* probably better represents the nature of most of the manufactured goods we consume. In this article we review the past, present and future of global value chains at a time when pandemic-induced restrictions on travel and supply disruptions have brought them back into the spotlight.

The creation of global value chains

The 1990s saw the beginning of a far-reaching optimisation of production processes beyond the borders of a single country. Companies decided to fragment these processes and carry them out in as many countries (in order to make the most of each country's advantages of specialisation), giving rise to what are known as global value chains (GVCs). Several factors helped to encourage the creation of GVCs but first and foremost were the advances made in information and communication technologies (ICTs), which enabled the different production stages to be coordinated perfectly. A second factor was the reduction in trade costs, helped by the important free trade agreements reached during that decade,[11] as well as by improvements in transportation, especially by air.

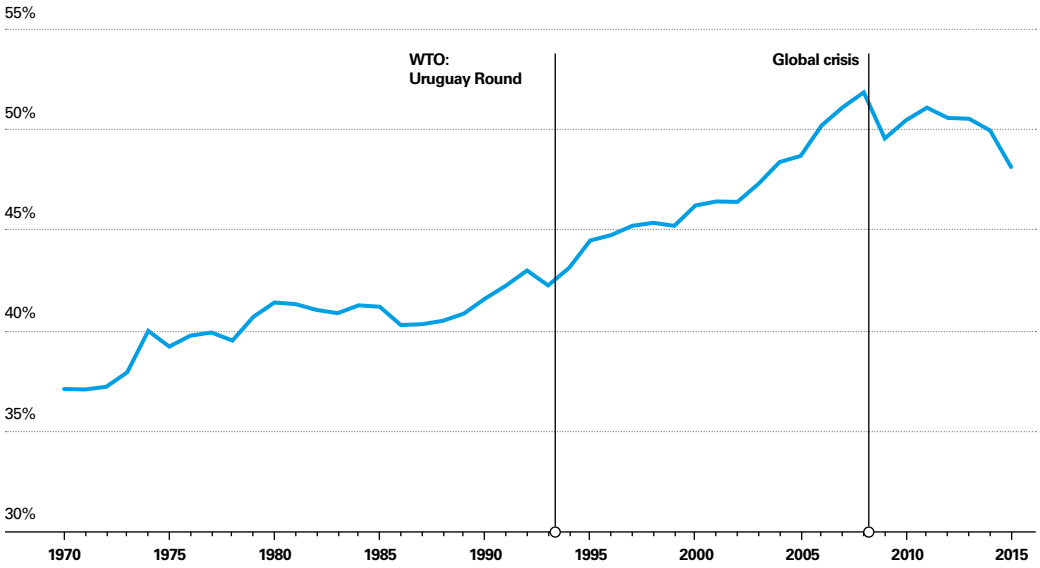
In fact, GVCs have boosted international trade flows to values that were unthinkable a few decades ago: exports of goods and services as a percentage of GDP rose from around 18% in the early 1990s to levels close to 30% just before the pandemic, while the relative weight of GVCs in total trade flows went from around 40% to just over 50% in the same period (see the chart below).[12]

(11) 1994 saw the conclusion of the largest round of multilateral trade negotiations (the Uruguay Round), in which 123 countries took part. Also in 1994, the North American Free Trade Agreement (NAFTA) was concluded. Both agreements led to a substantial reduction in tariffs worldwide: from levels of around 16% in the early 1990s to 5% today (according to World Bank data, simple averages).

(12) The development of GVCs was particularly dynamic between 1990 and the early 2000s, just before the outbreak of the global financial crisis. Since then, the relative importance of these chains in trade seems to have stagnated.

The importance of global value chains in trade flows

Share in total trade (%)



Source: World Bank («Trading for Development in the Age of Global Value Chains», 2020).

The pandemic: present impact and future approaches to GVCs

The COVID crisis has raised many doubts regarding the high degree of globalisation achieved, as well as the adequacy of GVCs. At first, in countries such as Spain, we became aware of the high external dependence (beyond the EU's borders) of goods which, at that time, were essential.

In a second phase, with the strong recovery in demand focusing particularly on durable goods and the disruptions in some factories due to the effects of COVID,[13] we have been faced with a global supply shortage problem we had not experienced since GVCs were created. And, in this world of global manufacturing, disruption in one stage of the production chain leads to major disruptions throughout the entire process. The longer the GVC, the greater the impact (the bullwhip effect).

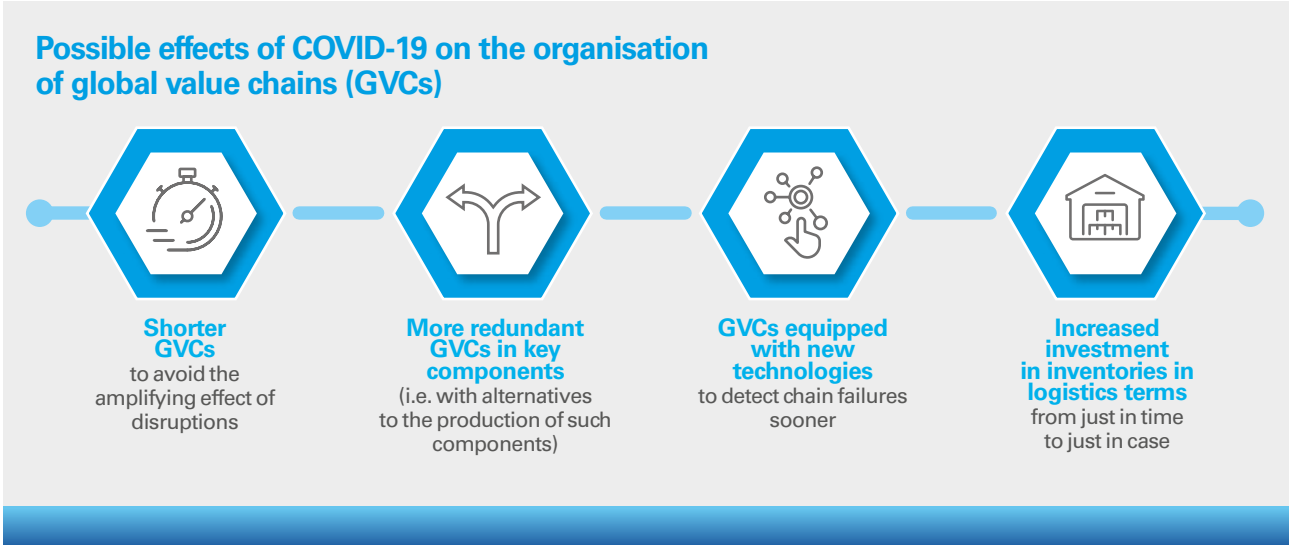
(13) See the article «Bottlenecks: from the causes to how long they will last» in the *Monthly Report* of December 2021.

