



COST – COMPETITIVENESS INDICATORS



National Confederation of Industry
Brazil
CNI. THE STRENGTH OF THE BRAZILIAN INDUSTRY

Brazil loses competitiveness in terms of cost comparison

In 2017, Brazilian industry lost competitiveness compared to the country's main trading partners, as measured by effective unit labor costs (effective ULC), a cost-competitiveness indicator.

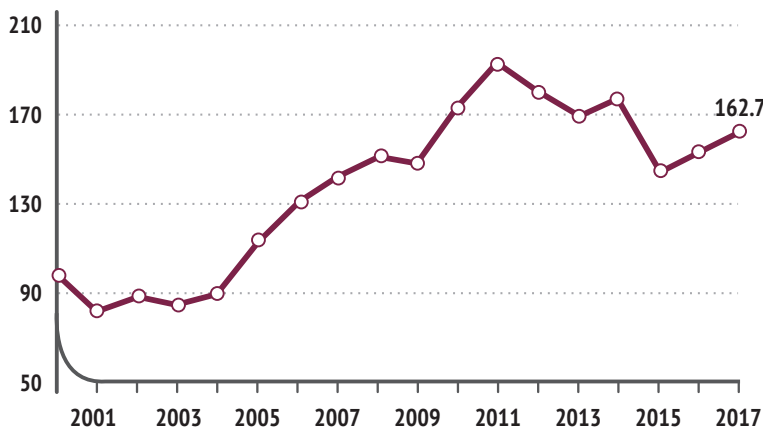
The labor cost in US dollars required to produce one unit of output in Brazil rose more than the average cost in the country's main trading partners. According to effective ULC, producing one unit of output in Brazil is currently 5.4% more expensive on average than in its trading partners.

The indicator is up for the second consecutive year, accumulating growth of 11% between 2015 and 2017. During this period, labor productivity rose more than real wages (4.1% against 2%), reflecting the effects of the economic crisis, with wages falling or growing slowly and workers and companies making further efforts to sustain their positions during the crisis. However, productivity gains were not enough to offset the appreciation of the Brazilian currency (of 13.2%) as compared to the average of the currencies of the country's main trading partners.

For 2018, competitiveness is expected to grow again (meaning effective ULC is projected to fall again). Both labor productivity, which continues to grow in Brazil, and the exchange rate, which has reversed its appreciation trend, will likely contribute positively toward industrial competitiveness.

Effective unit labor cost

Manufacturing industry
Index, 2000 = 100



Source: Prepared by CNI based on statistics from the ADS, BLS, Banco Central de la República Argentina, Central Bank of Brazil, DGEyC, FUNCEX, FGV/IBRE, IBGE, INDEC, INEGI, KOSIS, Macrodados, METI, Ministry of Health, Labor and Welfare, MOEL, OECD, The Conference Board and CNI.

The Cost-Competitiveness Indicators
make it possible to evaluate a country's competitiveness based on production costs. The higher the cost of producing in the country (compared to the other countries), the lower its competitiveness. In this publication, indicators are calculated based on labor costs, that is, the labor cost required to produce one unit of output.

Brazilian industry loses competitiveness

In 2017, effective unit labor costs in real US dollars (effective ULC) in the Brazilian manufacturing industry increased by 5.4%. After falling almost uninterruptedly since 2012, the indicator is up for the second year in a row. Effective ULC compares unit labor costs (ULC) in Brazilian industry to the average ULC in the industry of the country's main trading partners.¹ Between 2015 and 2017, the indicator grew by 11%.

Between 2016 and 2017, relative unit labor costs – which compare ULC in Brazil to that in a given trading partner, both measured in real US dollars – experienced its highest increase compared to Japan (14%), followed by the United Kingdom (11.5%) and South Korea (9.1%). The indicator only fell in relation to Argentina (-1.4%).

Over the last 10 years (2007-2017), effective ULC grew by a total of 13.1%. During this period, unit labor costs in Brazil fell only as compared to those in Argentina (-37%). The highest increases were recorded in relation to the United Kingdom and France (67.4% and 57.3%, respectively).

Effective ULC can be broken down into real effective average wages, effective productivity, and real effective exchange rate (REER), making it

possible to assess the main determinant behind the indicator's evolution. Effective ULC grows with an increase in real effective relative wages, with an appreciation of the real (indicated by an increase in REER) and with a decline in effective relative productivity.

In 2017, Brazil was the only country – among those considered in the calculation of effective ULC in Brazil – to experience an increase in real average wages (1.4%). As a result, real effective relative average wages increased by 2.7%. The largest increases in Brazil's real average wages vis-à-vis those in its main trading partners were observed in relation to the Netherlands (4.2%), South Korea (4.1%) and Italy (3.8%).

