



UNITED NATIONS



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# ECLAC Statistical Briefings

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## Economic Indicators and Statistics Database (BADECON): selected manufacturing industry indicators in Latin America and the Caribbean

### Contents

1. Methodological considerations.....	2
2. Regional intermediate indicators .....	2
3. Conclusions.....	9
Bibliography .....	9

Industrial policy today remains as important as ever for Latin America and the Caribbean. Moving towards development requires a rational, inclusive and sustainable industrial policy guided by the intensive use of information, enabling the definition and dissemination of indicators that are useful for decision-making.

The Statistics Division of the Economic Commission for Latin America and the Caribbean (ECLAC), with the support of national statistical offices, has been building a database of economic surveys to compile annual basic statistics for calculating statistical indicators on the manufacturing industry, which are disseminated through CEPALSTAT, the data portal of ECLAC.

Currently, BADECON contains data on indicators such as value added, employment, electricity consumption and hours worked for the manufacturing industry in Brazil, Chile, Colombia, the Dominican Republic, Ecuador, Mexico and Uruguay.

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## 1. Methodological considerations

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Manufacturing industry indicators, developed using BADECON, are drawn from the basic structural information of the countries of the region, which gather this information through censuses or industrial activity surveys. The aim of conducting economic surveys, in particular for manufacturing, is to monitor countries' economic structure. As such, data are collected on output, intermediate consumption, value added, number of employees and employee compensation, among other indicators.

The methodology used to develop intermediate indicators by economic activity consists of processing the surveys of each country of the region at the lowest level of detail available and standardizing the information in line with the *International Recommendations for Industrial Statistics 2008* (United Nations, 2009a), the *International Standard Industrial Classification of All Economic Activities* (ISIC) (United Nations, 2009b) and the *International Standard Classification of Occupations* (ISCO), using the nomenclature of the Statistical Data and Metadata eXchange. Monetary indicators are expressed in dollars, converted at the *rf* exchange rate published by the International Monetary Fund.

ECLAC now stores manufacturing survey data in BADECON for seven countries: Brazil, Chile, Colombia, Dominican Republic, Ecuador, Mexico and Uruguay. These countries account for more than 70% of the value added from manufacturing in Latin America and the Caribbean.

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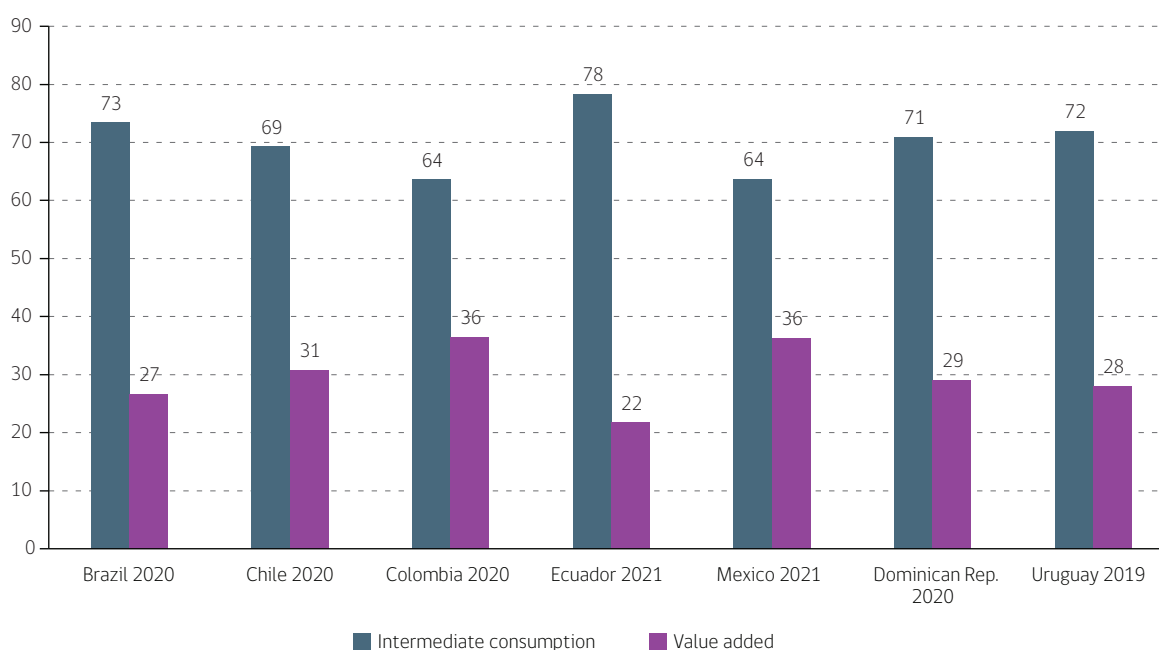
## 2. Regional intermediate indicators

