

TRADE OPENNESS INDICATORS

ECONOMIC INDICATORS **CNI**



Market share of imports increase in Brazil

The Brazilian industry has lost domestic market share to foreign competitors in the market. In 2021, the **Import Penetration Ratio**, measuring the share of imports in domestic consumption, increased, reaching the highest level in the historical series, which began in 2003.

The indicator reached a new record for the constant price series during the pandemic, increasing by 1.4 percentage points (pp.), from 23.4% in 2019 to 24.8% in 2021).

The Import Penetration Ratio has grown despite the devaluation of the Brazilian real. Besides the usual response delay of the imported quantity to the exchange rate, this behavior could be explained by the upturn in consumption and production with greater emphasis on products with higher import content, such as the Pharmacochemicals and Pharmaceuticals industrial goods, key to overcome the challenges of the pandemic.

Likewise, the use of imported industrial inputs by the industry has also increased, driven by the expansion in domestic production. However, the demand for imports of industrial inputs has increased above the demand for domestic inputs.

Manufacturing Trade Openness Indicators

In %

INDICATORS	CURRENT PRICES			CONSTANT PRICES **		
	2019	2020	2021*	2019	2020	2021*
Export indicator	17.2	18.4	17.8	18.5	18.2	18.6
Import Penetration Ratio	21.7	22.2	22.8	23.4	22.0	24.8
Imported Industrial Inputs Indicator	20.6	20.5	21.8	22.7	21.2	24.5
Net export indicator	8.7	10.0	8.3	9.3	9.7	8.4

* Estimate. Please see methodology for details.

** Constant prices in 2015.

New methodology for trade openness indicators

The four indicators (export; import penetration; imported industrial inputs; and net export) have a new method of calculation.

[Click here to learn about the new CAC methodology](#)

The **Imports of Industrial Inputs Indicator**, measuring the share of inputs imported in the total industrial inputs used by the manufacturing industry, in constant prices, increased by 1.8 pp, from 22.7% in 2019 to 24.5% in 2021.

The **Export Indicator**, measuring the importance of the external market for Industry, showed relative stability compared to the last two years. The increase in exports has followed a

similar increase in production. The indicator in constant prices remained basically unchanged, rising from 18.5% in 2019 to 18.6% in 2021.

The **Net Export Indicator** reduced in 2021 amongst the stability of the export indicator and the consumption of imported industrial inputs. This reduction offsets a decline noticed in 2020 while, though the indicator has maintained a downward trend since 2017.

The indicator, which shows the difference between export revenue and expenditure with imported industrial inputs, decreased by 0.4 pp, from 8.7% in 2019 to 8.3% in 2021.

EXPORT INDICATOR

Importance of the foreign market for the industry remained relatively stable in recent years

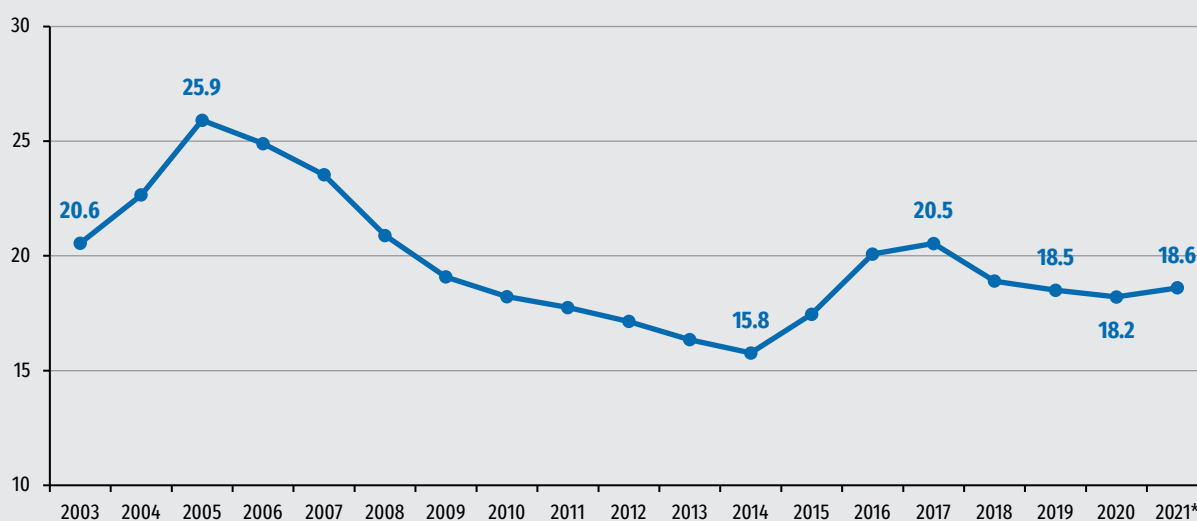
After the growth between 2014 and 2017, the export indicator dropped again in 2018 and remained stable between 2019 and 2021. The indicator, measuring the share of production intended to the foreign market,

