

Regional Economic Report
January – March 2022

BANCO DE MÉXICO

Published-General Purpose
Information published by Banco de México

Outline

I. Regional Economic Report

II. Results January – March 2022

A. Economic activity

B. Inflation

C. Economic outlook

(based on data collected between March 28 and April 28, 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 Q1-2022, and the prospects of business agents surveyed between March 28 and April 28, 2022 on regional economic activity and inflation over the following twelve months are analyzed herein.

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A. Economic activity

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(based on data collected between March 28 and April 28, 2022)

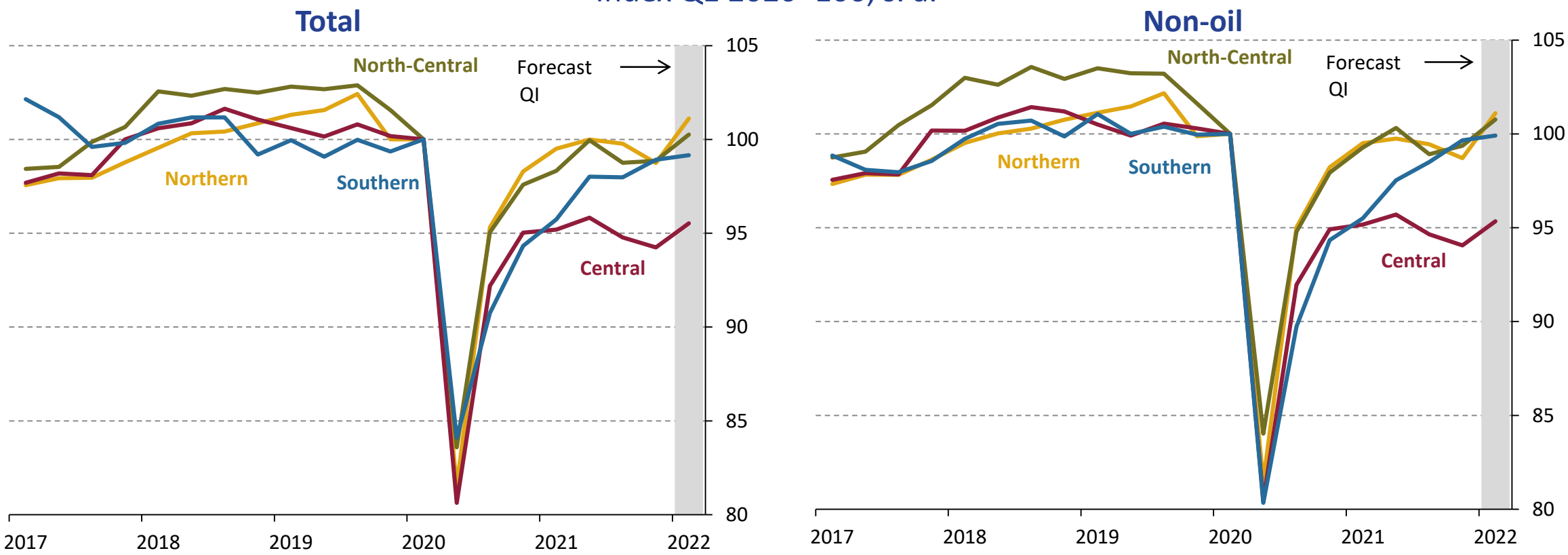
III. Final remarks

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During Q1-2022 economic activity is estimated to have expanded in all regions. In the Northern region, economic activity is anticipated to have exceeded the levels observed in Q1-2020, while that of the North-Central region is estimated to have registered a level similar to said reference, and the Southern region, a level slightly below it. In the Central region, economic activity is foreseen to continue exhibiting a larger gap with respect to its pre-pandemic levels.

Quarterly Indicator of Regional Economic Activity

Index Q1 2020=100, s. a.