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Disaggregated data is key for analysing business and sectoral trends, and such analysis is possible through BADECON. This enriches both the economic analysis and the information used to define and implement industrial policy. This section describes some of the results obtained from BADECON data, with increasing disaggregation to show the level of detail available to users for the purpose of analysis.

Figure 1 shows the share of intermediate consumption and value added in the output of the manufacturing industry in seven countries, for the most recent year for which data are available. With the exception of Ecuador, the structure of macroeconomic aggregates is similar in the countries of the region. The share of intermediate consumption ranges from 64% in Colombia and Mexico to 84% in Ecuador, with value added accounting for between 16% and 40%. On average, for the countries considered, value added represents 30% of output, while intermediate consumption accounts for 70%.

» **Figure 1. Latin America and the Caribbean (7 countries): share of intermediate consumption and value added in output of manufacturing, latest available year**  
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON).

Regional comparisons become more relevant when the manufacturing industry is disaggregated at various levels, as a number of differences become apparent both within and between countries. As an example, figure 2 describes changes in the share of value added for the “manufacture of food products” industry, = which is division 10 of the *International Standard Industrial Classification of All Economic Activities*, in the value added of the entire manufacturing industry in seven countries.<sup>1</sup> This industry was selected for analysis because it employs the largest number of workers of all manufacturing sectors.

From the analysis, it can be inferred that in countries such as Mexico, the value added from food manufacturing accounts for a small percentage of the total value added from manufacturing. It represents less than one fifth of value added for the entire period analysed (14.6% on average for the period 2013–2021) and is declining over time.

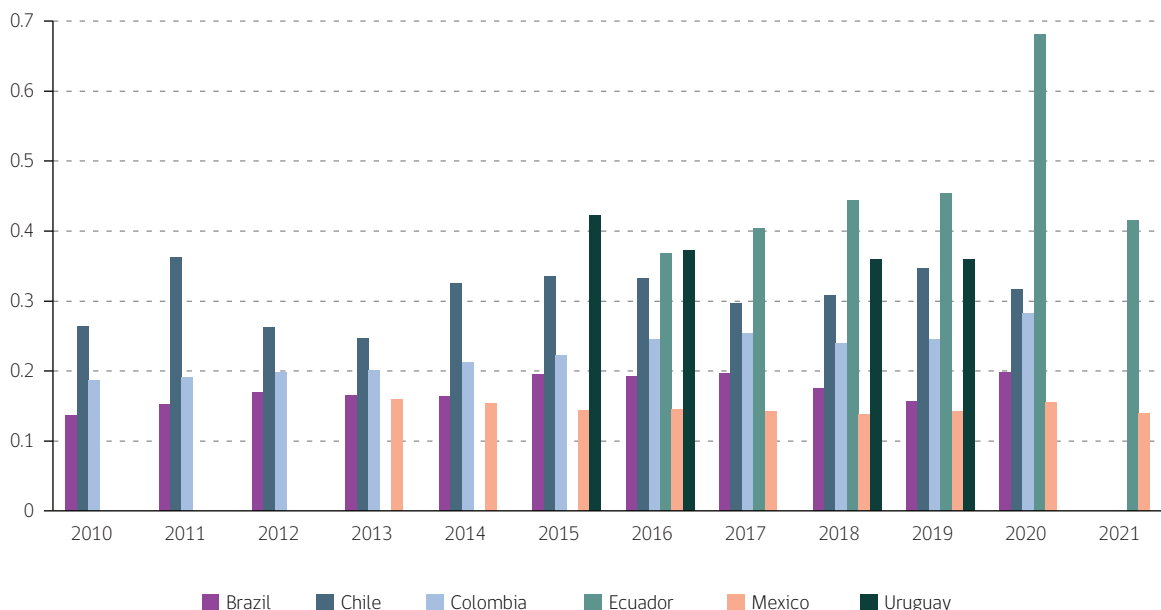
In Ecuador, value added from food production represents more than 40% of manufacturing value added and has gradually increased over time. In 2020, it rose to 68%. In Colombia, there has been a gradual but steady rise in the share of food manufacturing value added in total manufacturing value added. In 2020, it accounted for nearly 30%.