remained significantly similar to the 2019's performance, varying from 18.5% in 2019 to 18.6% in 2021.

Compared to the manufacturing industry's exports, it shows relative stability. It increased by 5.2% between 2019 and 2021, while the increase in production grew at almost the same rate (4.7%).

Manufacturing export indicator

In % - constant prices 2015



*Estimate. Please see methodology for details.

Substantial increase in the relevance of exports in production mainly in the food sector

Despite the adverse international scenario in the period, most sectors increased their exports share in production. Among the 23 sectors assessed, 14 ended 2021 with an increased exports indicator and 9 noticed a decrease compared to 2019. However, the increases were significant for 5 out of 14 sectors.

The food sector is traditionally one of those with the highest exports indicator in the Brazilian industry. Additionally, its indicator recorded the highest growth rate. Production intended to the industry's foreign market hiked 5 percentage points, from 23.3% in 2019 to 28.3% in 2021.

The food export performance can be explained by the essential nature of these products, as demand was barely impacted by the pandemic, as well as increased demand in some countries, particularly in Asia. The 28.3% figure is the second highest on historical record, in constant prices, only behind to 2005's when it reached 29.9%.

The other sectors that showed a significant increase in the indicator, the highlights are: Furniture, Leather and Footwear, Electrical Equipment, and Metal Products. In the Furniture sector, production was reduced by a drop in the domestic demand, but it was partially offset by an increase in foreign sales, reinforcing the importance of the export market.

The foreign market has also driven domestic production in the Electrical Equipment and Metal Products industries, despite the growth in domestic demand. From 2019 to 2021, the export indicator increased from 14.2% to 15.8% and from 8.4% to 15.8%, respectively.

In the Leather and footwear sector, export-led production and sales experienced a decrease in internal and external demand, although the reduction in exports was nearly insignificant, showing a retraction in internal demand larger than external demand in 2021–19. The export indicator in this sector rose from 30.4% to 33.9% in the period.

The largest decline in the export indicator between 2019 and 2021 was noticed in the Other transport equipment industry, which declined by 31.5 percentage points, from 69.6% in the pre-pandemic period to 38.1% in 2021. This industry is heavily reliant on Brazil's aircraft exports—affected during the pandemic—and recorded a notable decline in export value, contracting 42.2% between 2019 and 2021.

It is worth noting the behavior of the Other transport equipment sector indicator. The sector is very heterogeneous, consisting of shipbuilding and the manufacturing of railroad vehicles, aircraft, military combat vehicles, motorcycles, bicycles, tricycles, and wagons, among others. The indicator's high volatility is due to the fact that products as aircraft, ships and oil platforms have high value, and are produced, and exported, discontinuously. Furthermore, the computing of exports occurs at once, in a single year, while the value of production is diluted over time, across more than one year.

The second highest decline in the export indicator was the Tobacco industry—harmful to the health of the human respiratory system related to COVID-19—and one of the industries with the most negative impact. Other sectors with significant declines in the export indicator are: Basic metals and Wood.