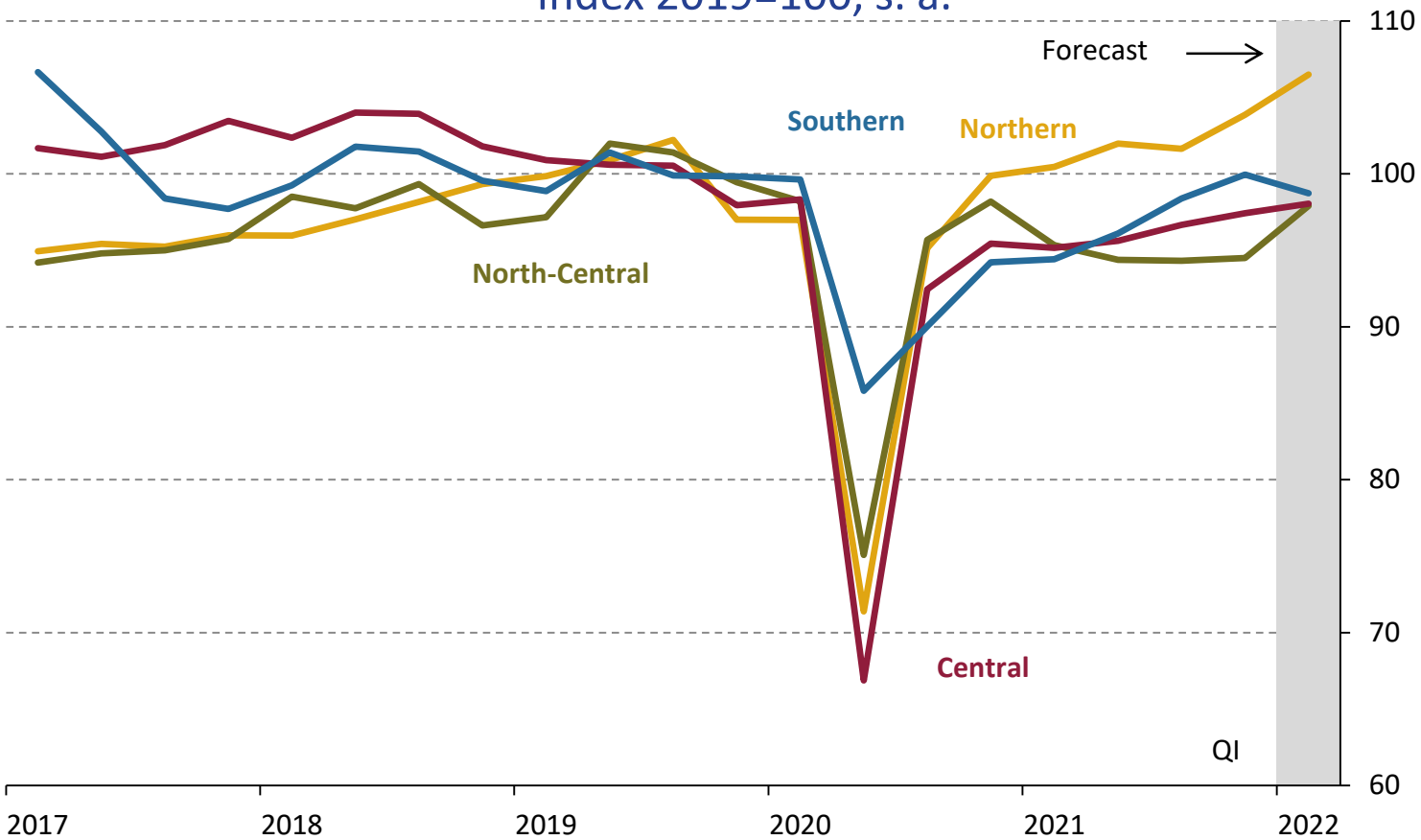
s. a. / Seasonally adjusted data.

