

Regional Economic Report
July – September 2022

BANCO DE MÉXICO®

Published-General Purpose

Information published by Banco de México

Outline

I. Regional Economic Report

II. Results July – September 2022

A. Economic activity

B. Inflation

C. Economic outlook

(based on data collected between September 26 and October 20, 2022)

III. Final remarks

Information published by Banco de México

Regional Economic Report

- The Regional Economic Report is a quarterly publication that includes Banco de México's indicators and analysis on the trends in economic activity, inflation and business agents' perspectives in Mexico's regions

- The information presented herein is taken into account by Banco de México's Governing Board as part of the information used to evaluate the economic situation and the forecast for the national economy

- The economic performance and inflation in the regions during Q3 2022 and the prospects of business agents surveyed between September 26 and October 20, 2022 on regional economic activity and prices over the following twelve months are analyzed herein.

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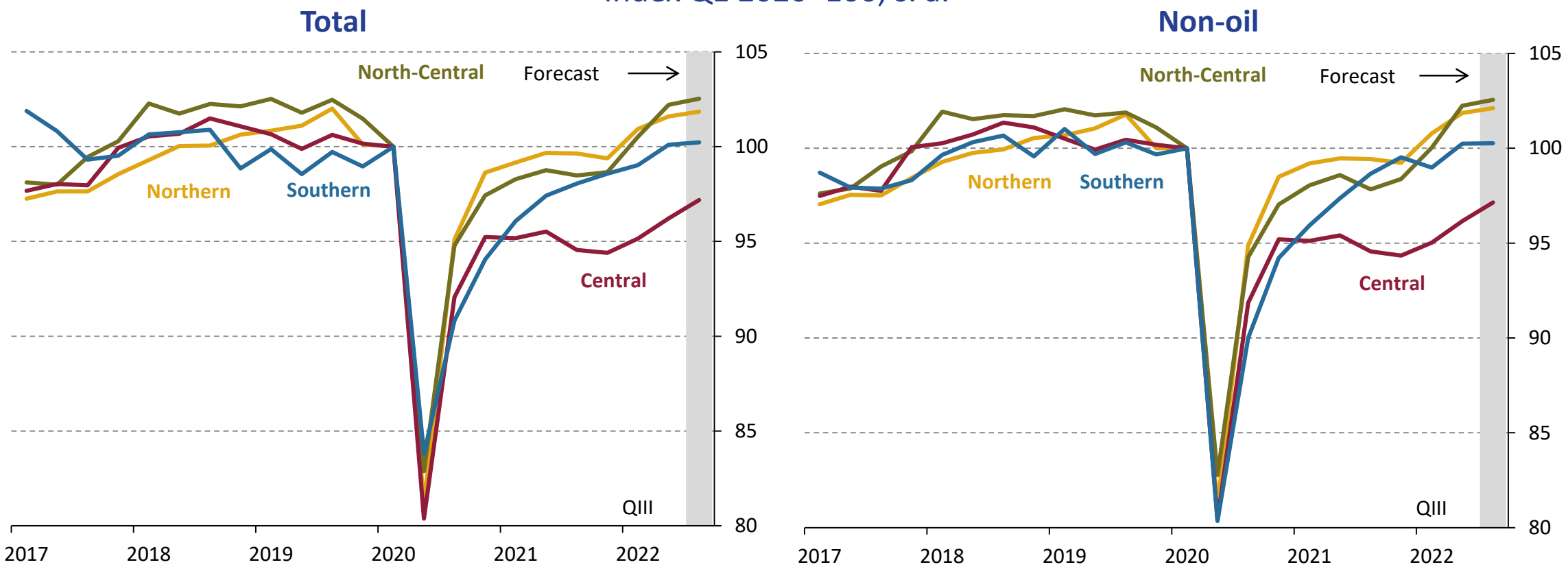
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During Q3-2022, economic activity is estimated to have continued expanding in all regions, although it is expected to have decelerated in the Northern, North-Central and Southern ones.

Quarterly Indicator of Regional Economic Activity

Index Q1 2020=100, s. a.



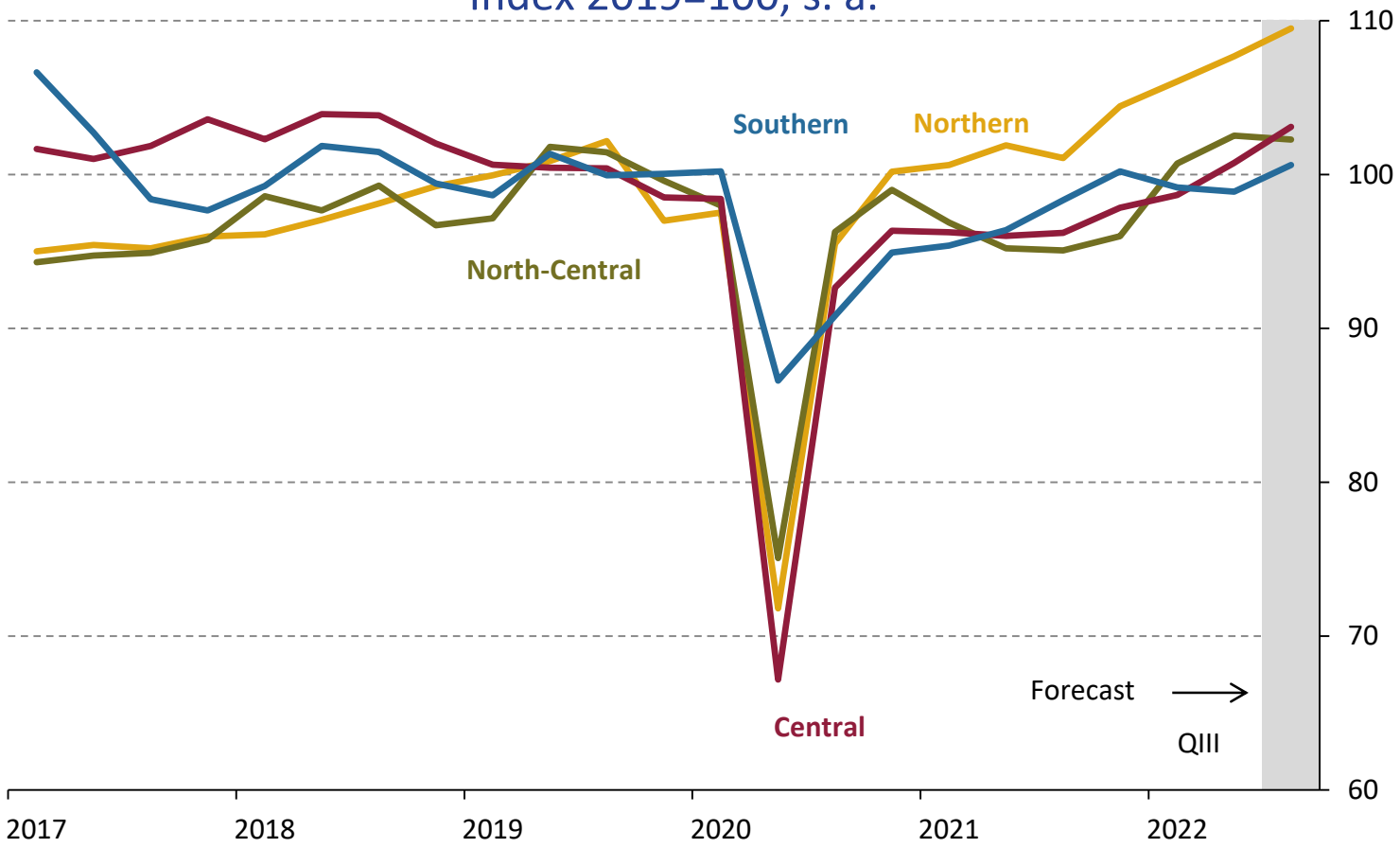
s. a. / Seasonally adjusted data.

Source: Estimated by Banco de México with seasonally adjusted series of the Quarterly Indicator of State Economic Activity from INEGI.

For Q3-2022, the Northern and Central regions are estimated to have continued expanding, while the Southern region is expected to have rebounded slightly, following the decline in the previous period. The North-Central region is anticipated to have contracted, thus interrupting its positive trajectory.

Regional Manufacturing Indicator

Index 2019=100, s. a.



s. a. / Seasonally adjusted data.

Source: Estimated by Banco de México with seasonally adjusted series of the Monthly Indicator of Manufacturing Activity by State from INEGI.

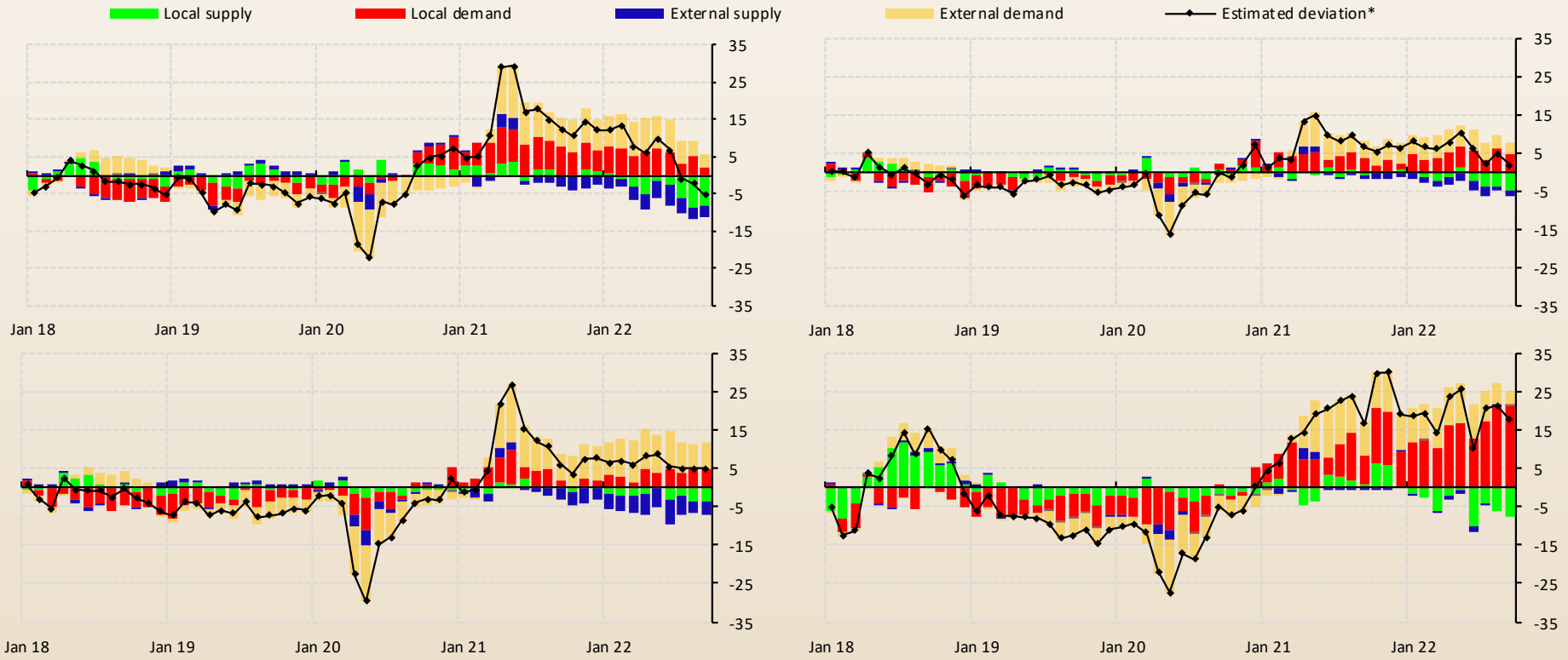
Effects of Supply and Demand-related Shocks on Manufacturing Production at the Regional Level, in the Context of the COVID-19 Pandemic

- An econometric model was used to estimate **contributions** of **supply and demand-related shocks**, both **domestic and external**, to manufacturing **production** excluding transportation equipment.