Such disruptions will undoubtedly change people's minds about GVCs. Although it is still too early to know what changes the future holds, we can suggest some strategic rethinks company directors are likely to pursue in order to increase the robustness of the production chain.

First, the chains will probably be shorter to avoid the amplifying effect of disruptions. Secondly, they will be more redundant in key components. In other words, there will be alternatives to the production of these components. Thirdly, they will be equipped with new digital technologies that will enable them to detect chain failures early on. And, in terms of logistics, investment in inventories is likely to increase: from just in time to just in case, as stated in a recent article by the *Financial Times*[14] (see the chart below).

(14) See the *Financial Times* (December 2021). «Supply chains: companies shift from 'just in time' to 'just in case'».

Global value chains are likely to be shorter in order to avoid the amplifying effect of disruptions



However, it should be noted that these possible strategic changes, if they occur at all, may be more gradual and less far-reaching than we might have assumed after the shock of the pandemic. One of the reasons is that such changes would entail an increase in costs, with the evident impact on prices consumers would have to pay. In a globalised world, this could mean a significant loss of competitiveness compared with other countries and/or companies. Furthermore, as Harvard professor Pol Antràs has noted, the configuration of GVCs forces companies to incur large sunk costs, which leads to them being extremely rigid regarding strategic production changes.[15]

(15) See Antràs, P. (2020). «De-Globalisation? Global Value Chains in the Post-COVID-19 Age». *National Bureau of Economic Research*, no. w28115.

In other words, the COVID shock will indeed bring about a change in our approach to the configuration of new GVCs and may certainly lead to some rethinking of the existing chains. But, in the latter case, this rethinking might be less radical and rapid than some are predicting.

The future of GVCs: plus and minus factors

In addition to the impact of the pandemic, other factors (mostly new technologies) have the capacity to reshape GVCs and we present a brief review (see the diagram below).[16]

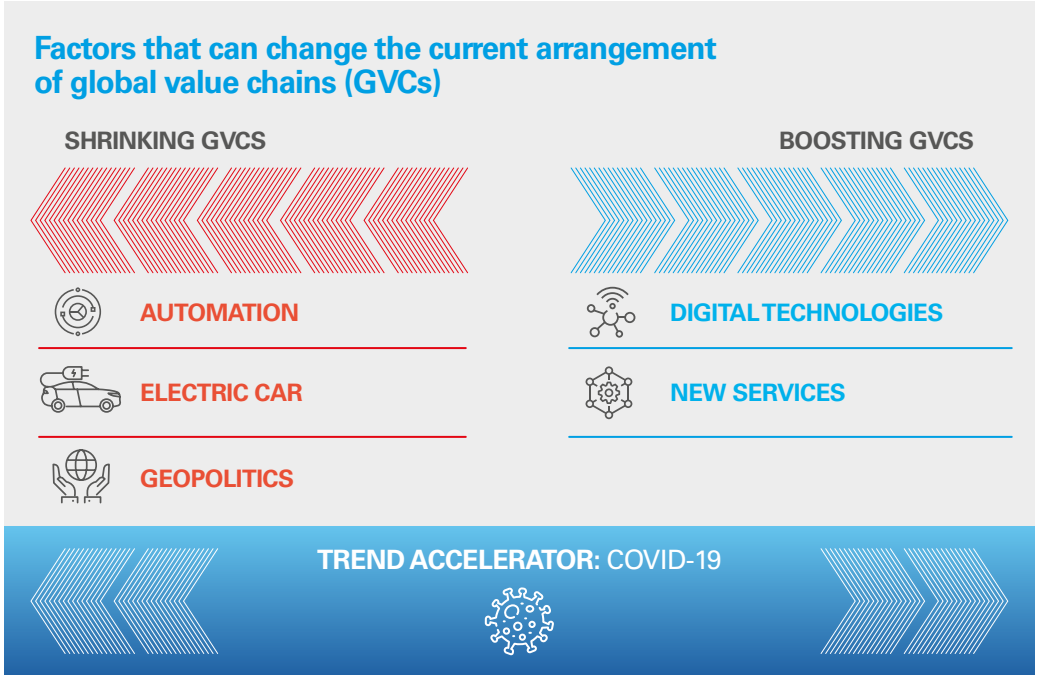
(16) Based partly on Canals, C. (2020). «Revolución tecnológica y comercio internacional 4.0». Geopolítica y Comercio en tiempos de cambio. Published by CIDOB.