The 2.3% increase in effective relative productivity was the second highest in the historical series started in 2000, reinforcing the recovery trend initiated in 2015. Productivity of Brazilian industrial workers did not increase only in relation to that of South Korean workers (down by 1.3%). The steepest increases in Brazilian productivity vis-à-vis productivity in other countries were those in relation to Mexico (5%), followed by Italy (3.8%) and the United States (3.7%).

Effective Relative Unit Labor Costs

Unit Labor Cost (ULC) is one of the most commonly used cost-competitiveness indicators. It is widely used because of the importance of labor to production and because it is easier to collect the information required to calculate it. ULC represents the labor cost required to produce one unit of output.

As competitiveness is a relative concept, the final effect depends on the behavior of ULC in a country as compared to the ULC in its main competitors.

For this purpose, relative unit labor costs (relative ULC) are used, which compare the behavior of ULC between two countries. For example, the Brazil-Argentina relative ULC compares the evolution of ULC in Brazil to that in Argentina, both in real US dollars, that is, in the same monetary unit, usually the US dollar. An increase in the Brazil-Argentina relative ULC represents a loss of competitiveness in Brazil, as it means that producing one unit of output in Brazil has become more expensive than producing one unit of output in Argentina.

For a more general measure of competitiveness, the effective unit labor costs (effective ULC) indicator is used. This indicator is the weighted average of the relative ULC between Brazil and its main trading partners, with the weights given by the share of each partner in the country's trade flows. An increase in effective ULC represents a loss of competitiveness relative to the average of the country's main trading partners.

¹ United States, Argentina, Germany, Mexico, Japan, France, Italy, South Korea, the Netherlands, and the United Kingdom. Due to lack of available data, China is not included in the analysis.

The increase observed in real effective average wages exceeded the growth in effective relative labor productivity (2.7% against 2.3%), which contributed to driving down competitiveness. However, the main factor behind the increase in effective ULC was the appreciation of the real: the Brazilian currency appreciated by 5% against the basket of currencies of its main trading partners.

It is worth noting that over the last two years, productivity gains more than compensated for the increase in real effective average wages. However, the positive balance was not enough to offset the

appreciation of the Brazilian currency, reducing the cost competitiveness of Brazilian industry. Between 2015 and 2017, effective productivity grew by 4.1%, while real effective wages rose by 2% and the real effective exchange rate appreciated by 13.2%.

For 2018, competitiveness is expected to grow again (meaning effective ULC is projected to fall again). Both labor productivity, which continues to rise in Brazil, and the exchange rate, which has reversed its appreciation trend, will likely contribute positively to the competitiveness of Brazilian industry.

Effective ULC and its components, Manufacturing industry

Cumulative change (%)

| Year | Real effective average wages | Effective labor productivity | Real effective exchange rate ^{1/} | Effective ULC |
|-----------------------------|------------------------------|------------------------------|--|---------------|
| 2008 | -3.0 | -2.2 | 6.6 | 5.8 |
| 2009 | 1.8 | 3.8 | 0.1 | -1.8 |
| 2010 | -1.5 | -5.4 | 12.5 | 17.1 |
| 2011 | 5.9 | -3.2 | 1.4 | 11.0 |
| 2012 | 4.0 | 0.5 | -9.9 | -6.7 |
| 2013 | 0.4 | 1.8 | -4.5 | -5.9 |
| 2014 | 4.6 | -1.0 | -1.1 | 4.5 |
| 2015 | 1.5 | 0.4 | -18.6 | -17.7 |
| 2016 | -0.7 | 1.7 | 7.9 | 5.3 |
| 2017 | 2.7 | 2.3 | 5.0 | 5.4 |
| CHANGE OVER THE LAST DECADE | | | | |
| 2007-2017 | 16.3 | -1.8 | -4.5 | 13.1 |
| 2015-2017 | 2.0 | 4.1 | 13.2 | 11.0 |

Source: Prepared by CNI based on statistics from the ADS, BLS, Banco Central de la República Argentina, Central Bank of Brazil, DGEyC, FUNCEX, FGV/ IBRE, IBGE, INDEC, INEGI, KOSIS, Macrodados, METI, Ministry of Health, Labor and Welfare, MOEL, OECD, The Conference Board and CNI.

^{1/} The real effective exchange rate is the ratio of a basket of 10 currencies to the Brazilian currency. An increase in the exchange rate index indicates currency appreciation.