Export indicator – Sectors with the biggest variations

Variation from 2021-19 to 2021-20

In % - constant prices 2015

SECTORS		INDICATORS			VARIATION (pp)
		2019	2020	2021*	2019-21
Main increases	Food	23.3	26.3	28.3	5.0
	Furniture	8.7	9.2	13.2	4.5
	Leather and footwear	30.4	30.9	33.9	3.5
	Electrical equipment	14.2	13.4	15.8	1.6
	Metal Products	8.4	8.0	9.7	1.3
Main decreases	Other transport equipment	69.6	45.6	38.1	-31.5
	Tobacco	60.7	59.3	51.0	-9.7
	Basic metals	36.5	34.9	32.1	-4.4
	Wood	49.1	49.0	45.2	-4.0
	Pulp and Paper	39.3	38.8	37.9	-1.4

*Estimate. Please see methodology for details.

IMPORT PENETRATION RATIOS

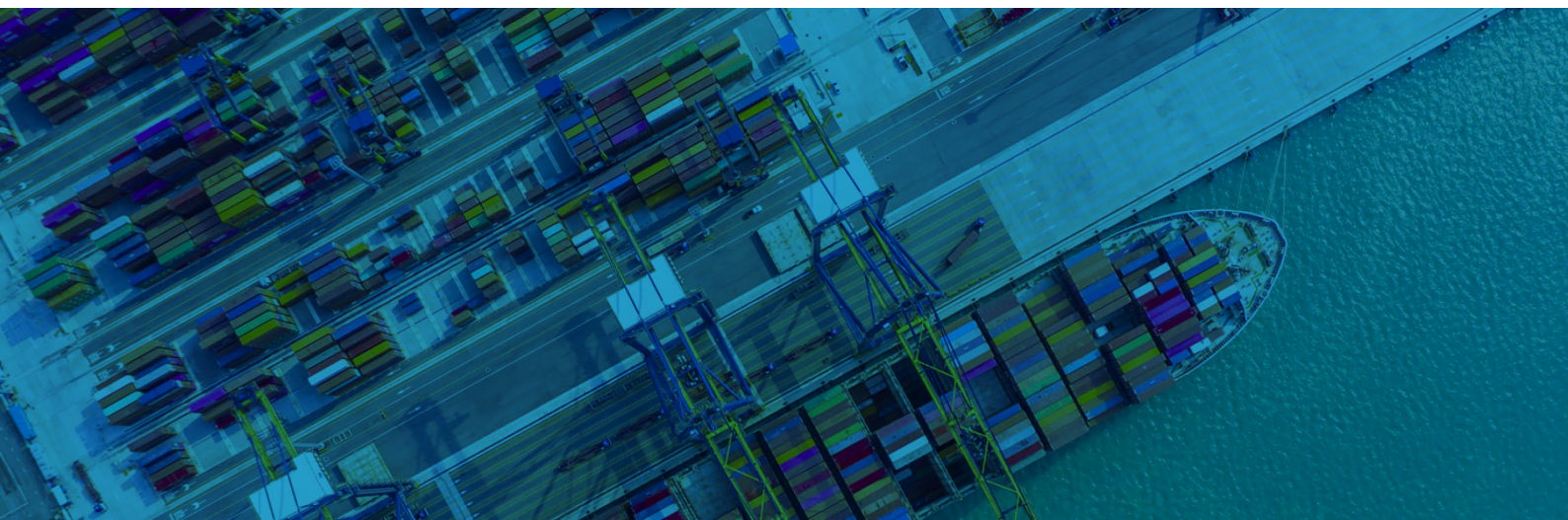
The share of imports in consumption rises further in the pandemic and reaches the highest value of the historical series

The import penetration ratio measures the share of imported goods in Brazil's apparent consumption. Apparent consumption is all that is produced domestically, minus exports plus imports.