Historical Decomposition of Regional Manufacturing Production excluding Transportation Equipment

Deviation of the real annual change from its historical average

Percentage points

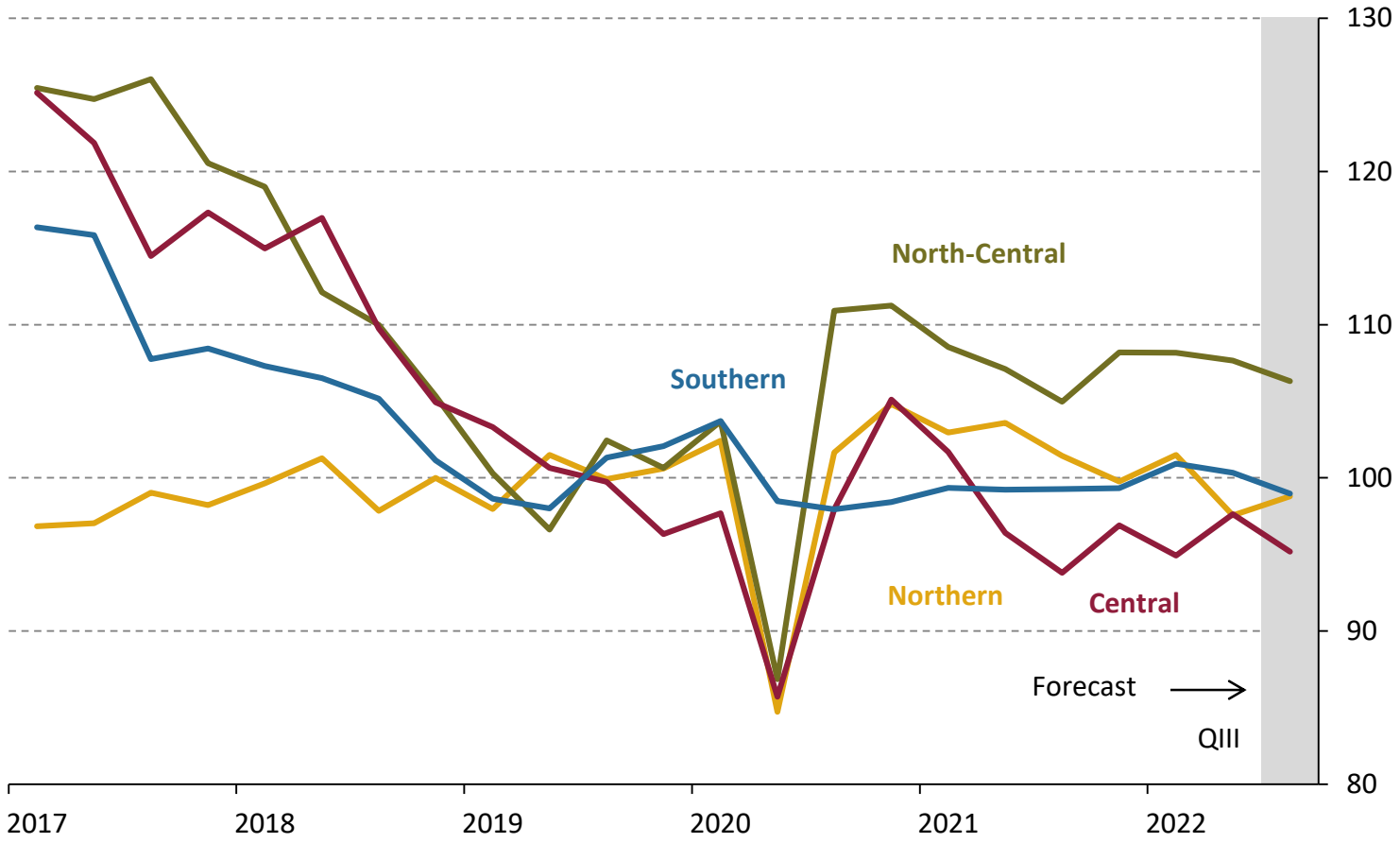


*"Estimated deviation" refers to the deviation obtained with the model in equation 1 of the box on the real annual change in the value of manufacturing output excluding transport equipment with respect to its estimated historical average.
Note: Real annual changes were calculated based on 12-month moving sums of the monthly changes estimated with the model. The estimated historical average corresponds to the period from February 2007 to September 2022.
Source: Estimates based on equation 1 of the box.

In Q3-2022, mining in the North-Central, Central and Southern regions is estimated to have fallen, while in the Northern region it is anticipated to have expanded slightly.

Regional Indicator of Mining, Quarrying, and Oil and Gas Extraction

Index 2019=100, s. a.



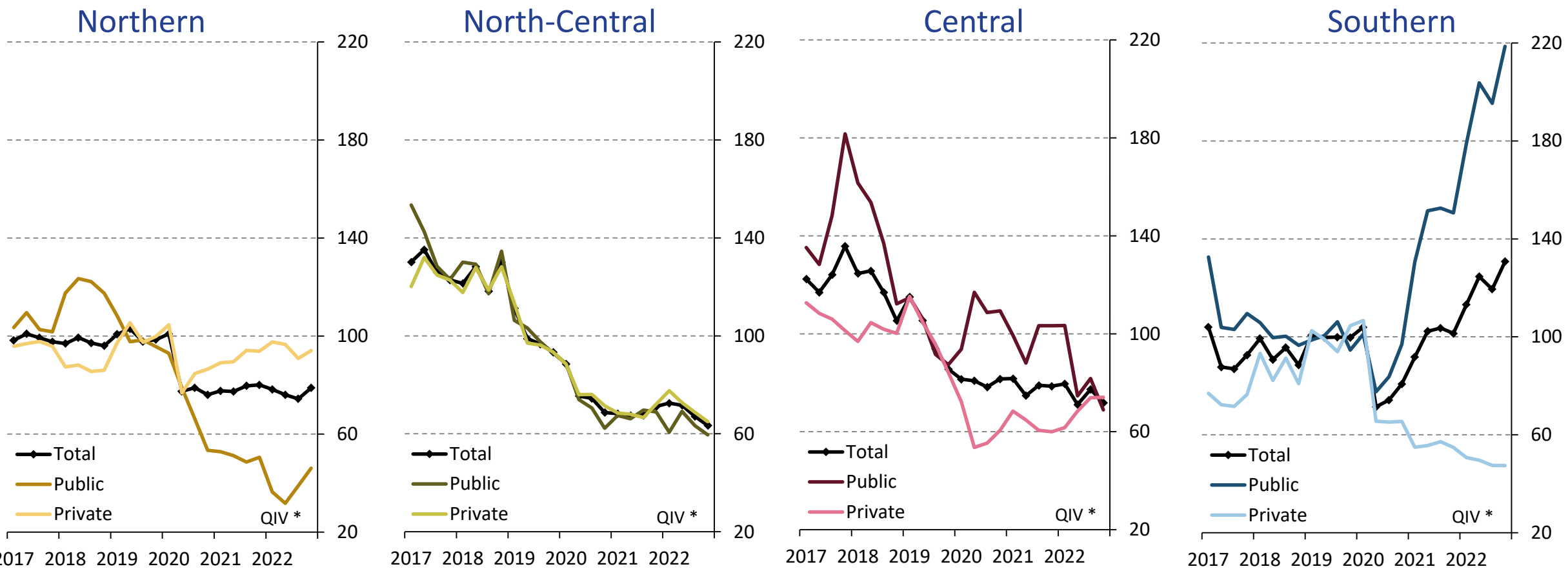
s. a. / Seasonally adjusted data.

Source: Estimated and seasonally adjusted by Banco de México with the series of the Monthly Indicator of Mining Activity by State from INEGI.

In Q3-2022, spending on construction expanded in the Central region, while it contracted in the rest of regions. Within regions, private and public components exhibited a heterogeneous performance.

Real Value of Production in the Construction Industry by Region

Index 2019=100, s. a.



s. a. / Seasonally adjusted data. */ Data as of October 2022.