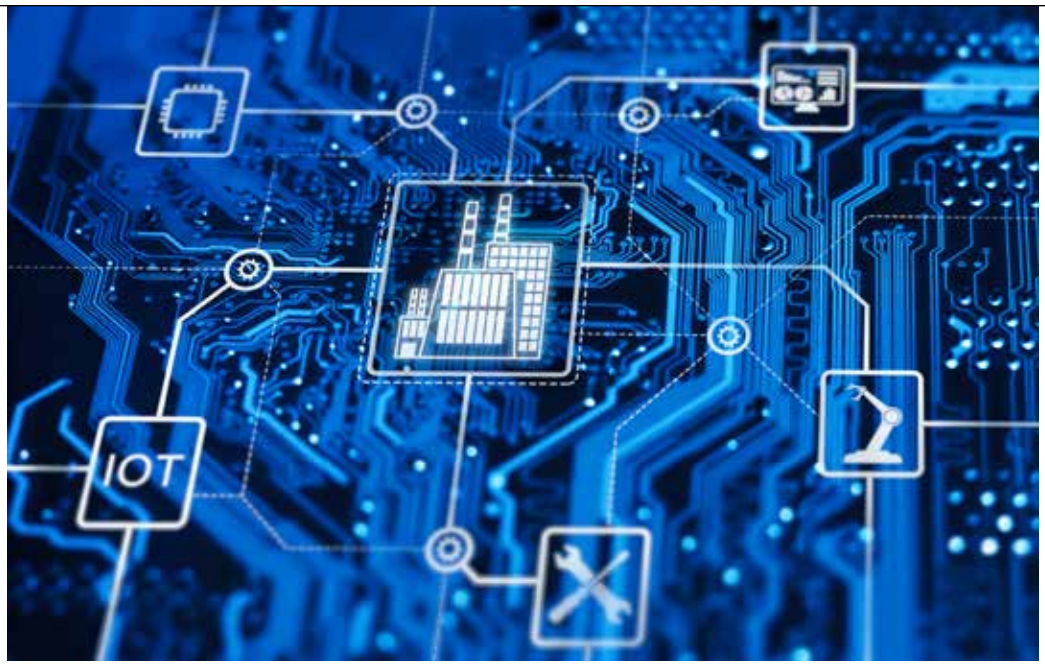
Automation and 3D printing

Although automation is a process that has been going on for centuries, today's robots, equipped with artificial intelligence and at a cost that has decreased substantially over the past few decades, represent a full-fledged revolution. The improved productivity of these new robots may result in some of the manufacturing processes which had been moved to emerging countries in order to take advantage of low labour costs now returning to advanced countries. In other words, we would be shifting from an offshoring to a reshoring trend, which would entail a certain reversal in the globalisation of supply chains.

On the other hand, 3D printing is a technology that could result in GVCs becoming shorter and, along with this, to the reshoring of part of the manufacturing activity. In fact, with this technology, it is not necessary to send physical products; all that's required are the computer files to manufacture them! However, there is still no clear evidence in this respect. In fact, a paper published by the World Bank shows a strong increase in trade flows following the adoption of 3D technology in hearing aid production, something we would not expect with a shortening of GVCs.[17] Although this is a very specific case, it does reveal some interesting effects that need to be considered. In particular, the hearing aid sector adopted 3D printing for almost all its parts when this became technologically feasible (about 10 years ago) and, since then, trade flows linked to the sector have increased by 60%. The main reason for this growth is that 3D printing has led to a huge reduction in the production cost of hearing aids and an improvement in terms of quality, resulting in a sharp increase in demand for the product. And with greater demand, international trade in hearing aids has intensified.

(17) See Freund, C. L, Mulabdic, A. and Ruta, M. (2020). «Is 3D Printing a Threat to Global Trade? The Trade Effects You Didn't Hear About». World Development Report.





The electric car

Another case that also warrants particular attention is that of electric cars, which have the potential to alter some of the most relevant GVCs (those of the automotive sector), as well as to considerably reduce international trade. The reason is that classic combustion-engine cars require a large variety of parts and gears that are often manufactured in different countries to maximize the competitive advantages of each location. In fact, the automotive sector is responsible for a substantial part of the world's trade flows of intermediate goods. However, the electric car, with its much simpler mechanics (far fewer parts that are also less subject to wear and tear) could lead to a reduction in these classic intermediate flows and, consequently, to a radical change in the structure of automotive GVCs.

The production of batteries, a key component for the new electric vehicles, will also determine the future of numerous trade flows, which in this case will focus on raw materials such as lithium, nickel and cobalt.

Digital technologies and the emergence of new services

The continuous evolution of ICT, hand in hand with 5G and blockchain technology, will continue to push down logistics costs and, with it, boost the trade flows of goods and services and participation in GVCs. For instance, 5G will support the development of the Internet of Things, which will enable faster and more secure tracking of shipments in the case of goods, and better connections in the exchange of services. Likewise, blockchain has the potential to greatly facilitate international payments.

On the other hand, these digital technologies will also encourage the emergence of new products, especially services, whose organisation could be decentralised and located in different countries, creating new GVCs in the image and likeness of the chains already established for the production of manufactured goods.

History reminds us that technological development and international trade are not independent of geopolitical developments

Geopolitics

Finally, it should not be forgotten that geopolitics has always played an essential role in international trade. In this respect, the USA's intention to «decouple» from China, especially in the field of technology, could bring about a very significant change in world trade and in how GVCs are managed, especially in the technology sector. Even more so because the US is not alone in wanting to put more distance between itself and other economies. For instance, Europe also seems willing to reduce its external dependence in some technology segments, such as semiconductors, with the *European Chips Act*.