During the pandemic period, this indicator increased from 23.4% in 2019 to 24.8% in 2021, up 1.4 percentage

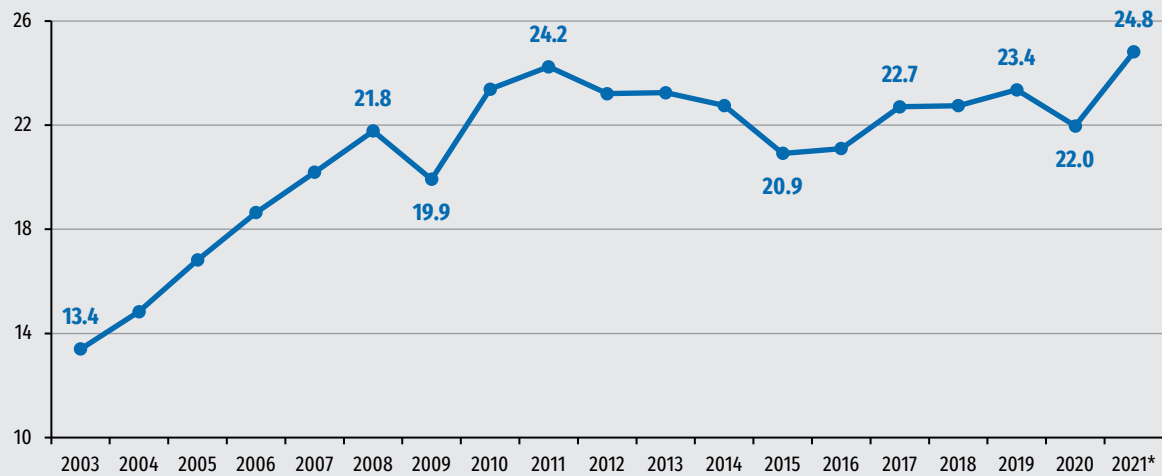
points, setting a new record for the indicator. This rise in the indicator means that imports had an increased share in the Brazilian consumer market comparing 2021 to 2019, the pre-pandemic year.

One of the main drivers of the import penetration ratio increase was the need for a larger supply of medicines and vaccines to cope with the pandemic. The Pharmacochemicals and Pharmaceuticals sector is traditionally intensive in imports and input and became even more so with the pandemic.



Manufacturing import penetration ratio

In % - constant prices 2015



*Estimate. Please see methodology for details.

Significant increase of imports in consumption due to the pharminochemicals and pharmaceuticals sector

From 2019 to 2021, the import penetration ratio shows a reduction in 10 industries, with highlights for Other transport equipment (-27.8 pp); Machinery and equipment (-3.3 pp); Wearing apparel (-2.3 pp); and Leather and footwear (-2.2 pp). The indicator decrease in these four sectors is due to the reduction in imports.

Pharmacochemicals and Pharmaceuticals had the highest increase in the import penetration ratio, with a significant increase of 13.6 points, comparing 2021 to 2019. The sector was a major contributor during the COVID-19 pandemic period and showed an 80.1% rise in the value imported from 2019 to 2021.

The other largest increases in the 2021 versus 2019 period were: Textiles (+2.8 pp), Electrical equipment (+2.7 pp), and Basic metals (+2.2 pp).

Import penetration ratio – Sectors with significant variations

Variation from 2019 to 2021

In % - constant prices 2015

SECTORS		INDICATORS			VARIATION (pp) 2019-21
		2019	2020	2021*	
Main increases	Pharmacochemicals and Pharmaceuticals	39.5	39.7	53.1	13.6
	Textiles	22.1	23.3	24.9	2.8
	Electrical equipment	34.1	32	36.8	2.7
	Basic metals	18.5	17.1	20.7	2.2
	Computers, electronics and opticals	45.7	44.1	47.5	1.8
Main decreases	Other transport equipment	75.3	61.2	47.6	-27.8
	Machinery and equipment	45.3	40.9	42	-3.3
	Wearing apparel	12.7	10.7	10.4	-2.3
	Leather and footwear	11.7	9.3	9.4	-2.2
	Tobacco	2.1	1.7	1.4	-0.7

*Estimate. Please see methodology for details.