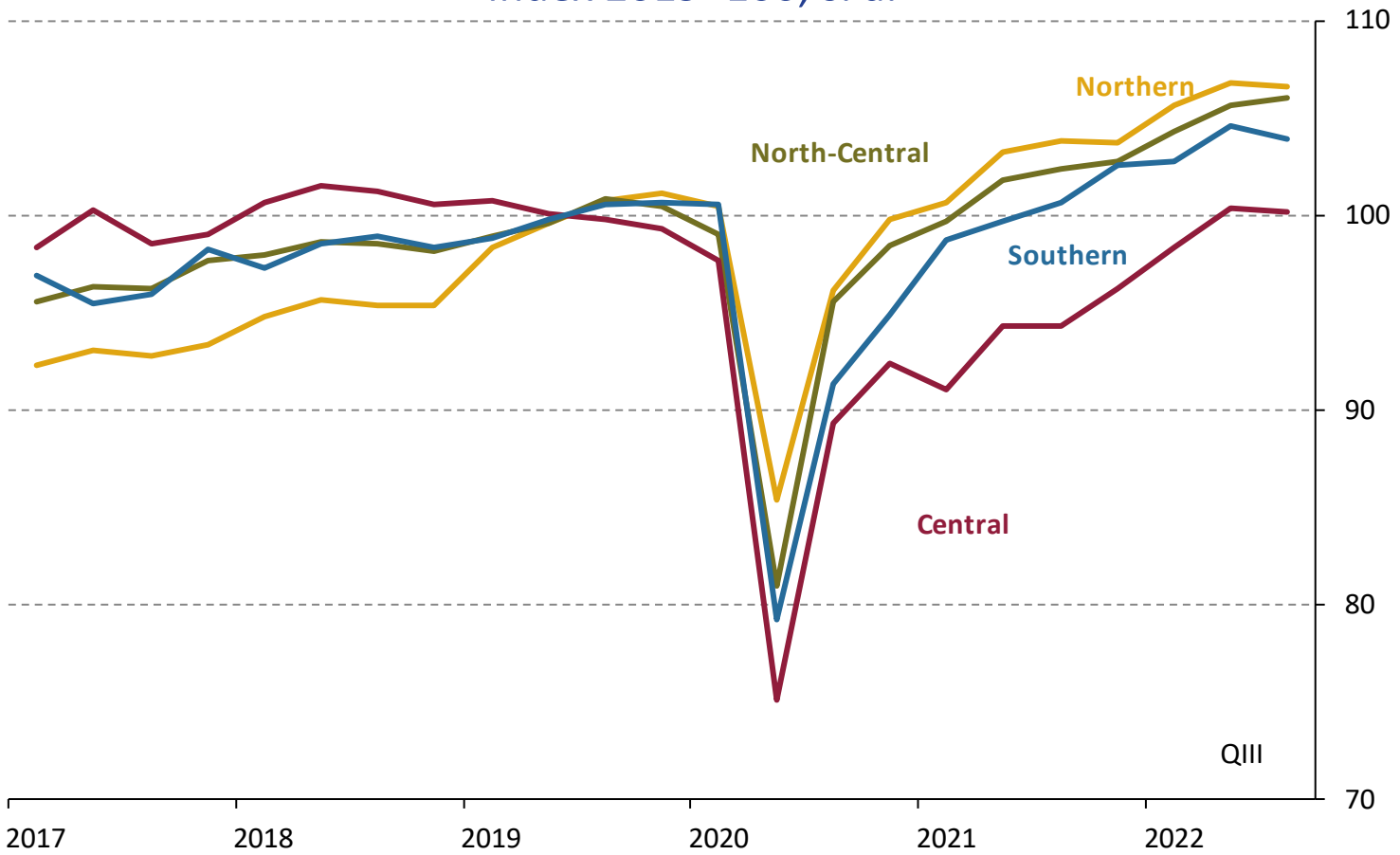
Source: Prepared and seasonally adjusted by Banco de México with data from the National Survey of Construction Companies by INEGI.

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During Q3-2022, commercial activity weakened in all regions, especially in the Southern one. However, in each region commercial activity remained above the levels observed prior to the health emergency.

Index of Revenues from Retailers' Supply of Goods and Services

Index 2019=100, s. a.



s. a. / Seasonally adjusted data.

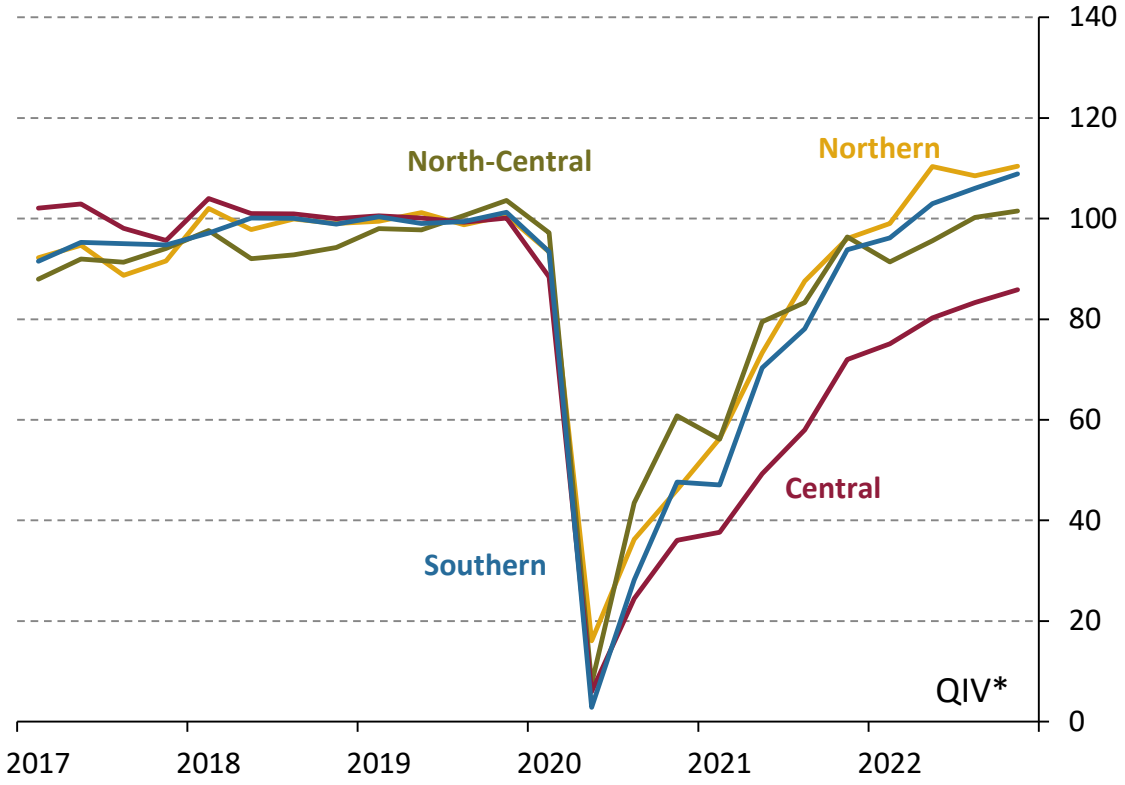
Source: Estimated and seasonally adjusted by Banco de México with the series of Revenues of Retailers' Supply of Goods and Services by State from INEGI.

During Q3-2022, tourism continued growing in all regions, except for the Northern one regarding hotel occupancy. The Central region continued exhibiting a larger lag in its recovery compared to the others.

Regional Indicators of Tourism

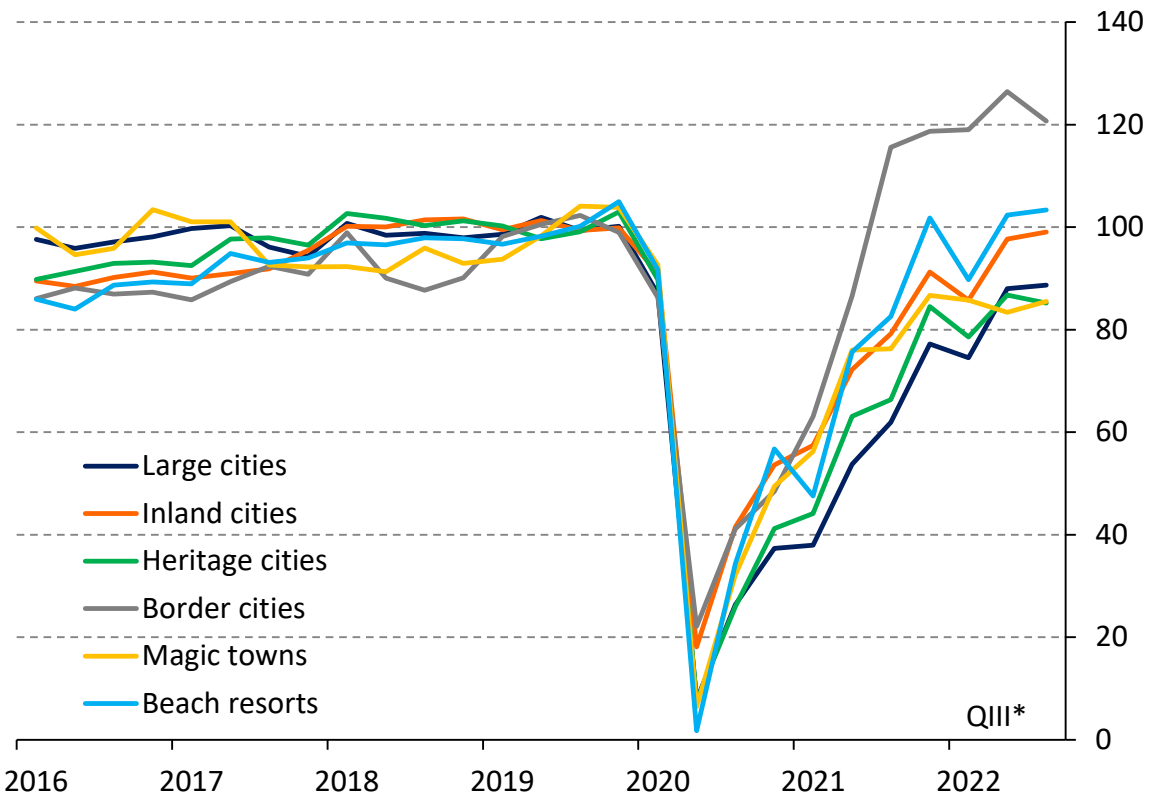
Index 2019=100, s. a.

Hotel Occupancy



s. a. / Seasonally adjusted data.
*/ Data as of October 2022.
Source: Prepared and seasonally adjusted by Banco de México with data from the Mexican Ministry of Tourism.