In summary, although we do not expect any radical or abrupt change in the form taken by GVCs since they tend to be relatively stable over time, we might see a change in trend in the next few years due to the various 4.0 technologies. In addition to these ongoing trends, factors such as the Coronavirus crisis will further exacerbate certain technological dynamics. However, history reminds us that technological development and international trade are not independent of geopolitical developments. And in this respect, trade-technology tensions between the US and China will play a decisive role.

A key strategic sector

The Spanish pharmaceutical industry

The pharmaceutical industry is a key and strategic sector for Spain's economy, as was clearly demonstrated by the pandemic. In the past 25 years, the sector has become hugely significant and an important driver of Spanish exports and private R&D investment. Nevertheless, its production capacity still has room for improvement. The future of Spanish industry should be more closely linked to the pharmaceutical sector with a commitment to promote its growth, not only for strategic purposes but also for purely economic reasons, since it is an extremely competitive industry with a great capacity to generate good quality jobs that would help to modernise Spain's economy.

The emergence of COVID-19 has hit the global supply chains hard, resulting in shortages of some products (mainly intermediate goods) and price tensions. This has been, and continues to be, the case of microchips or semiconductors, whose scarcity is causing disruptions in European automobile assembly lines.[18] Another sector in which such disruptions were particularly intense and evident has been pharmaceuticals. From the beginning of the pandemic until the middle of last year, there were shortages of certain pharmaceutical products such as testing kits (PCR and antigen) and masks, not to mention the shortage of vaccines during the first four months of 2021. All this indicates that the pharmaceutical industry is a key sector that nevertheless lacks the necessary capacity to ensure a certain degree of independence from the rest of the world, highlighting the need to commit decisively to developing this sector further, bearing in mind that it is extremely productive and competitive both in Spain and in the rest of the EU.

(18) See the article «The global chip supply: disruptions and new trends» in the Dossier of the *Monthly Report* of February 2022.

The nature of the pharmaceutical industry

The pharmaceutical industry is not a very large sector in Spain's economy, although it is not insignificant either. According to 2019 National Accounts data, pharmaceuticals directly generated €6,846 million in gross value added (GVA), 0.6% of the total Spanish economy. It is the eighth largest industrial sector in the country, accounting for 5% of the manufacturing industry's GVA.

Like any other economic activity, the pharmaceutical industry also generates activity indirectly (through a knock-on effect), thanks to the important ramifications it has for other sectors, such as healthcare and retail, through the large network of pharmacies present in Spain. According to our calculations, the pharmaceutical industry's knock-on effect is 76%, which means that for every 100 euros of value added it generates directly, the sector indirectly contributes an additional 76 euros in other sectors.

Manufacturing Industry

If the pharmaceutical industry is to be singled out in particular, it is essential to mention its prominent role in exports and R&D investment. Specifically, pharmaceuticals were Spain's fourth most exported product in 2020, accounting for 4.9% of all goods exported (12,777 million euros).[19] It also drives R&D investment, with the sector mobilising 4.9% of total investment in 2020 according to INE data (8.8% if public authorities and universities are excluded) and accounts for nearly 20% of R&D investment in manufacturing industry.

(19) Only TARIC categories 87-Motor vehicles, 84-Mechanical machinery and apparatus, and 85-Electrical apparatus and equipment achieved more exports in 2020 than category 30-Pharmaceuticals.

Pharmaceutical industry: key data

		date of data	Share of the Spanish economy	Share of the manufacturing industry
GVA	**6,846** million euros	2019	0.6%	5.0%
EMPLOYMENT	**56,448** registered workers affiliated to Social Security	2021	0.2%	2.1%
EXPORTS	**12,777** million euros	2020	4.9%	5.5%
R&D INVESTMENT	**774** million euros	2019	4.9%	19.1%
			Spanish economy	**Manufacturing industry**
LABOUR PRODUCTIVITY*	**€168,620** per employee	2019	**€61,461** per employee	**€72,081** per employee

Note: (*) Gross value added per full-time equivalent employee.
Source: CaixaBank Research, based on data from the National Statistics Institute.

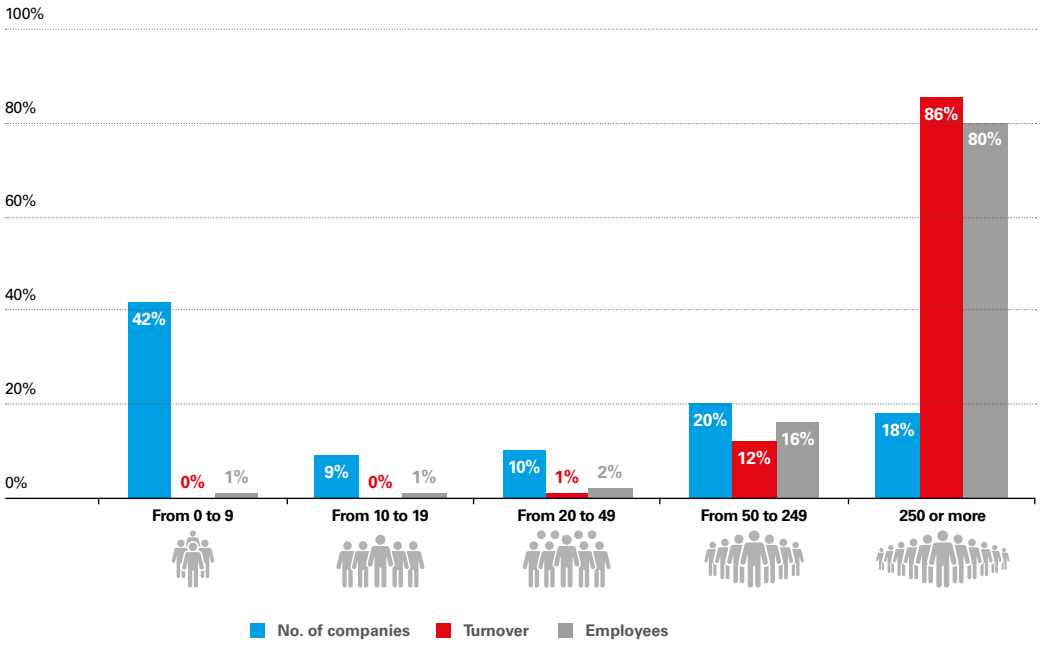
The pharmaceutical industry is also considerably productive, with a gross value added per employee that more than doubles the average for the Spanish economy and the manufacturing industry as a whole. This high productivity is the result of several factors, including: (i) the high proportion of qualified personnel, with 62% of its employees holding higher degrees (the average for Spain is 45%); (ii) the valuable leverage provided by the sector's extensive investment in R&D, and (iii) the significant share of large companies, being the second industrial sector with the highest percentage of companies with over 250 employees (18% compared to 1% for the economy as a whole).