IMPORTED INDUSTRIAL INPUT INDICATOR

With a record figure, Brazil further increases the use of imported inputs in its domestic production

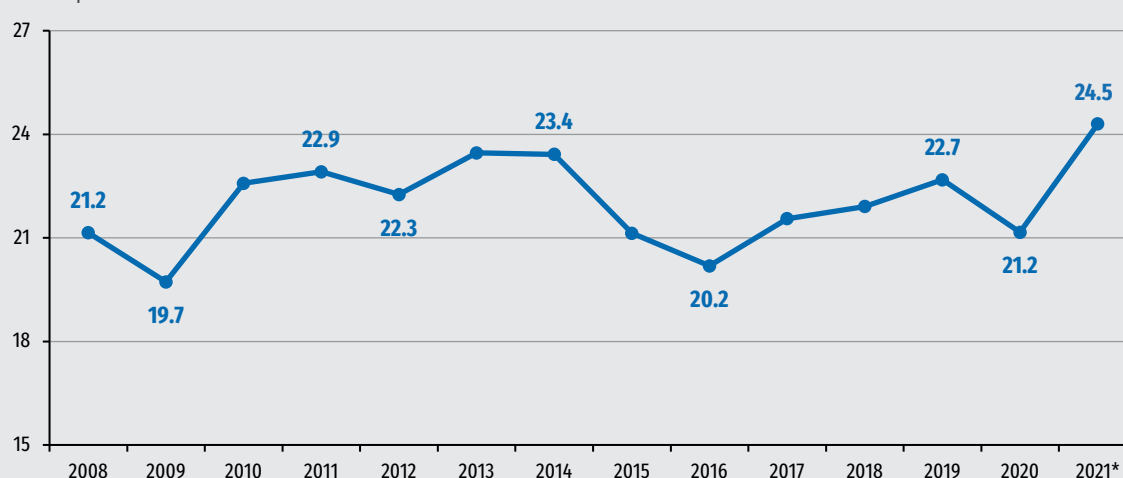
The share of imported industrial inputs in the total inputs used by the manufacturing industry (imported industrial inputs indicator) reached its highest level in 2021. The use of imported inputs by Manufacturing

increased from 22.7% in 2019 to 24.5% in 2021, a rise of 1.8 percentage points.

The value of imported industrial input consumption in constant prices increased 16%, while domestic industrial input consumption increased 5.1%.

Manufacturing imported inputs indicator

In % - constant prices 2015



*Estimate. Please see methodology for details.

Among 19 sectors¹ considered, only Other transport equipment registered a decrease in the imported industrial input Indicator in 2021 compared to 2019 (pre-pandemic year). During 2021–19, this indicator dropped sharply in the sector, from 36.2% in 2019 to 29.0% in 2021 (down 7.2 pp). There was a drop in the total consumption of industrial inputs in this sector (-3.0%), however, the consumption of imported inputs dropped (-22.4%), and the consumption of domestic inputs increased (+8.0%).

As pointed out earlier, the sector's indicator behavior is very heterogeneous. However, in the specific case of the aircraft sector, which traditionally has had high import indicators, the impact of the pandemic on mobility and the air transport sector played a key role.

The most significant indicator increases in the period were seen in Pharmacochemicals and Pharmaceuticals; Textiles; Chemicals; Rubber and plastics products; and Refined petroleum products and Biofuel. As pointed out earlier, the need for medicines and vaccines to fight COVID-19 has driven up imports of Pharmacochemicals and Pharmaceuticals. In the other highlighted sectors, the increase in consumption of imported industrial inputs outpaced the increase in consumption of domestic industrial inputs.

¹ Food, Beverages, and Tobacco sectors will not be computed due to the significant weight of inputs sold by agriculture and cattle raising for production in these sectors. This occurred for the imported inputs and net export indicators below.

Imported industrial input indicator - Sectors with the most significant variations

Variation from 2021-19 to 2021-20

In % - constant prices 2015

	SECTORS	INDICATORS			VARIATION (pp)
		2019	2020	2021*	2019-21
Main increases	Pharmacochemicals and Pharmaceuticals	29.1	28.7	35.9	6.8
	Textiles	27.5	28.0	30.5	3.0
	Chemicals	33.6	32.6	36.1	2.5
	Rubber and plastics products	28.8	28.2	31.3	2.5
	Refined petroleum products and Biofuel	19.6	15.4	21.7	2.1
Main decreases	Other transport equipment	36.2	33.8	29.0	-7.2

*Estimate. Please see methodology for details.