Hotel Occupancy, by Type of Destination



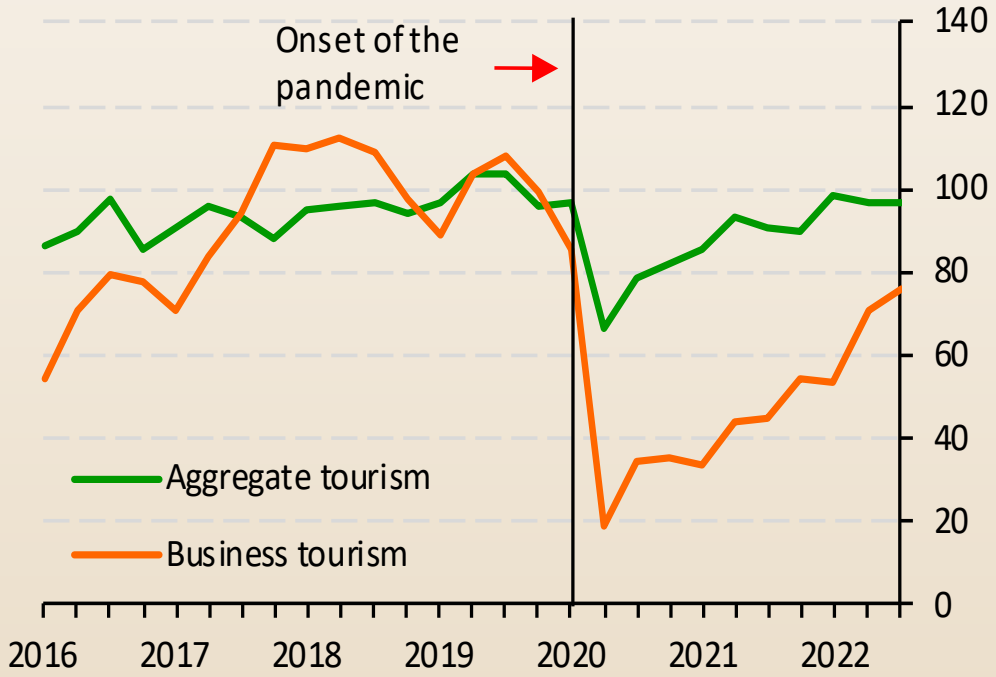
s. a. / Seasonally adjusted data.
*/ Data as of August 2022.
Source: Prepared and seasonally adjusted by Banco de México with data from the Mexican Ministry of Tourism.

Changes in Patterns of Aggregate Tourism and Business in Mexican Regions

- The reactivation of tourism has been heterogeneous, which could help to explain part of the regional differences in the recovery of aggregate tourism. At the national level, business tourism shows a larger gap in the recovery as compared to the rest of tourism activities.

Aggregate Tourism and Business Tourism

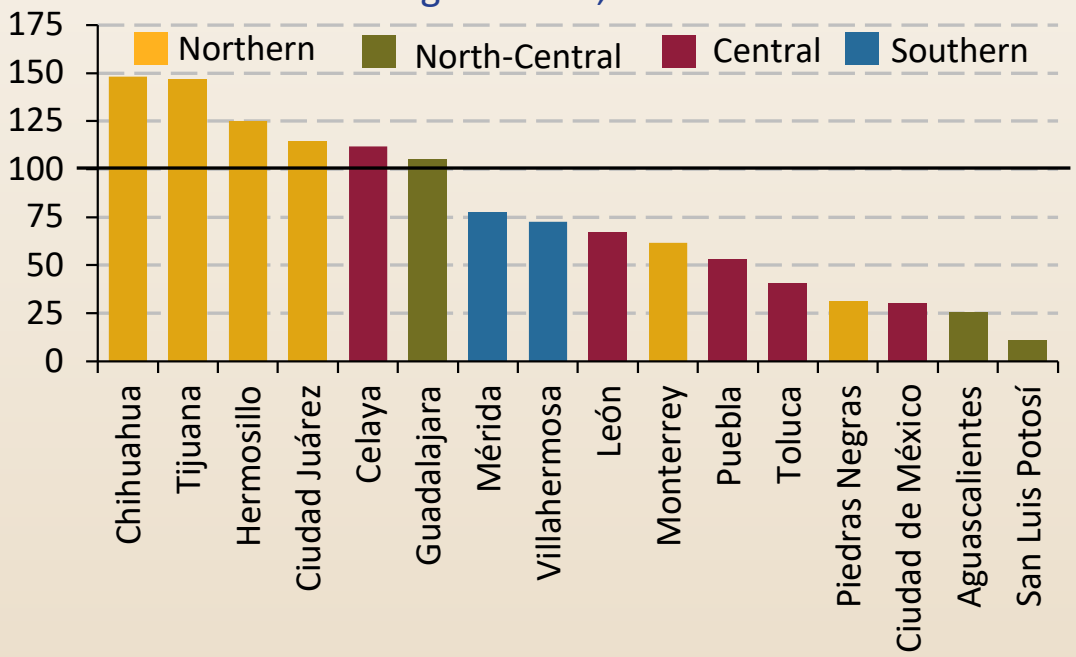
Estimated with Google Trends, Index base 2019=100



Note: Quarterly data. Information is shown as of Q3-2022.
Source: Estimated by Banco de México based on data from Google Trends.

Level of Business Tourism in 2022 compared to prior to the Pandemic

Estimated with Google Trends, Index 2016-2019=100

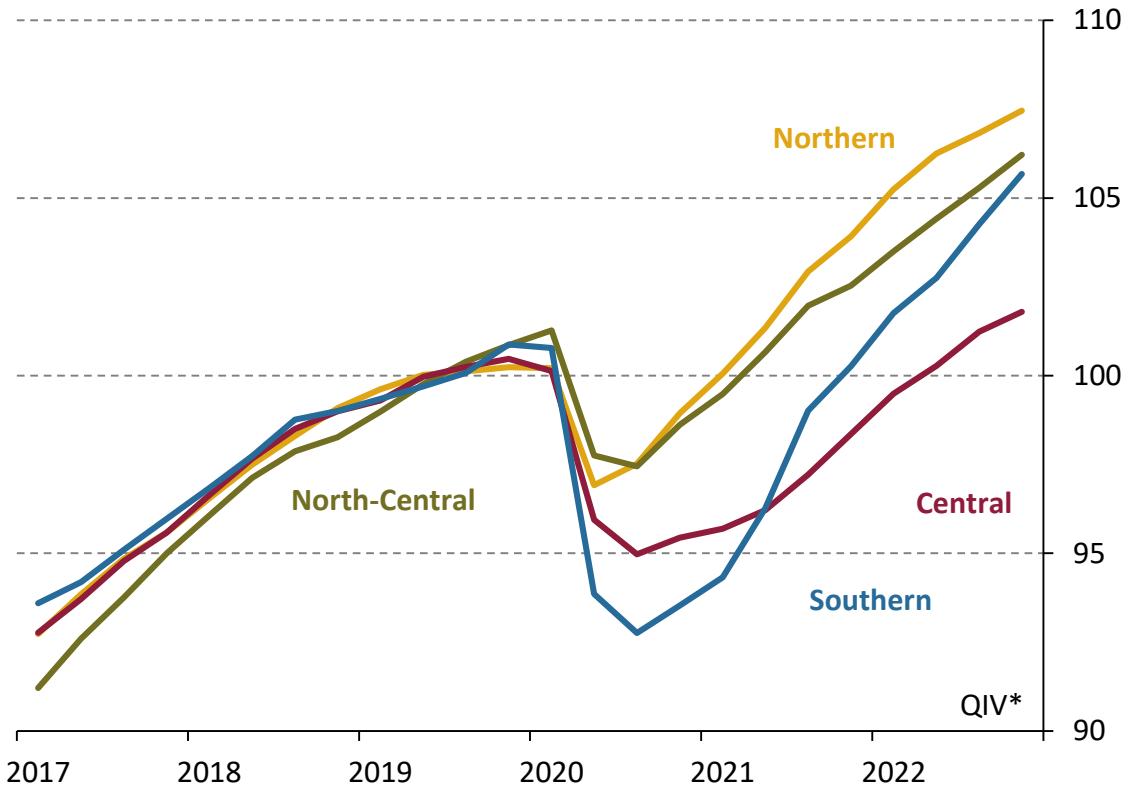


Note: Information is shown as of Q3-2022.
Source: Estimated by Banco de México based on data from Google Trends.

The number of IMSS-insured jobs continued trending upwards in all regions during Q3-2022.

Number of IMSS-insured Workers

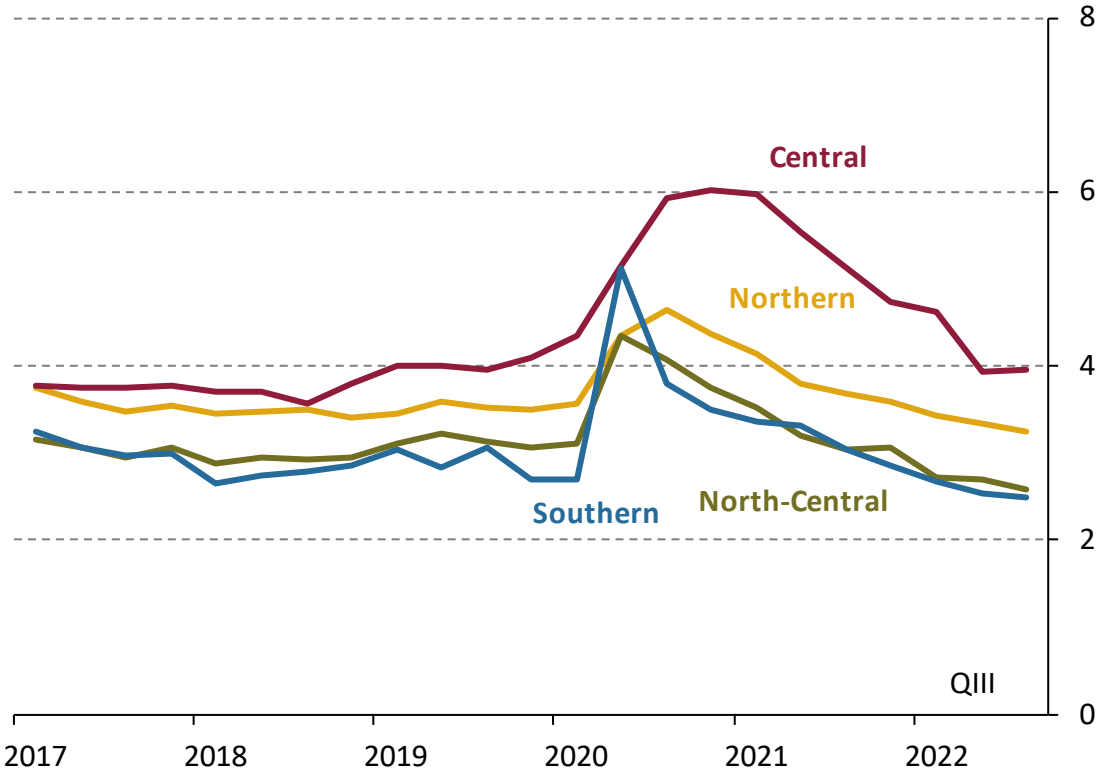
Index 2019=100, s. a. [1/]



s. a./ Seasonally adjusted data.
*/ Data as of November 2022.
1/ Permanent and temporary jobs in urban areas.
Source: Estimated and seasonally adjusted by Banco de México with data from IMSS.