In Chile, the average ratio for the period is slightly above 30%. In Uruguay, the figure remained above 35% over the entire period studied.

<sup>1</sup> The Dominican Republic is not included in this analysis since data are only available at the section level in the *International Standard Industrial Classification of All Economic Activities*, meaning that disaggregation is not further possible.

» **Figure 2. Latin America and the Caribbean (6 countries): share of the value added from the manufacture of food products in the total manufacturing industry value added, 2010–2021**

(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON).

Continuing with the disaggregated analysis, figure 3 shows the change in value added for Brazil's four largest manufacturing industries, by their share of the total number of employees. The figure shows a steady decline in the value added from the manufacturing of automobiles, trailers and semi-trailers and a more gradual decline in the value added from rubber and plastic product and food product manufacturing. The value added from the manufacturing of chemical substances and products has remained stable throughout the period.

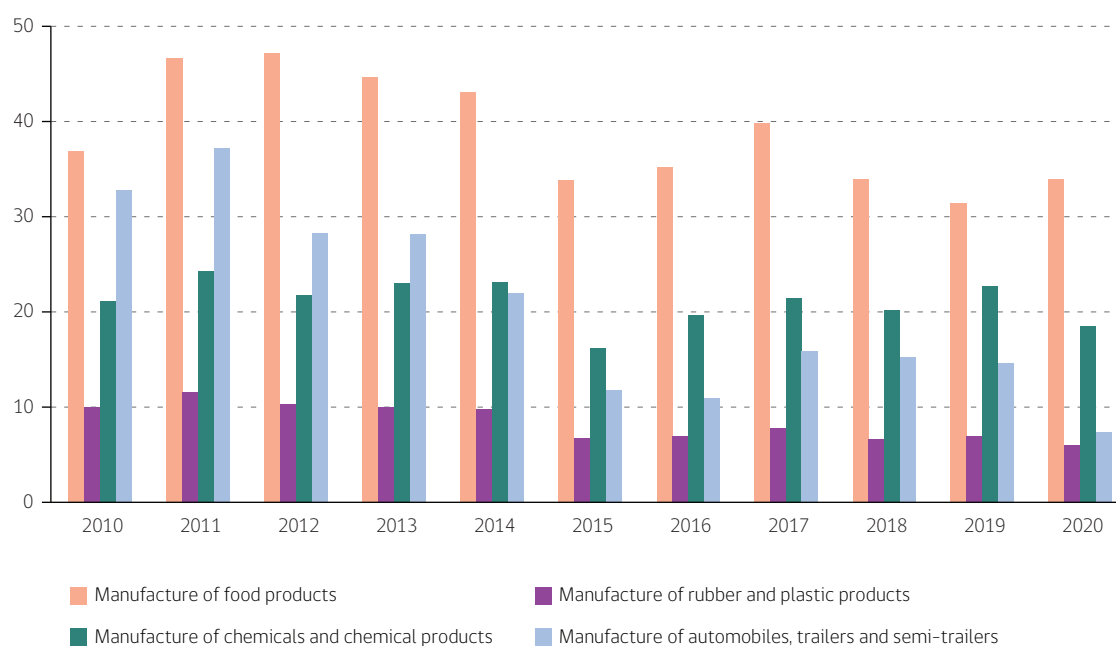
Figure 4 looks at the changes in the structure of employee compensation as a share of the value added of industry, by country, from 2016 to the latest year for which information is available.<sup>2</sup> For Ecuador and Brazil, on average, compensation accounts for 74% and 54%, respectively, for the period considered. In Mexico, in contrast, it represents one fifth of the value added on average for the period, the lowest share of all the countries considered.

The share of wages in value added varies from country to country. In Brazil, beginning in 2016, wages as a share of value added declined steadily, dropping more sharply in 2020 to reach levels similar to those of the Dominican Republic. In Chile, worker remunerations fell in 2017 but began to recover in the same year, and by 2020 had nearly returned to 2016 levels. In Colombia, remunerations remained steady throughout the period analysed, while in Mexico a rise that began in 2018 continued until 2020, with levels then remaining unchanged in 2021.