The pharmaceutical industry is highly productive, with a gross value added per employee that more than doubles the average for the Spanish economy

With respect to this last factor, and as can be seen in the chart below, the role played by large companies is crucial, not only in terms of number but also in turnover and employment. In addition, their high concentration of turnover confirms the enormous productivity they contribute to the sector as a whole: the fact that it is a sector made up of large firms is key its strong competitiveness.

Size the pharmaceutical industry by number of employees

% of the sector as a whole



Source: CaixaBank Research, based on data from the National Statistics Institute.

The performance of Spain's pharmaceutical industry in recent decades

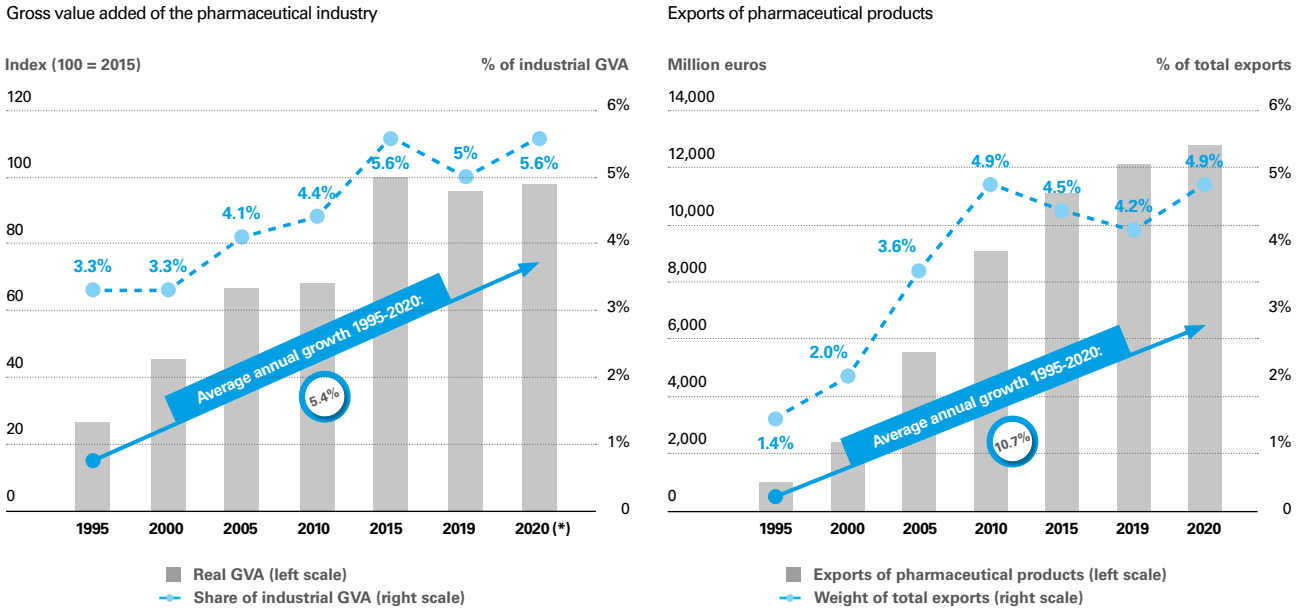
As we have seen, the characteristics of the pharmaceutical industry reveal that, although it accounts for a relatively small part of the Spanish economy as a whole, it is an extremely relevant and competitive player. However, not so long ago its capacity was considerably lower than it is today: the transformation undertaken by its companies to become more competitive and its openness to foreign markets have been two growth factors that have turned it into one of Spain's most dynamic industrial sectors.

> **The transformation of pharmaceutical companies to become more competitive and their openness to foreign markets has turned the sector into one of Spain's most dynamic**

Manufacturing Industry

As shown in the following charts, the pharmaceutical industry has grown substantially over the last 25 years. Both GVA and, above all, exports of pharmaceutical products have increased at a considerably faster rate than the average for the Spanish economy and manufacturing industry. Specifically, the GVA of the economy as a whole grew at an average of 2.1% per year between 1995 and 2019 while, over the same period, the GVA of the pharmaceutical industry increased at a rate of 5.6% per year (more than double). It is also noteworthy that, according to our estimates, the sector's GVA did not decrease in 2020 but grew by 2.1%. The trend in exports has been similar, with a growth rate in the past 25 years that has doubled the increase in total exports (10.7% *vs.* 5.4%), resulting in the sector increasing its share of Spain's exports from just 1.4% in 1995 to 4.9% in 2020.