Unemployment Rate

Percent, s. a.



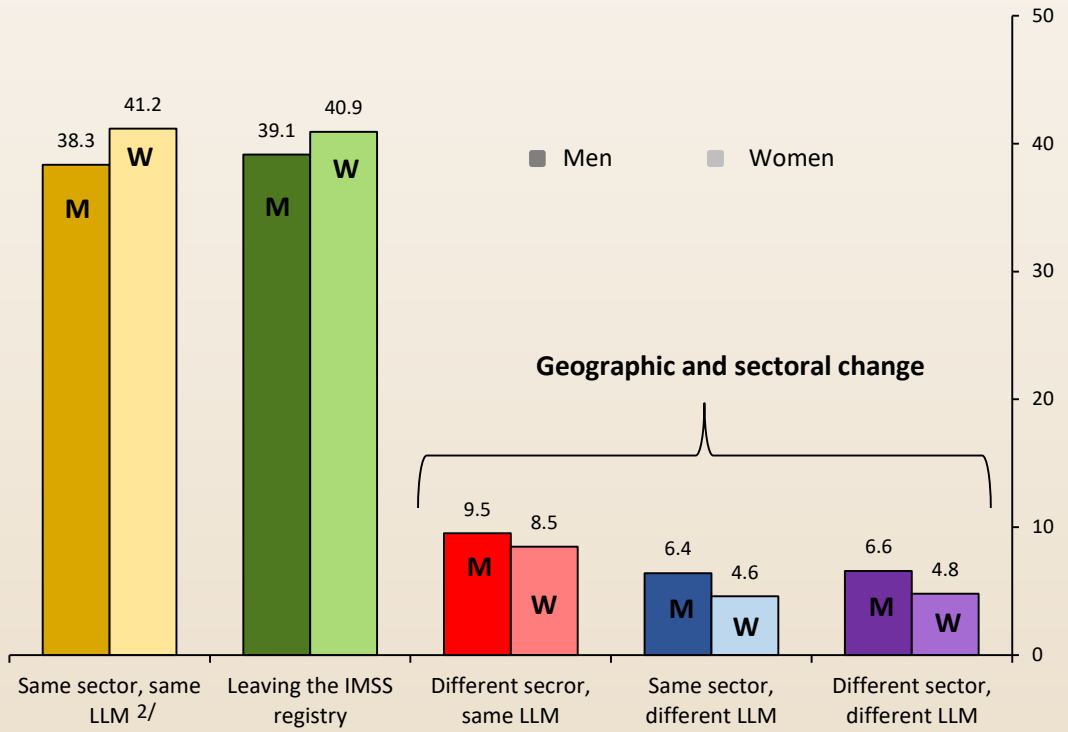
s.a./ Seasonally adjusted data.
Source: Prepared and seasonally adjusted by Banco de México with data from INEGI. Data of Q2-2020 corresponds to labor indicators for Mexican states with an estimate using INEGI statistical models and, starting from Q3-2020, corresponds to the New Telephone Survey on Occupation and Employment (ENOE^{N}).

Costs of Geographic and Sectoral Changes in Formal Employment during the Pandemic, by Gender

- Over the **first two years** of the **pandemic**, the **regional** and **sectoral composition** of formal employment changed.
- However, **women** were **less likely** than men to **change their geographic location and employment sector during said period**.
- Using an employment transition model, **women** are estimated to face **higher costs than men** when **changing their geographic location and employment sector**.

Distribution of IMSS-insured Workers[1/] in February 2020, based on their Sectoral and Geographic Location in February 2022

Percentage of formal employment in February 2020



1/ Data exclude outsourced workers based on the criterion used in box 3 of RER-I 2022.
2/ A local labor market (LLM) is a set of municipalities that are interconnected, given that workers that live there work in the same set of municipalities.
Source: Estimated by Banco de México with data from IMSS.

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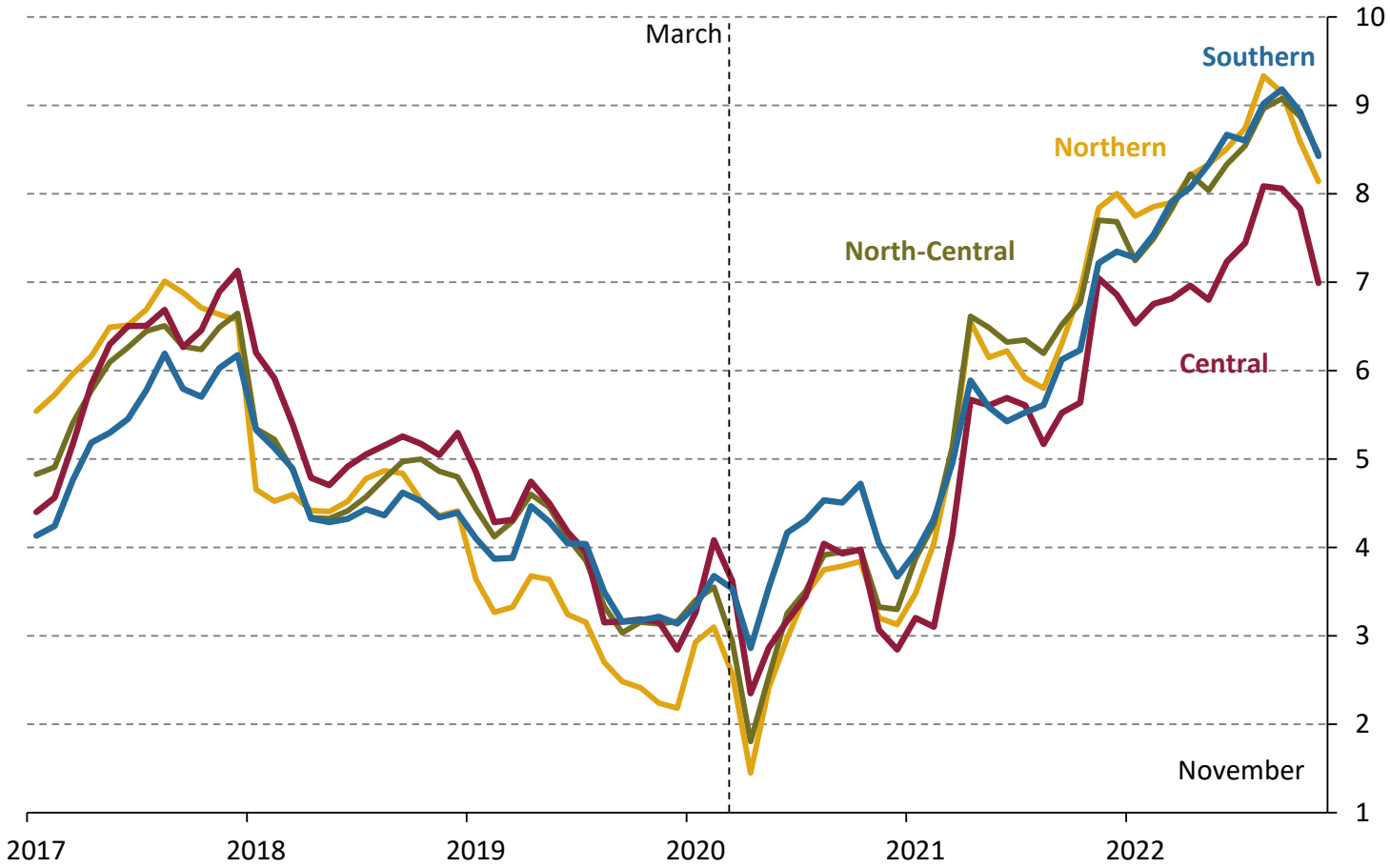
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The cumulative effects of the shocks from the COVID-19 pandemic and the military conflict between Russia and Ukraine, which have turned out to be deeper and longer lasting than anticipated, continued exerting pressure on inflation in all regions during Q3-2022. However, headline inflation moderated slightly during Q4-2022 so far.

Annual Headline Inflation by Region

Figures in percent

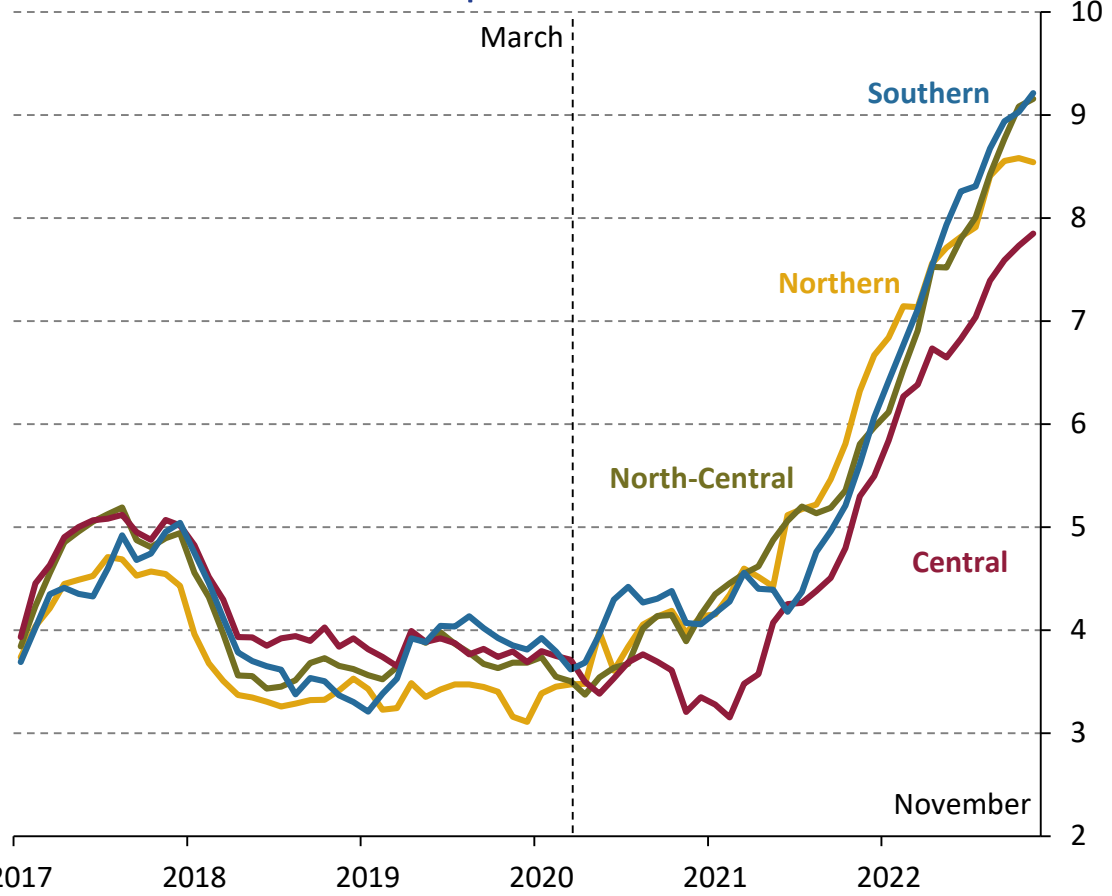


Source: Prepared by Banco de México with INEGI data.