<sup>2</sup> According to *IRIS 2008*, staffing costs include wages and the social contributions that employees must pay.

### » Figure 3. Brazil: manufacturing value added, selected industries, 2010–2020

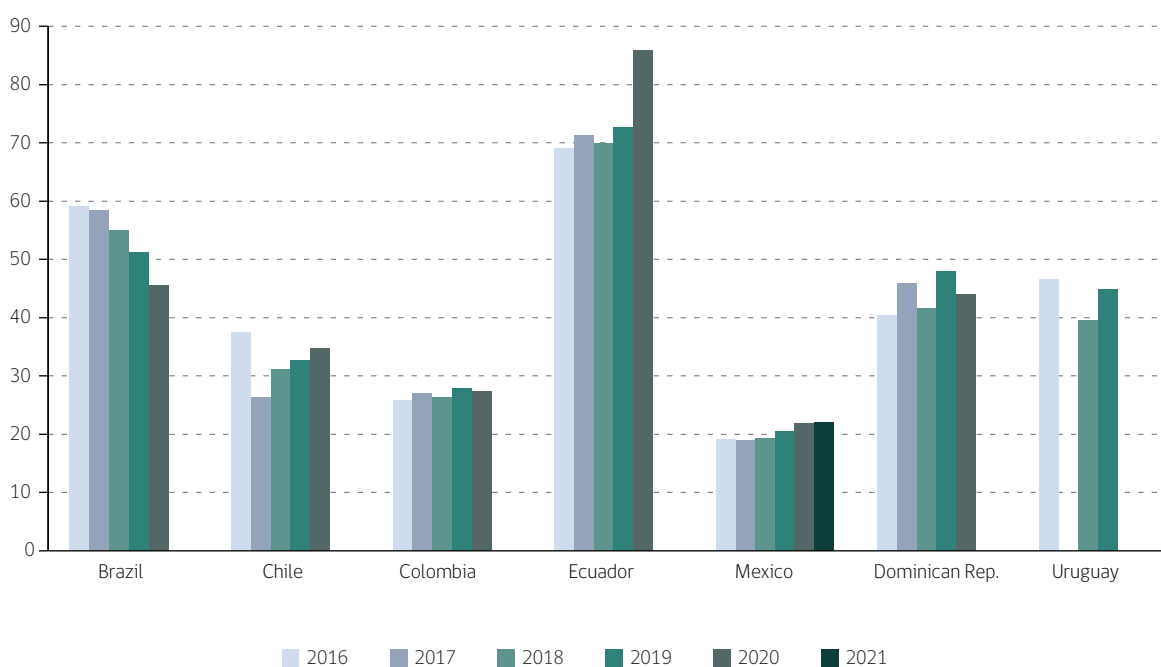
(Billions of dollars at current prices)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON).

### » Figure 4. Latin America and the Caribbean (7 countries): employee compensation as a share of total manufacturing industry value added, 2016–2021

(Percentages)