Relative ULC and its components, Manufacturing industry

Cumulative change (%)

| PARENTS | 2007-2017 | | | | 2016-2017 | | | |
|------------------------|-----------------------------|-----------------------------|----------------------------------|--------------|-----------------------------|-----------------------------|----------------------------------|--------------|
| | Real relative average wages | Relative labor productivity | Real exchange rate ^{1/} | Relative ULC | Real relative average wages | Relative labor productivity | Real exchange rate ^{1/} | Relative ULC |
| Brazil-United States | 35.5 | 1.4 | -11.8 | 17.9 | 3.2 | 3.7 | 7.5 | 6.9 |
| Brazil-Argentina | -22.0 | -4.0 | -22.5 | -37.0 | 1.5 | 0.6 | -2.3 | -1.4 |
| Brazil-Germany | 21.9 | -2.7 | 14.4 | 43.4 | 2.0 | 2.2 | 6.4 | 6.2 |
| Brazil-Mexico | 51.9 | 2.3 | 5.7 | 56.9 | 3.2 | 5.0 | 4.3 | 2.5 |
| Brazil-Japan | 33.3 | 12.2 | -1.1 | 17.5 | 2.7 | 1.1 | 12.3 | 14.0 |
| Brazil-France | 18.4 | -10.2 | 19.3 | 57.3 | 3.0 | 3.1 | 6.6 | 6.6 |
| Brazil-Italy | 22.7 | -3.3 | 14.2 | 45.0 | 3.8 | 3.8 | 6.2 | 6.3 |
| Brazil-South Korea | 5.4 | -21.3 | 11.0 | 48.8 | 4.1 | -1.3 | 3.4 | 9.1 |
| Brazil-The Netherlands | 25.3 | -3.6 | 11.5 | 44.9 | 4.2 | 0.2 | 3.1 | 7.3 |
| Brazil-United Kingdom | 28.9 | -0.7 | 29.0 | 67.4 | 2.2 | 1.6 | 10.9 | 11.5 |

Source: Prepared by CNI based on statistics from the ADS, BLS, Banco Central de la República Argentina, Central Bank of Brazil, DGEyC, FUNCEX, FGV/IBRE, IBGE, INDEC, INEGI, KOSIS, Macrodados, METI, Ministry of Health, Labor and Welfare, MOEL, OECD, The Conference Board and CNI.

1/ The real exchange rate is the ratio of a country's local currency to the Brazilian currency. An increase in the exchange rate index indicates currency appreciation.

ULC and its components, Brazilian manufacturing industry

Cumulative change (%)

| Year | Real average wages ^{1/} | Labor productivity (Output per hours worked) | Real ULC in domestic currency | Real exchange rate ^{2/} | Real ULC in US dollars |
|-----------------------------|----------------------------------|--|-------------------------------|----------------------------------|------------------------|
| 2008 | -4.0 | -2.3 | -1.7 | -7.9 | 6.6 |
| 2009 | 11.0 | 0.8 | 10.2 | 3.4 | 6.6 |
| 2010 | -0.3 | 2.1 | -2.3 | -10.9 | 9.6 |
| 2011 | 6.1 | -0.8 | 6.9 | -2.4 | 9.5 |
| 2012 | 7.4 | -0.5 | 8.0 | 13.6 | -4.9 |
| 2013 | 2.3 | 2.7 | -0.3 | 4.6 | -4.7 |
| 2014 | 5.0 | -0.3 | 5.3 | 3.7 | 1.5 |
| 2015 | 6.9 | 0.3 | 6.5 | 25.6 | -15.2 |
| 2016 | 0.2 | 1.7 | -1.5 | -4.9 | 3.6 |
| 2017 | 1.4 | 4.4 | -2.9 | -7.0 | 4.4 |
| CHANGE OVER THE LAST DECADE | | | | | |
| 2007-2017 | 41.3 | 8.2 | 30.6 | 13.4 | 15.2 |
| 2007-2012 | 21.1 | -0.8 | 22.1 | -5.9 | 29.6 |
| 2012-2017 | 16.7 | 9.0 | 7.0 | 20.4 | -11.2 |

Source: Prepared by CNI based on statistics from BLS, BCB, FGV/IBRE, IBGE and CNI.

1/ Average wages in Brazil are deflated by the Broad Producer Price Index - Domestic Supply (IPA-DI), which is a producer price index calculated by the Getúlio Vargas Foundation (FGV). In the cost-competitiveness approach, what matters for companies is how much wages vary relative to prices paid to domestic producers when they sell their production.

2/ The real exchange rate is the ratio of the Brazilian currency to the US dollar, deflated by the respective manufacturing producer prices (IPA-FGV and PPI-BLS). An increase in the exchange rate index indicates currency depreciation.



Learn more

For more information on the survey, visit:

www.cni.com.br/e_cost-competitiveness-indicators