Increasing relevance of the pharmaceutical industry



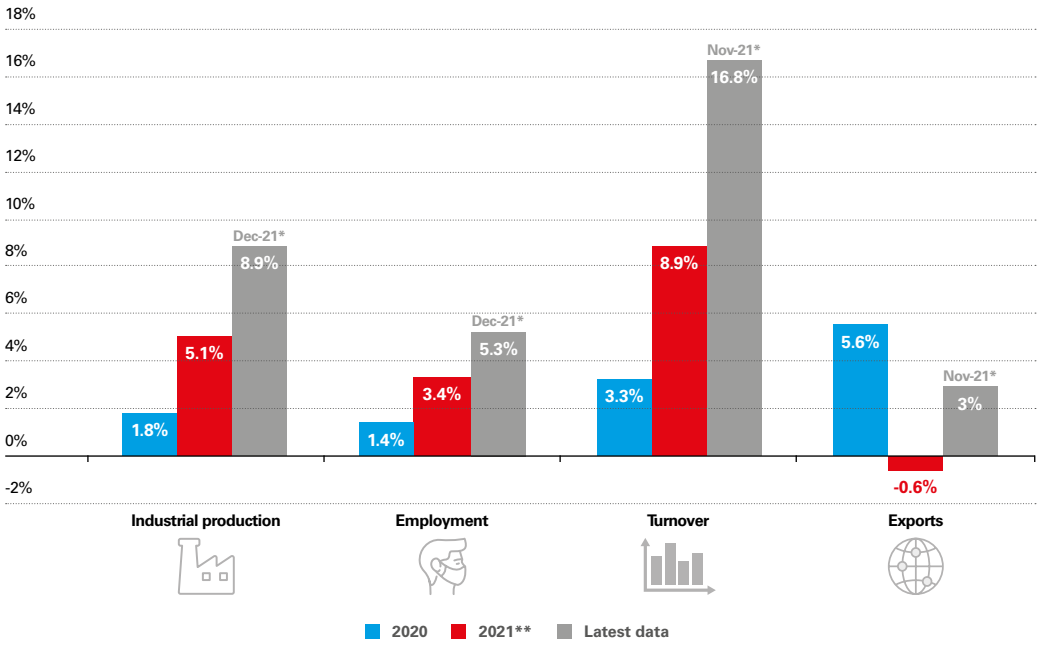
Note: (*) Data estimated by CaixaBank Research.
Source: CaixaBank Research, based on data from the National Statistics Institute and DataComex.

The pharmaceutical sector during the pandemic

The pandemic has been an unprecedented shock for the Spanish economy as a whole but the pharmaceutical industry hardly suffered at all. So much so that, during May 2020, the month in which furloughs were most extensively implemented, the proportion of jobs affected by furloughs in this sector barely reached 1.6% of the total, while in manufacturing industry as a whole the proportion was 16.4%. This is not the only evidence that helps us to infer the almost zero impact of the restrictions on the sector: the rest of the activity indicators were positive for 2020 as a whole, as can be seen in the chart below. This positive trend intensified in 2021, with the exception of exports, posting even higher growth than in 2020 and a particularly strong year-end record for production, employment, turnover and even exports, which had suffered particularly in Q3 2021 but recovered strongly at the end of the year.

Economic indicators for the pharmaceutical industry

Change compared to the same period the previous year



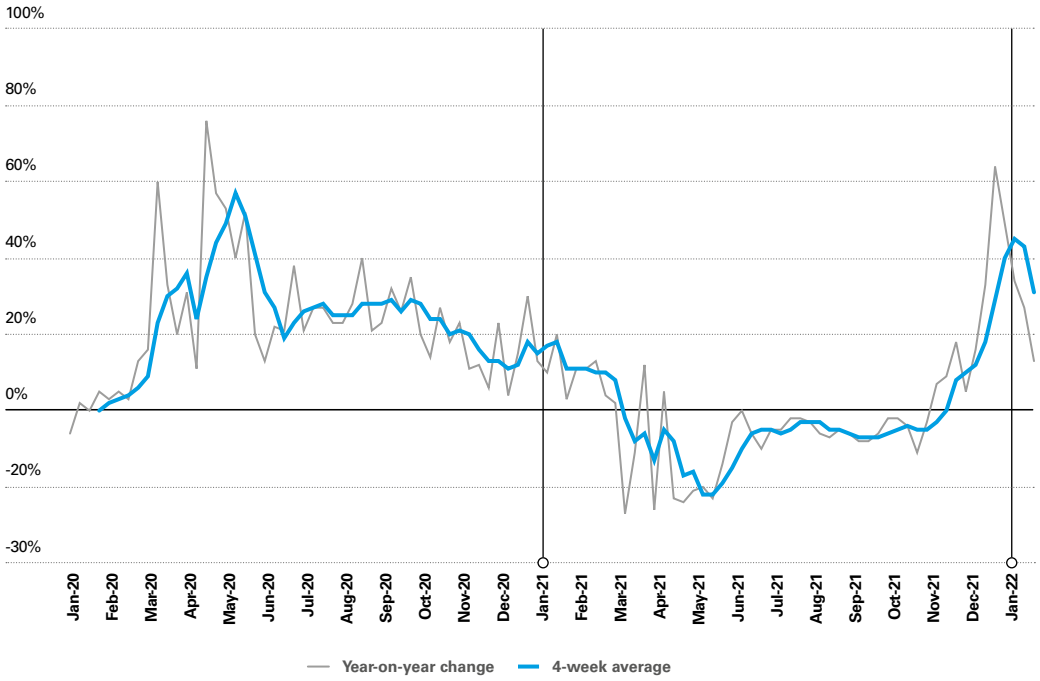
Notes: (*) Registered workers not furloughed. (**) Data between January and November have been used for turnover and exports. Due to the high volatility of the monthly indicators of industrial production, turnover and exports, average data for the last three months available are shown.
Source: CaixaBank Research, based on data from the National Statistics Institute and DataComex.