During Q3-2022, annual core inflation continued increasing in all regions and has remained subject to pressure in Q4-2022 so far.

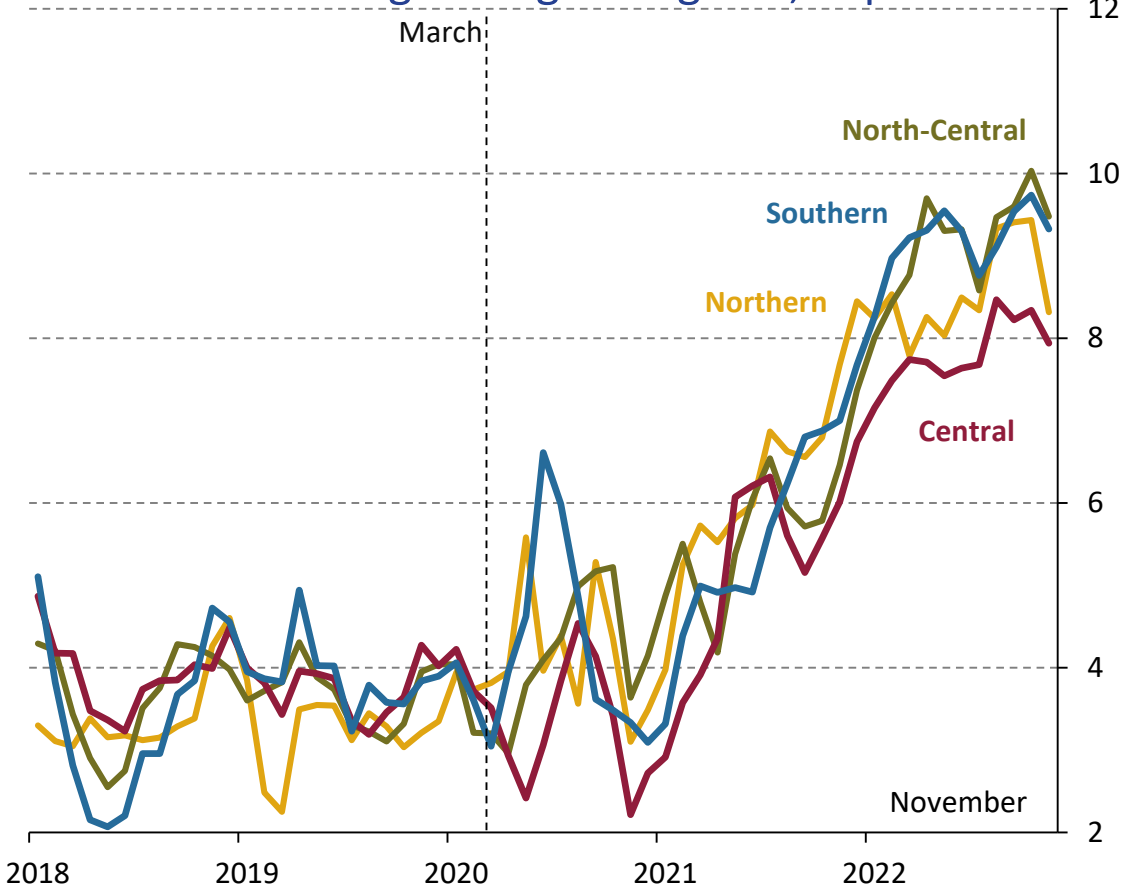
Annual Core Inflation by Region

Data in percent



Annualized Seasonally Adjusted Monthly Variation of the Core Inflation Index

3-month moving average of figures, in percent

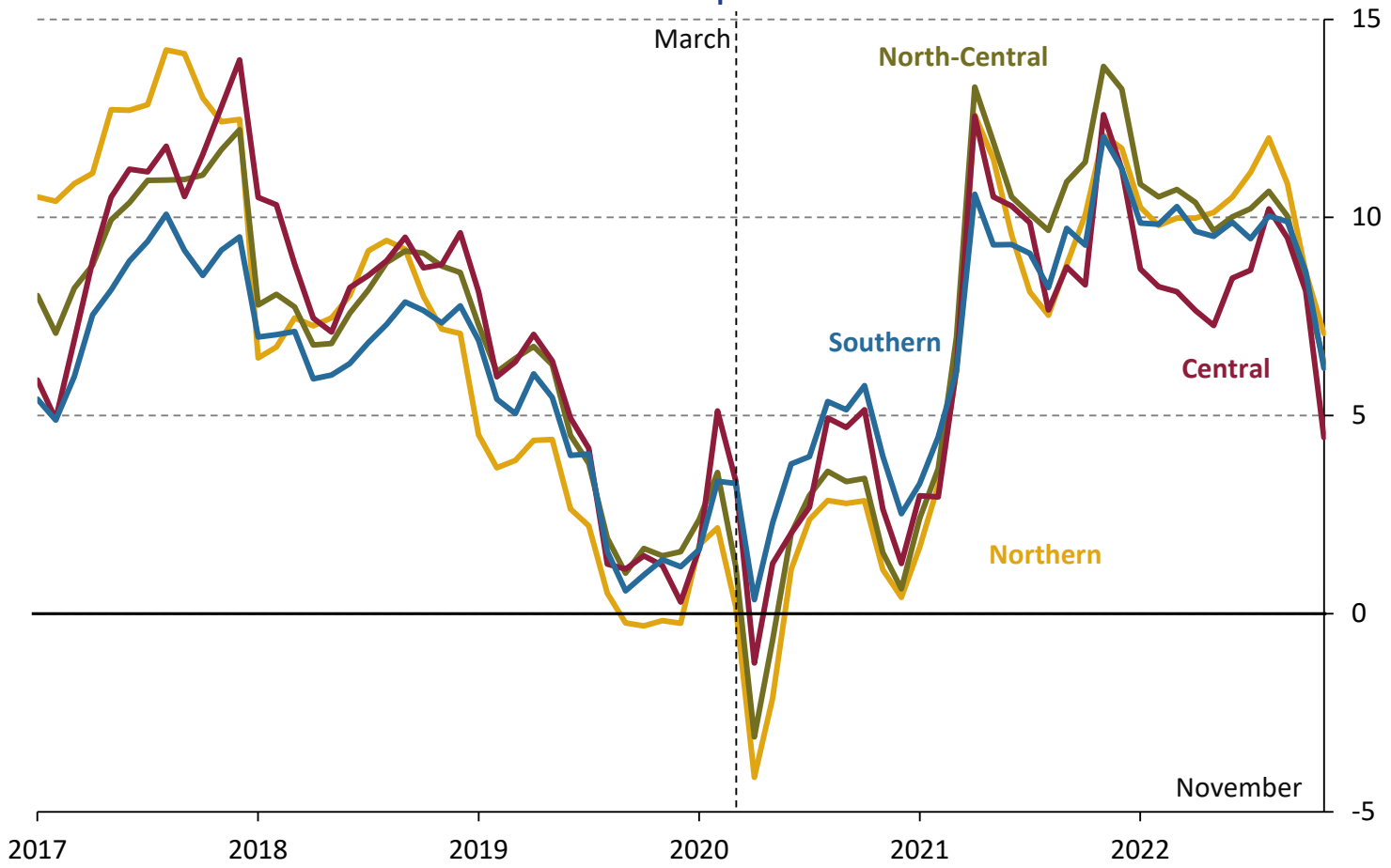


Source: Prepared by Banco de México with INEGI data.

In Q3-2022, non-core inflation in all regions remained high and above the levels of Q2-2022. Nevertheless, during Q4-2022 so far, this indicator has shown a reduction in all of them.

Annual Non-core Inflation by Region

Data in percent



Source: Prepared by Banco de México with INEGI data.

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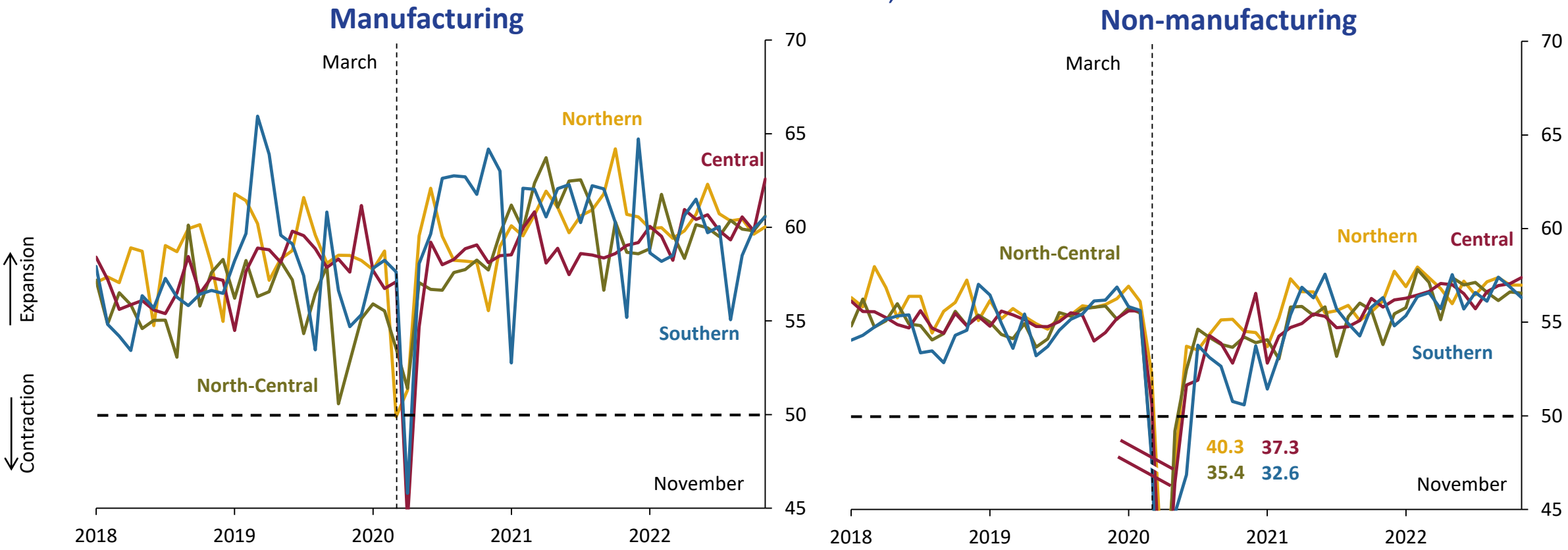
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Regional manufacturing and non-manufacturing orders' indexes remain in expansionary territory.