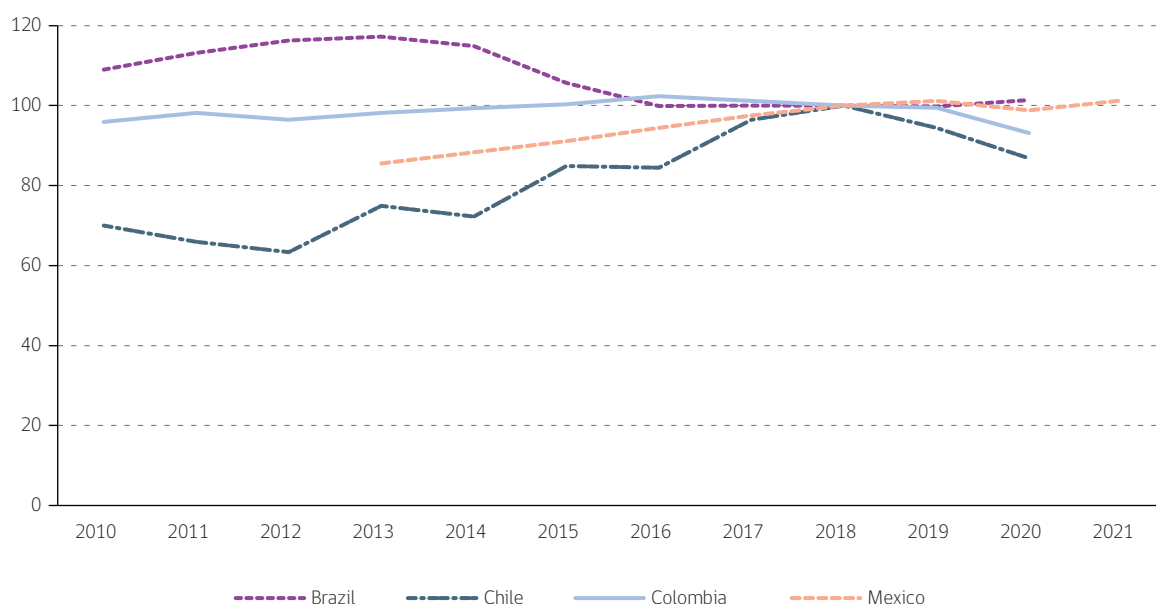


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON).

Trends in employment in manufacturing can be measured by the number of people working in the sector. Figure 5 shows the change in the number of employed in the countries selected, using the available data series. The data are expressed as an index in order to obtain comparable numbers, with 2018 as the base year.

» **Figure 5. Latin America and the Caribbean (4 countries): number of employed persons in the manufacturing industry, 2010–2021**

(Index: 2018=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON).

In Brazil, while the number of employed persons grew significantly after the major 2009 crisis, growth began to slow in 2013, with a gradual decline continuing through to 2014 and then a sharp drop until 2016, when the trend line stabilized. The beginnings of a slight uptrend can be seen in 2020.

In Chile, the number of employed persons fell slightly between 2010 and 2012. However, a period of steady growth followed, albeit with significant year-to-year slowdowns. In 2020, the number of employed persons had returned to the levels seen in 2016.

The number of employed persons in Colombia was stable throughout the period under study. Although there was some growth, it was incremental, peaking in 2016 and declining slightly thereafter. Lastly, there was fast growth in the number of employed persons in Mexico until 2019. The pace of growth slowed in 2020 and then picked up again between 2020 and 2021.

The variable for the number of employed persons by sex is important for gender analysis of the labour market, both for the economy in general and for each sector. Fewer women than men are employed across the manufacturing industry. In the countries for which data are available in BADECON,<sup>3</sup> one in three employed persons is female.

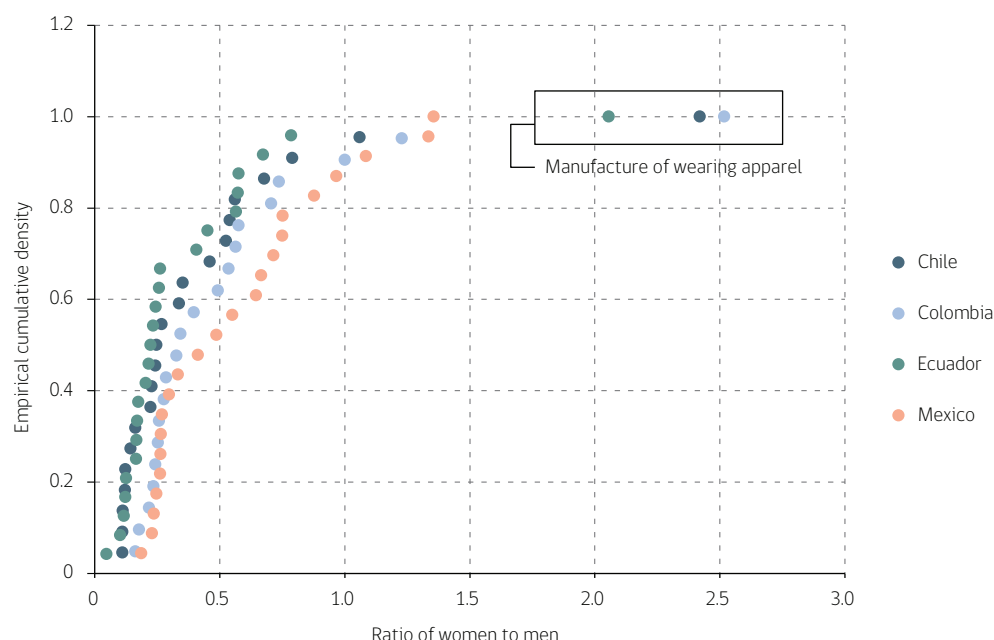
<sup>3</sup> The countries included are Chile, Colombia, the Dominican Republic, Ecuador, Mexico, Panama and Peru. These countries provide data on employment disaggregated by sex for the manufacturing industry. 2018 is used because it is the year for which information is available for the largest number of countries.