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

In Q1-2022, manufacturing activity is estimated to have expanded in the Northern and Central regions, associated with the recovery of the automotive industry and progress in manufacturing excluding transport equipment. The Northern region is therefore estimated to have continued its upward trajectory, remaining at high levels.

Regional Manufacturing Indicator

Index 2019=100, s. a.



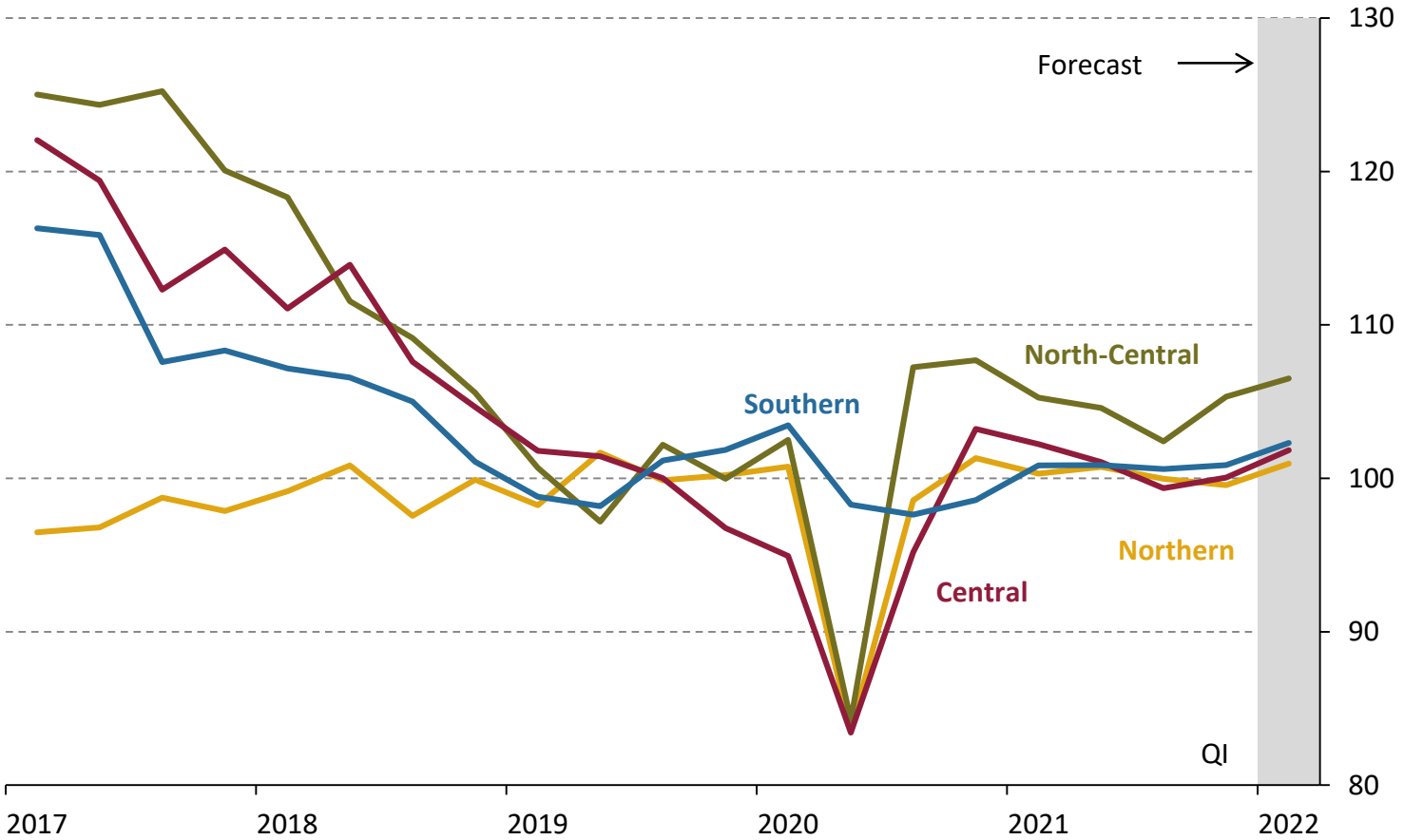
s. a. / Seasonally adjusted data.