This excellent performance by the pharmaceutical industry since 2020 has been cemented by huge growth in demand. In fact, not only foreign but also domestic demand has clearly played a part in the industry's very positive figures. One of the channels for domestic demand is the extensive network of pharmacies in Spain, which have seen considerable growth in sales thanks to the big increase in demand for drugs linked to the treatment of COVID-19 symptoms, the massive sale of masks and, more recently, antigen tests. According to CaixaBank card activity indicators, pharmaceutical retail turnover grew by 23% in 2020 then eased by 1.2% in 2021, although it ended the year with 33% growth in December. This strong interrelationship between production and the domestic retail network makes it even more desirable to develop the pharmaceutical industry as it highlights its potential to indirectly generate economic growth.

One of the channels for domestic demand is the extensive network of pharmacies in Spain, which have seen considerable growth in sales

CaixaBank card activity in pharmacies

Year-on-year change



Note: The indicator includes CaixaBank card activity, excluding cards originating from or shared with Bankia.
Source: CaixaBank Research, based on internal CaixaBank data.

Committed to boosting the pharmaceutical industry

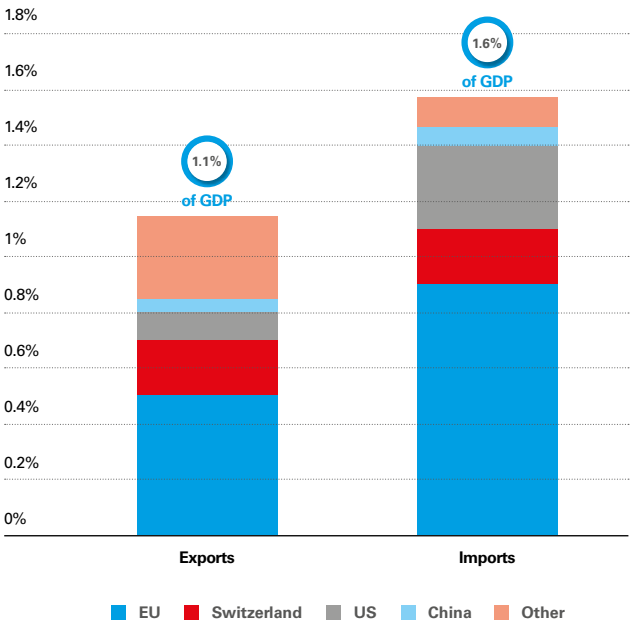
Although the pharmaceutical industry has been a particularly dynamic sector in recent decades, it is not yet a benchmark at a European level. Although, in absolute terms, Spain's pharmaceutical industry is the fifth largest in the euro area, after Germany, France, Belgium and Italy, its relative weight in the national economy (0.6% of GVA) is close to, but below, the euro area average (0.7%), as can be seen in the following chart, and it is far from the outstanding cases of Belgium (2.5%) and Slovenia (2.9%), both markets benefitting from head offices being located in their countries.[20]

(20) Data not available for Ireland. The euro area average is calculated using the 18 countries with available data.

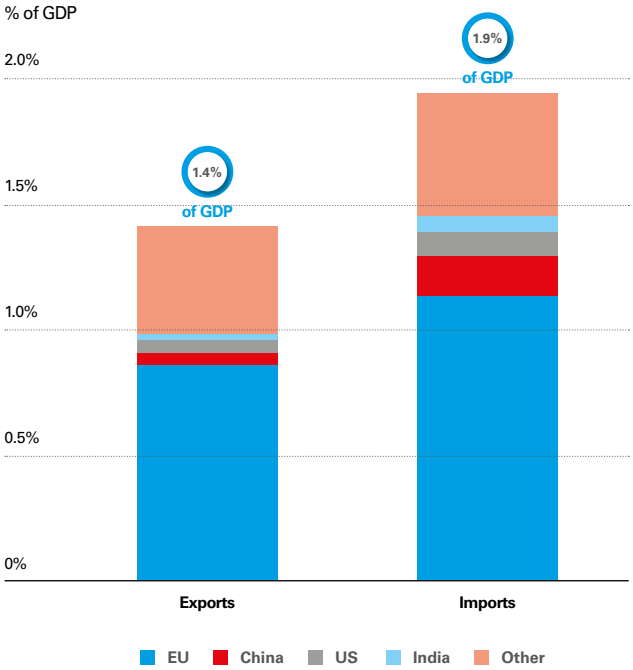
Moreover, despite being an industry that generates a significant volume of exports, Spain has historically had a deficit in its balance of trade in pharmaceutical products. Specifically, in 2020, pharmaceutical exports accounted for 1.1% of GDP while exports as a whole represented 1.6%. This deficit comes mainly from trade with the rest of the EU, the USA and China, while Spain exports 30% more than it imports from Switzerland, our second largest trading partner. Once again, these data show the production capacity of Spain's pharmaceutical industry could be better, given its large deficit with the rest of the EU. Nevertheless, it has, but it has an attractive degree of competitiveness and specialisation, which makes it capable of achieving a trade surplus with one of the most powerful producers in the world, Switzerland, a country that has a larger pharmaceutical industry than Germany.

It is also useful to study the extent to which the production of pharmaceutical products depends on other countries. To this end, we have analysed the trade balance of chemical raw materials (CNAE 201 and 205), which are key to the manufacture of pharmaceutical products. Spain also has a trade deficit in this area, although its dependence on markets outside the EU leans much more towards China and India, two key exporters of chemical raw materials on a global scale.

Pharmaceuticals trade balance in 2020
% of GDP



Chemicals trade balance in 2020
% of GDP



Source: CaixaBank Research, a partir de datos de DataComex.