Figure 6 compares the distribution of women and men employed in the manufacturing industry in 2020 in four countries. Using population data from CEPALSTAT, the figures were weighted by the proportion of men and women in the total population.

The dots in figure 6 represent the different economic sectors for each of the countries analysed. In a completely desegregated industry, regarding the ratio of employed women to men, the dots would be expected to cluster around the value 1 on the horizontal scale]. Thus, the figure shows that for approximately 90% of divisions of economic activity, there are fewer than 8 women employed for every 10 men. The majority of industries, approximately 60%, are distributed below 0.5, which means that the number of women employed is less than 50% that of men in in approximately 60% of economic sectors.

» **Figure 6. Latin America and the Caribbean (4 countries): distribution of female and male employment in the manufacturing industry, 2020**

(Weighted ratio)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON), and CEPALSTAT.

Nota: The ratio is weighted for the proportion of women to men across the total population of each country in 2018

In addition, there are three outliers that stand out from the bulk of the distribution. The industries in question, in Ecuador, Chile and Colombia, pertain to *division 14 of the International Standard Industrial Classification of All Economic Activities*, “manufacture of wearing apparel”. In these cases, more than twice as many women are employed as men.

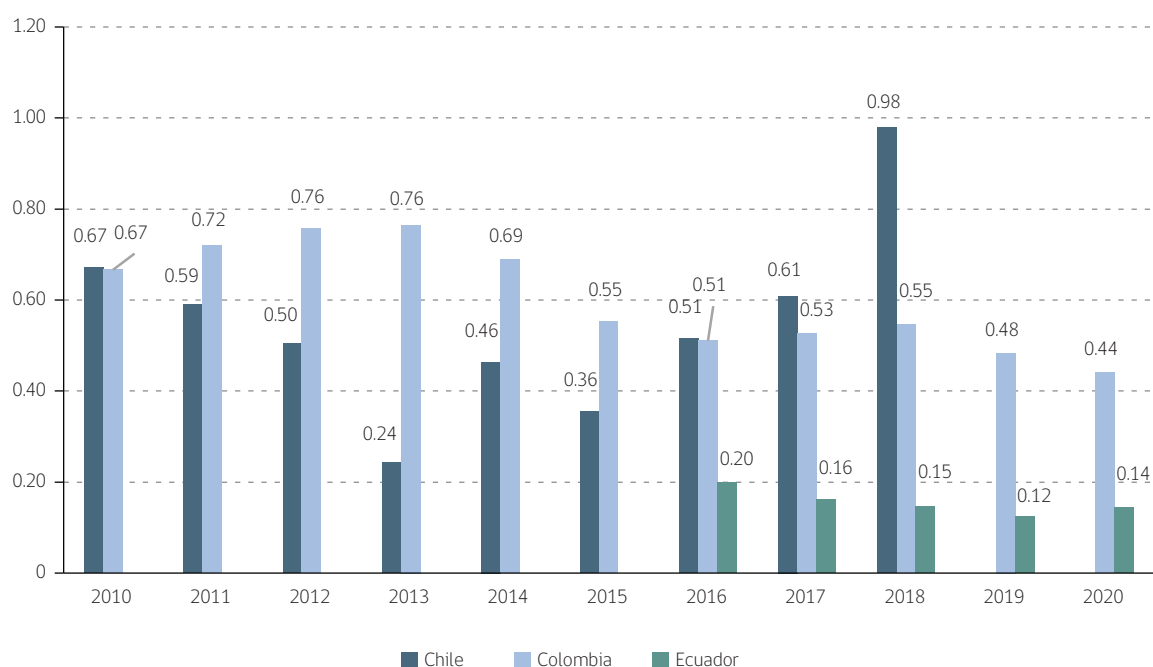
In general, figure 6 shows that Ecuador is the country with the lowest number of women employed in manufacturing, followed very closely by Chile. In some industries, these two countries also show similar ratios in the lower part of the figure. In contrast, Mexico is the country with the highest share of women employed in manufacturing. For Colombia, the ratio lies between those of the other three countries mentioned.