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

During Q1-2022, mining is estimated to have expanded in the Northern and Central regions, mirroring the evolution of minerals' mining, while growth in the Southern region was associated with the performance of oil mining.

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.

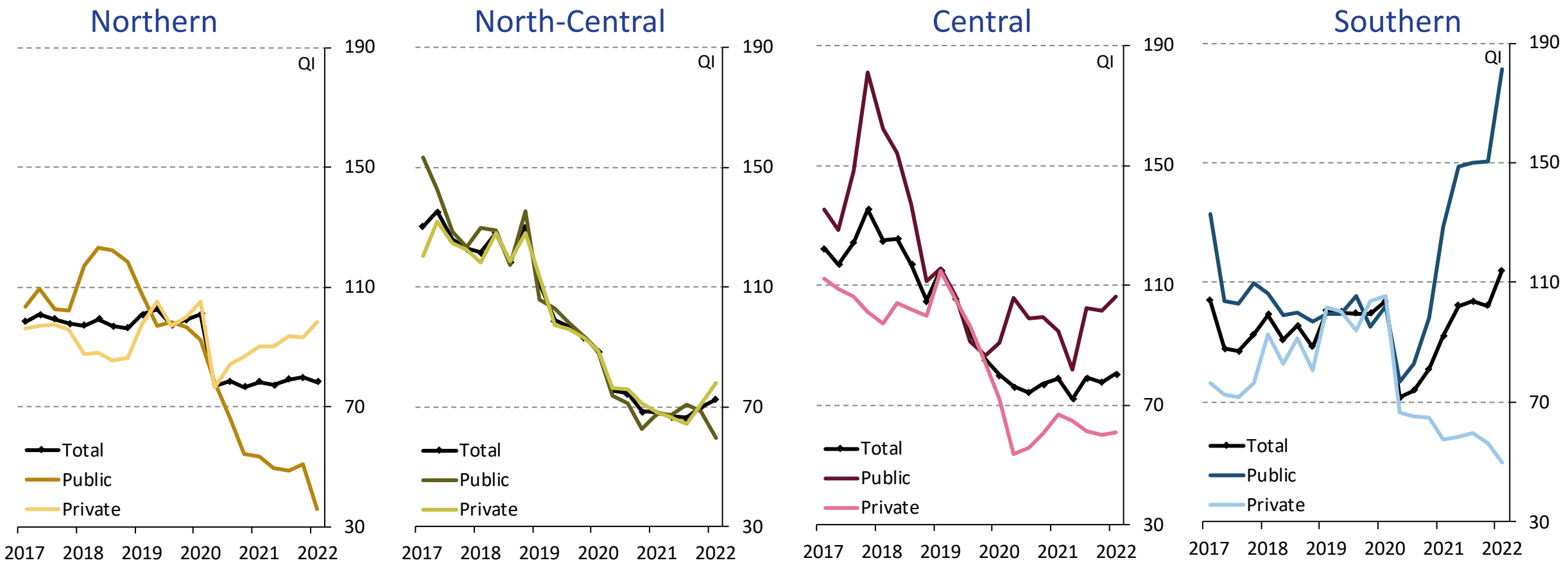
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In Q1-2022, spending on construction in the Southern and Central regions expanded, while in the Northern region, it contracted. Within regions, the performance of private and public components was heterogeneous.

Real Value of Production in the Construction Industry by Region

Index 2019=100, s. a.