In conclusion, although Spain's pharmaceutical industry is very competitive and dynamic, it still has considerable margin to achieve a more relevant role in the national economy, something that has become evident during the pandemic with the lack of production capacity for key products and consequent supply shortages in 2020. The pharmaceutical industry should not be left to achieve such prominence on its own, even though it has already shown itself to be quite capable of doing this thanks to its outstanding competitiveness. Its role must be strengthened both at a strategic level, ensuring a key industry has sufficient production capacity, and at an economic level, as it is a sector with high added value that is extremely productive, an investor and exporter and capable of generating high quality jobs.

Spain's Recovery, Transformation and Resilience Plan contains actions that could boost the growth of the pharmaceutical industry in chapters 12 (Industrial Policy 2030) and 18 (Renewal and expansion of the capacities of the National Health System), with a proposal to review the regulations regarding drug development and increase investment in R&D. The enormous prominence achieved by the pharmaceutical industry during the pandemic could therefore become more than a mere anecdote; rather an opportunity to provide the sector with the necessary tools to continue growing and gaining relevance in the Spanish economy.

Manufacturing Industry

Main indicators for the manufacturing sector

Annual change, unless otherwise specified

	Average 2000-2007	Average 2008-2014	Average 2015-2019	2020	2021	2022	Date of latest data	Standard deviation	Average	Trend
Economic activity indicators										
Total GDP of the economy	3.7	-0.9	2.8	-10.8	-6.4		Q4 2021	4.01	1.81	
GVA manufacturing industry	1.9	-3.0	2.4	-12.1	-6.8		Q4 2021	5.78	0.84	
Industrial production index: manufacturing industry	1.4	-4.6	2.4	-10.3	-2.9	2.3 (*)	Jan-22	7.22	0.49	
Industrial production index: agrifood	1.8	-0.4	1.0	-5.7	-0.1	6.0 (*)	Jan-22	3.56	1.20	
Industrial production index: automotive	1.6	-4.5	3.1	-18.8	-19.7	-9.5 (*)	Jan22	18.50	0.18	
Turnover index: manufacturing industry		-2.7	3.0	-12.0	2.1	17.9 (*)	Jan-22	10.07	1.73	
Turnover index: agrifood	4.1	0.8	2.7	-4.2	4.3	10.2 (*)	Jan-22	4.96	2.41	
Turnover index: automotive	4.7	-1.3	5.1	-10.5	-13.1	-5.5 (*)	Jan-22	22.53	2.82	
Demand indicators										
Passenger car registrations	1.0	-7.5	8.3	-32.3	-31.7	4.2 (*)	Feb-22	103.44	7.92	
Registrations of load-bearing vehicles	3.5	-8.5	13.5	-25.9	-27.9	-22.3 (*)	Feb-22	40.40	5.24	
Labour market										
Total registered workers in the economy	3.5	-2.1	3.1	-2.1	0.4	4.5	Feb-22	3.11	1.13	
Registered workers, manufacturing industry	-	-3.6	1.8	-2.1	-0.8	2.9	Feb-22	3.38	-0.43	
Total employees	4.2	-2.4	2.7	-2.9	0.0		Q4 2021	3.51	0.93	
Employees, manufacturing industry	-	-5.3	3.1	-2.6	-2.9		Q4 2021	5.51	-1.44	
Temporary employment rate (% of employees)	32.6	25.0	26.2	24.0	23.7		Q4 2021	3.65	27.50	
Temporary employment rate, manufacturing ind. (% of employees)	-	17.3	20.7	17.1	16.8		Q4 2021	2.23	18.52	
Foreign sector										
Manufacturing industry exports	7.6	3.7	4.5	-10.7	6.2	16.9 (*)	Jan-22	7.26	4.69	
Agrifood exports	7.4	6.8	5.8	4.2	17.3	-12.2 (*)	Jan-22	4.75	6.69	
Automotive exports	6.1	1.4	4.8	-15.9	-9.8	4.2 (*)	Jan-22	9.03	3.18	
Manufacturing industry imports		-1.4	5.5	-12.0	3.3	23.7 (*)	Jan-22	8.86	3.54	
Agrifood imports	7.6	2.0	4.5	-6.5	8.3	7.4 (*)	Jan-22	5.63	4.40	
Automotive imports	7.0	-2.5	6.9	-23.6	-18.4	12.7 (*)	Jan-22	13.65	2.25	
Manufacturing industry balance of trade (% of GDP)	-5.0	-1.0	-0.2	-0.1	0.2	(*)	Q4 2021	2.53	-2.17	
Agrifood balance of trade (% of GDP)	-0.1	0.2	0.6	1.0	1.0	(*)	Q4 2021	0.36	0.25	
Automotive balance of trade (% of GDP)	-0.1	1.0	0.9	1.1	1.2	(*)	Q4 2021	0.60	0.62	
Financing										
Outstanding balance of credit to production activities	17.8	-4.4	-4.5	7.6	6.8		Q4 2021	11.07	5.03	
NPL rate, production activities (%)	1.0	11.9	10.0	5.0	4.8		Q4 2021	6.02	6.56	
Outstanding balance of credit to the manufacturing industry	9.4	-2.9	-1.5	7.1	6.3		Q4 2021	8.04	2.63	
NPL rate, manufacturing industry (%)	1.5	7.3	7.9	4.8	4.4		Q4 2021	3.75	4.96	

Notes: 2021 data are compared to those from the same period in 2019. For the indicators marked (*), the 2021 and 2022 figure corresponds to the annual cumulative change up to the latest figure available. For the rest of the indicators, the change for the latest figure available is shown.

Source: CaixaBank Research, based on data from the National Statistics Institute, DataComex, ANFAC, the Ministry of Social Security and Bank of Spain.

CaixaBank Research

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