Another indicator derived from BADECON corresponds to electrical energy, which is relevant for analysing the possible environmental impact of the manufacturing industry. The *International Recommendations for Industrial Statistics 2008* recommends that environmental impacts be included among the important performance indicators evaluated.

Electricity consumption is calculated by determining the difference between the electricity generated and purchased minus the electricity sold. The electricity data collected and submitted by countries are expressed in quantities (kilowatts, megawatts or gigawatts per hour) rather than by value, and then standardized and expressed in terajoules according to *International Recommendations for Industrial Statistics 2008* recommendations. For the purpose of analysis, figure 7 shows an energy efficiency indicator for electricity consumption, calculated by dividing the current value added by the electricity consumed.

» **Figure 7. Latin America and the Caribbean (3 countries): energy efficiency in the generation of value added in manufacturing, 2016–2020**

(Millions of dollars per terajoule)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Economic Indicators and Statistics Database (BADECON).

Figure 7 shows that Ecuador is the country with the lowest value added per terajoule of electricity, and therefore the least efficient. Energy efficiency in Chile rose sharply in 2018 in comparison with previous years.<sup>4</sup> In Colombia, productive efficiency in terms of electricity consumption increased in 2017 and 2018 then began to fall in 2019, a decline that continued in 2020.

According to the *International Recommendations for Industrial Statistics 2008*, the downtrend for the indicator is a sign that the country is improving its energy efficiency, meaning that economic growth is decoupling from energy consumption. From an environmental standpoint, this may be good news, as it reduces the strain on the use of natural resources and thus the impact of the manufacturing industry on the environment (United Nations, 2009a).

<sup>4</sup> In 2018, the Annual National Industrial Survey (ENIA) stopped gathering data on electricity consumption in Chile.

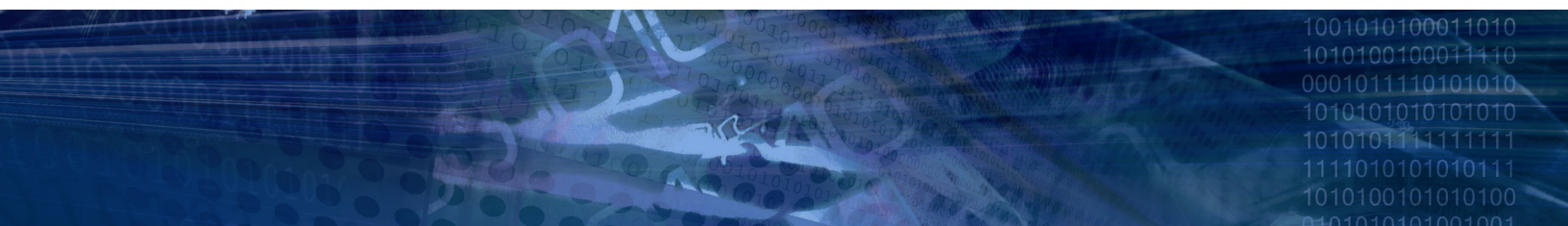


### 3. Conclusions

1. On average, for the countries in BADECON, value added represents 30% of production, while intermediate consumption accounts for 70%.
2. Wages in Ecuador absorb 74% of the manufacturing industry's value added. In Mexico, this ratio is one-fifth. For the rest of the countries, the ratio ranges between 25% and 50%.
3. The change in the number of employed persons varies depending on the country: in Brazil, employment peaked in 2013 and then fell, stabilizing in 2016; in Chile, the number of employed persons rose steadily until 2018, when it began to fall; in Colombia, employment was steady over most of the period and then began to decline in 2019; and in Mexico, it grew until 2019, fell in 2020 and bounced back in 2021.
4. Ecuador is the country that employs the fewest women in manufacturing relative to the number of men, followed closely by Chile, while Mexico employs the most women. In Colombia, the ratio lies between those of the other countries mentioned.
5. Ecuador is among the countries with the lowest value added generated per terajoule, and this has worsened over time. Efficiency in Chile spiked in 2018. Lastly, in Colombia, energy efficiency increased in 2017 and 2018 and has been on the decline since then.

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