NET EXPORT INDICATORS

Exports revenue continue on a downward trend

The net exports indicator represents the balance, in Brazilian reais, between exports revenue and expenditure with imported industrial inputs (both measured against the value of production)². The indicator is positive whenever the export revenue exceeds expenditure on imported industrial inputs.

From 2019 to 2021, the manufacturing net export indicator saw a slight decline from 8.7% to 8.3%, keeping the downward trend that began in 2017, despite the growth in 2020.

The result shows a lower growth of Manufacturing exports compared to the imports of industrial inputs.

The indicator above zero suggests that the industry is more vulnerable to an appreciation of the domestic currency than to a devaluation. Notably, the result is different for each sector.

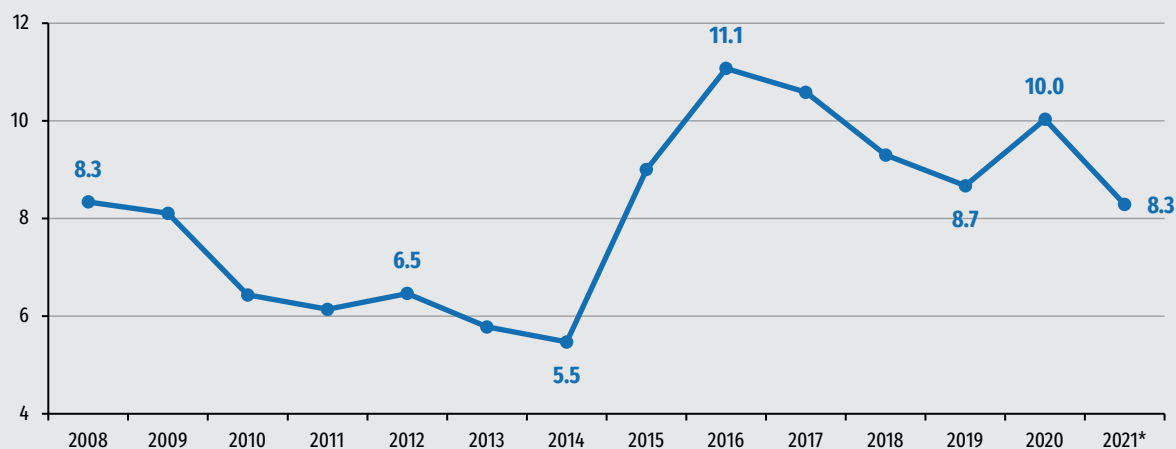
Wood, Leather and Footwear sectors remained at the highest net export indicator. Both moved further away from the other sectors by increasing the indicators by 7.2 pp and 5.4 pp, respectively, from 2019 to 2021.

The sectors with the lowest indicators in 2021 are: Computers, electronics, and opticals; Wearing apparel; Rubber and plastics products; Printing and reproduction; Textiles; and Chemicals.

² Unlike other indicators (export, import penetration, and imported industrial inputs), it is more appropriate to use current prices for the net export indicator, since the focus is on revenue and expenditure.

Manufacturing net export indicator

In % – current prices



*Estimate. Please see methodology for details.

Net export indicator – Sectors with the most significant variations

Variation from 2019-21 to 2020-21

In % - constant prices 2015

SECTORS		INDICATORS			VARIATION (pp)
		2019	2020	2021*	2019-21
Main increases	Wood	36.0	43.1	43.2	7.2
	Leather and footwear	16.8	17.8	22.2	5.4
Main decreases	Other transport equipment	33.2	13.1	10.8	-22.4
	Computers, electronics and opticals	-15.4	-18.9	-23.4	-8.0
	Pulp and Paper	30.8	29.8	25	-5.8
	Basic metals	30.3	33.1	26	-4.3
	Pharmacochemicals and Pharmaceuticals	1.7	1.8	-1.2	-2.9

*Estimate. Please see methodology for details.



Learn More

More information on the new methodology and research data charts: www.cni.com.br/e_cac

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