Regional Manufacturing and Non-manufacturing Orders' Index: Activity Outlook for the Next 3 Months

Diffusion indexes, s. a.



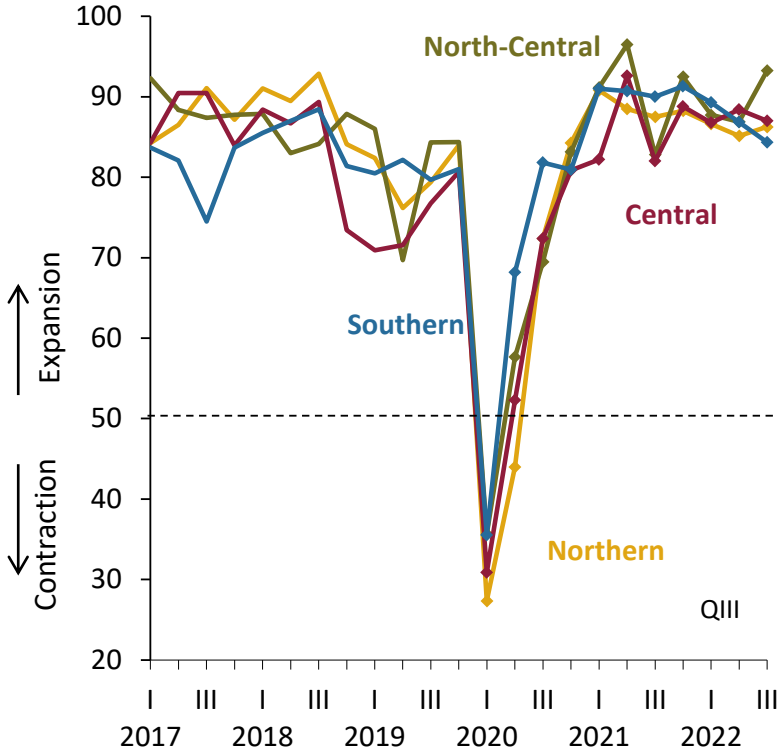
s. a./ Seasonally adjusted figures.
Source: Banco de México.

The diffusion indexes of expectations on demand, number of workers hired, and firms' fixed asset investment remained in the expansion zone in all regions during Q3-2022.

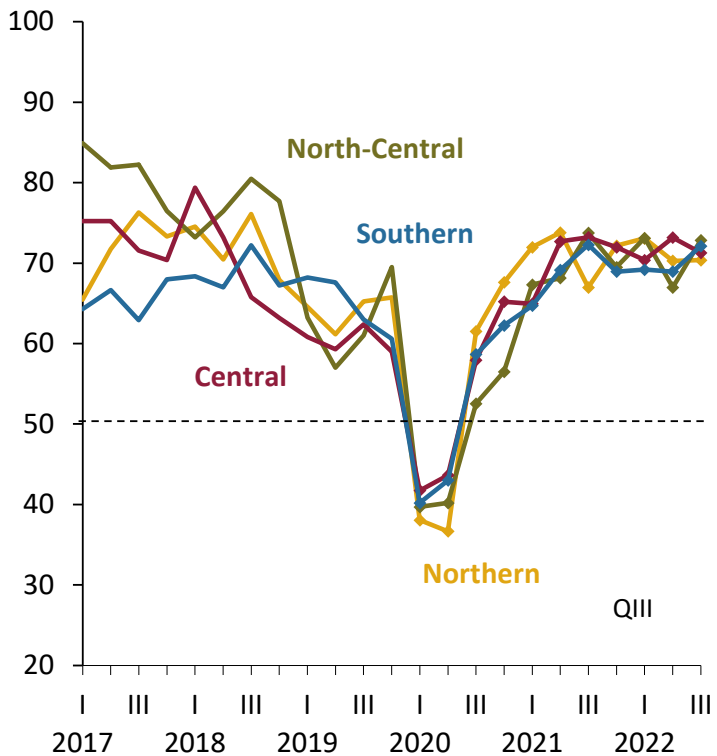
Business Agents' Expectations: Demand, Hired Personnel and Physical Capital Stock, Next 12 Months [1/]

Diffusion indices

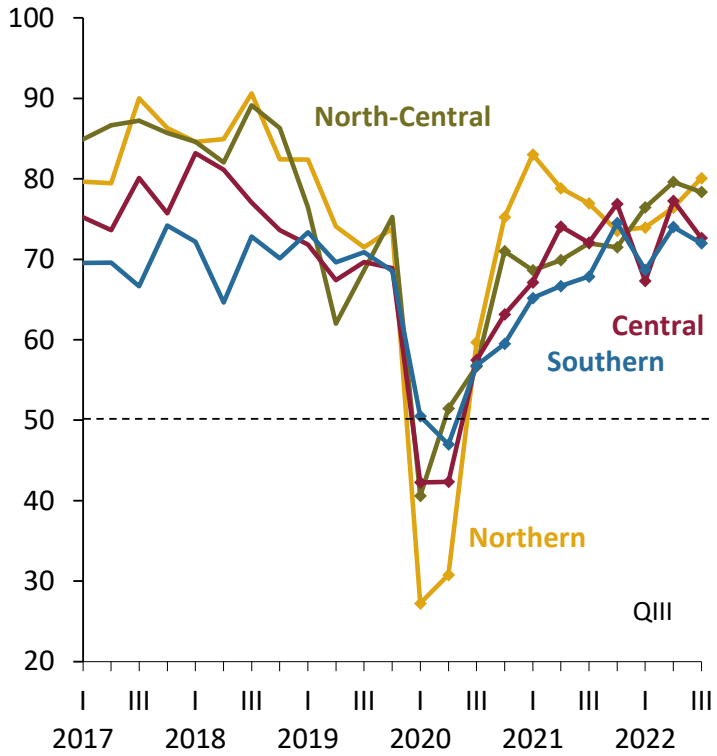
Expected demand



Hired personnel



Physical capital stock

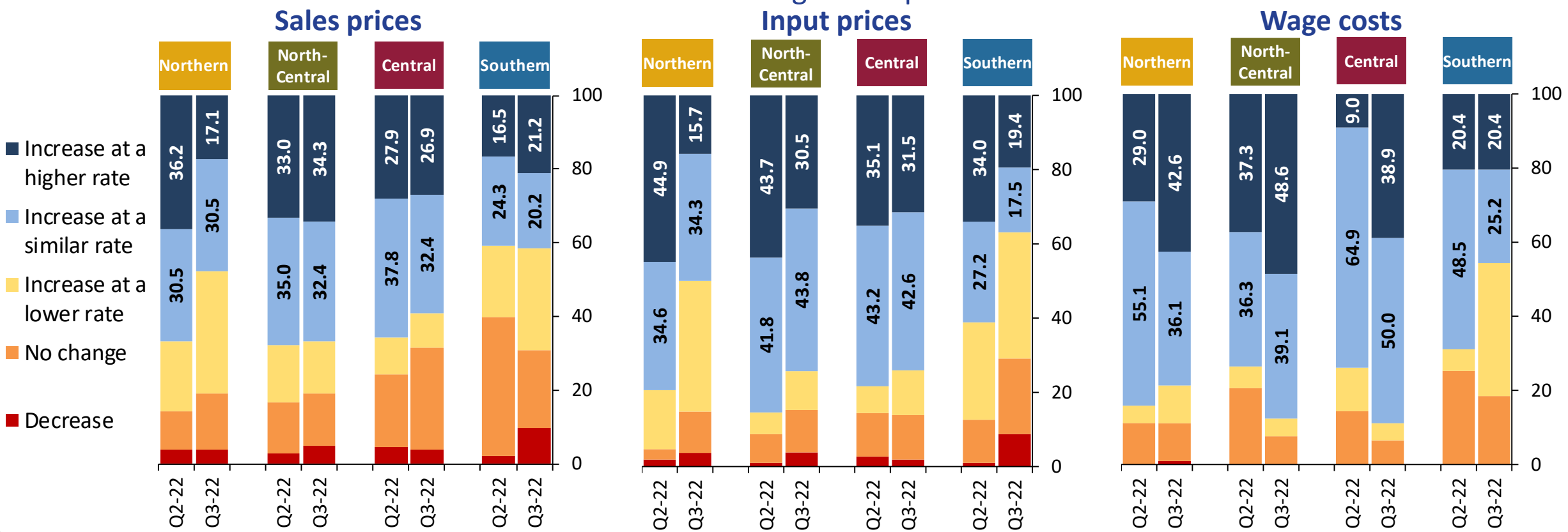


1/Results obtained from the questions: "With respect to the previous 12 months, how do you expect your sales volume to change over the next 12 months, how do you expect the total number of workers in your company to change over the next 12 months" and "With respect to the investment in fixed assets made by your company during the previous 12 months, how do you expect the level of investment to change over the next 12 months", included in the interviews conducted by Banco de México. Expectations corresponding to each Report were generally collected during the four weeks following the end of the reported quarter. In the case of the third quarter of 2022, they were obtained between September 26 and October 20, 2022.

In all regions, the share of interviewed business agents that anticipate that their sales prices and input prices will increase at a similar or higher rate decreased, except for sales prices in the North-Central and Southern regions, where it remained stable. As for wage costs, in the Northern and Central regions, more business agents expect higher rate increases.

Business Agents' Expectations: Sales Prices, Input Prices and Wage Costs, Next 12 Months with respect to Last 12 Months [1/]

Percentage of responses



1/ Results obtained from the questions: "With respect to the previous 12 months, how do you anticipate sales prices in your sector to change over the next 12 months, how do you anticipate the prices of inputs (goods and services) used in your sector to change over the next 12 months, and how do you anticipate wages and salaries of workers in your sector to change over the next 12 months?", included in the interviews conducted by Banco de México. Expectations corresponding to each Report were generally collected during the four weeks following the end of the reported quarter. In the case of the third quarter of 2022, they were obtained between September 26 and October 20, 2022.

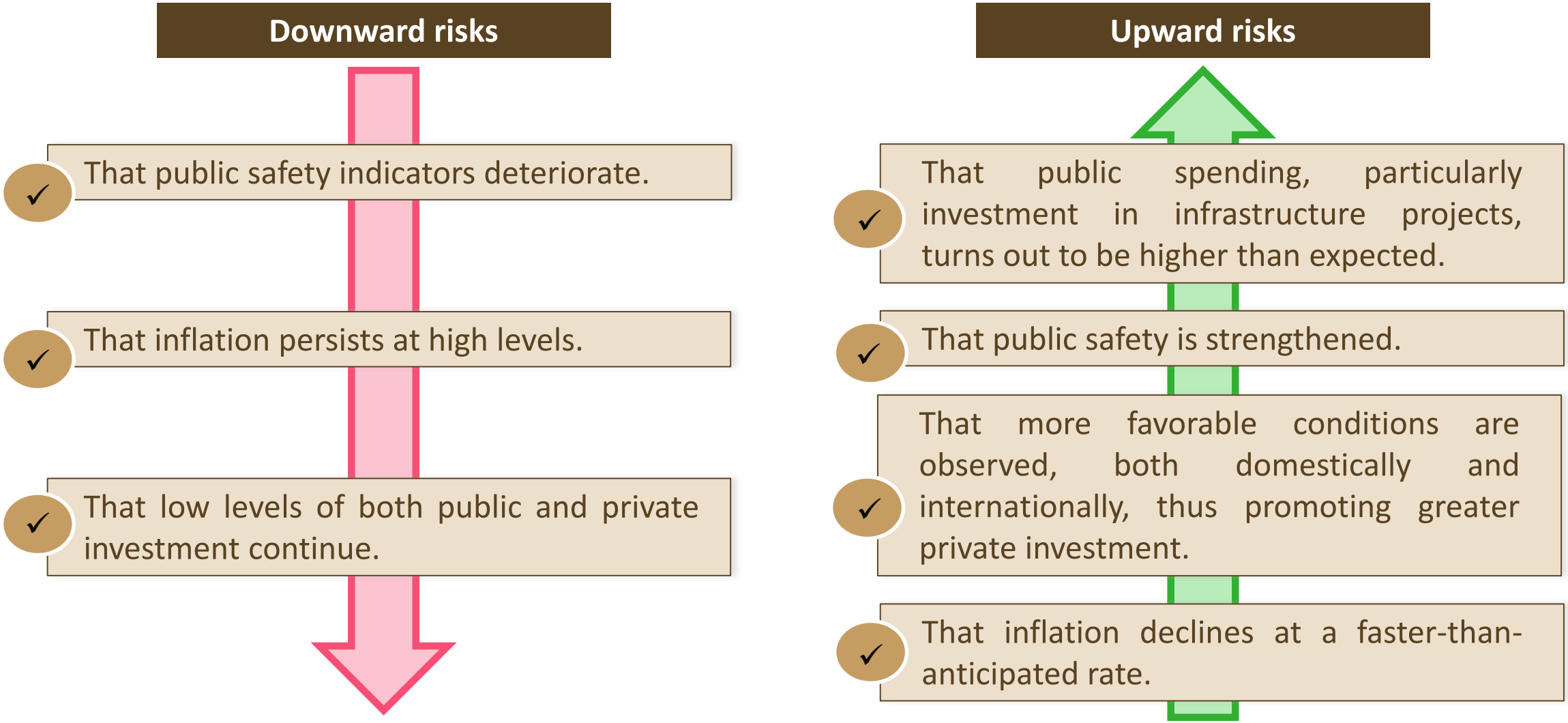
Main Responses of Business Agents when Asked About the Top Three Factors that Could Hinder Growth of Economic Activity in Their Entities in the Next Six Months

Based on information collected between September 1 and 30, 2022 [1/]

	Northern		North-Central		Central		Southern	
	Factor	Percentage of responses	Factor	Percentage of responses	Factor	Percentage of responses	Factor	Percentage of responses
1	Inflation	**34.8%**	Inflation	**34.4%**	Inflation	**34.6%**	Inflation	**37.4%**
2	External conditions	**21.9%**	Governance	**19.8%**	Governance	**19.9%**	Governance	**22.4%**
3	Governance	**17.0%**	Domestic economic conditions	**18.2%**	Domestic economic conditions	**17.9%**	Domestic economic conditions	**18.2%**

1/ Question: What do you consider to be the three main factors limiting the growth of economic activity in your state over the next six months? This question is similar to the one included in the questionnaire of the Survey on Expectations of Private Sector Economic Specialists. Figures for September 2022 were obtained based on information collected between September 1 and September 30, 2022.
Source: Banco de México.

Business Agents' Opinion on Risks to Regional Economic Activity (based on data collected between September 26 and October 20, 2022) 1/



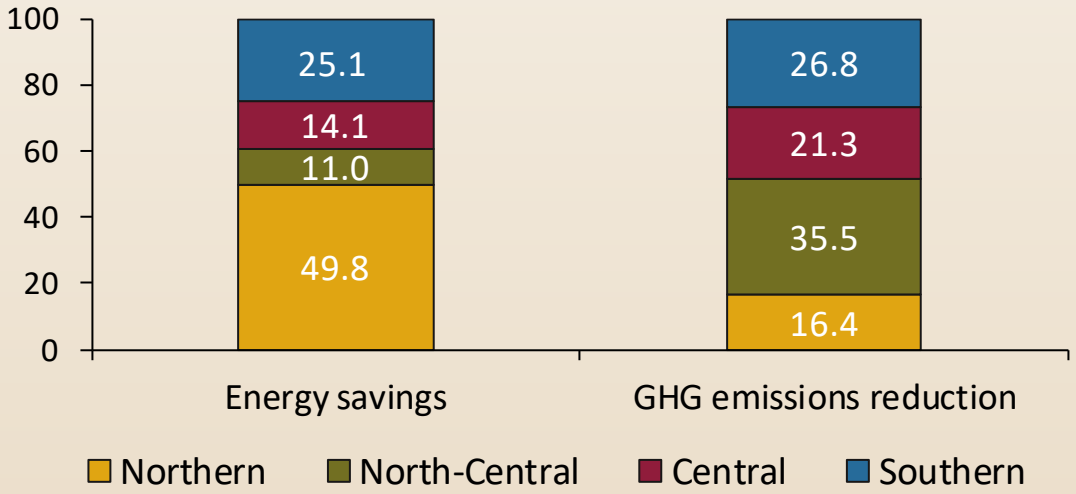
1/ Results obtained from the questions: "What are the 2 main events/situations/facts that if they were to occur would boost economic development in your state over the next 12 months?" and "What are the 2 main events/situations/facts that if they were to occur would limit economic development in your state over the next 12 months?", included in the interviews conducted by Banco de México between September 26 and October 20, 2022.

Energy Efficiency and Environmental Performance of Manufacturing in Mexican Regions

- This box **estimates a production possibility frontier**, with the states that implement the best practices in Mexico in terms of energy consumption and environmental practices.

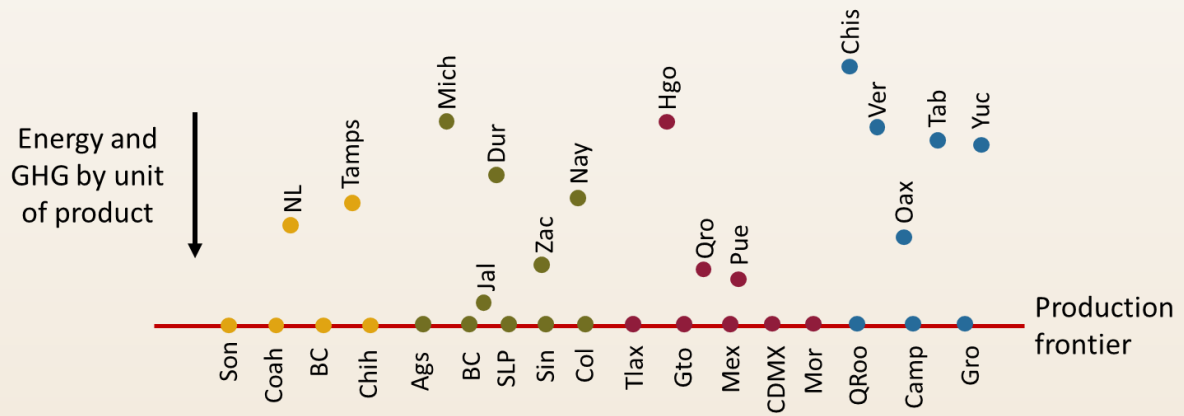
Estimated Contribution to National Energy Savings and Greenhouse Gas Emissions Reduction (GHG) in States below the Production Frontier

Data in percent for 2018



Source: Estimated by Banco de México.

Schematic Representation of the Production Frontier



- The estimates of the model show that **if the states located far from the frontier applied better production practices as those on the frontier**, the sector could:
  - **Save** up to 11.5% of consumed **energy**, and
  - **Reduce greenhouse gas** emissions by 6.8%.

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1 **Looking ahead, regional economies are anticipated to continue recovering, in a complex and uncertain context that poses significant challenges to growth. Some of these are:**

- ✓ **A possible recession in the United States,** which could particularly affect the export-oriented states of the Northern and Central regions, or those that receive a considerable flow of remittances from the US.
- ✓ **That the pandemic or geopolitical conflicts continue affecting global supply chains and energy prices,** thus limiting activity in those sectors and regions that are most exposed to such supply-related shocks.
- ✓ **That public safety conditions inhibit economic activity**.
- ✓ **That adverse climate events or that phyto and zoo sanitary emergencies materialize.**

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Final Remarks

2 To face these challenges, it is necessary to foster adequate conditions for the recovery of private investment and to strengthen the factors that affect domestic sources of growth.

- ✓ Within the framework of the USMCA and in the context of a global relocation of production processes:
  - **The strengthening of the rule of law and public safety** would give greater certainty to companies, would facilitate their operations, would decrease costs and could boost investment flows, not only to the regions that traditionally receive a greater share of these flows, but also to the Southern region.
  - **The construction of infrastructure projects**, particularly those that improve the regional connectivity with other markets, within and outside Mexico, as well as those that facilitate access to energy sources in an efficient and less polluting way, could also attract investment in the medium term.
- ✓ **A greater flexibility of the labor market** could allow a better employment adjustment in view of the challenges imposed by the pandemic.
- ✓ **Progress in controlling the pandemic** will continue to be key to achieve a more robust reactivation of activity, with greater certainty, especially in those regions specializing in services, such as the Central region, which has been particularly affected by the pandemic.

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December 2022

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Banxico al día

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