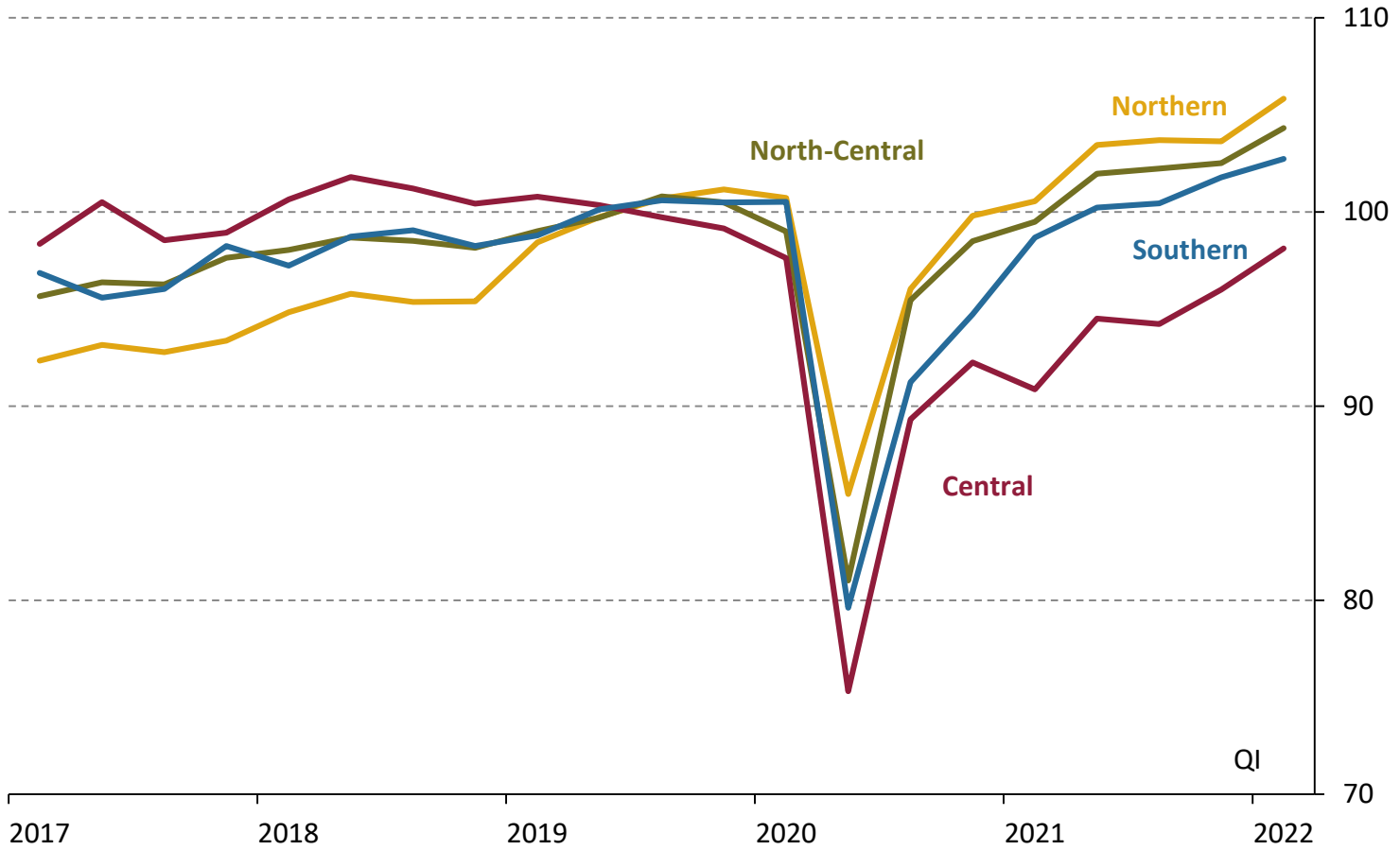
s. a. / Seasonally adjusted data.

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

During Q1-2022, commercial activity expanded in all regions as compared to the previous quarter, although the recovery in the Central region has been slower than in the rest.

Index of Revenues from Retailers' Supply of Goods and Services

Index 2019=100, s. a.

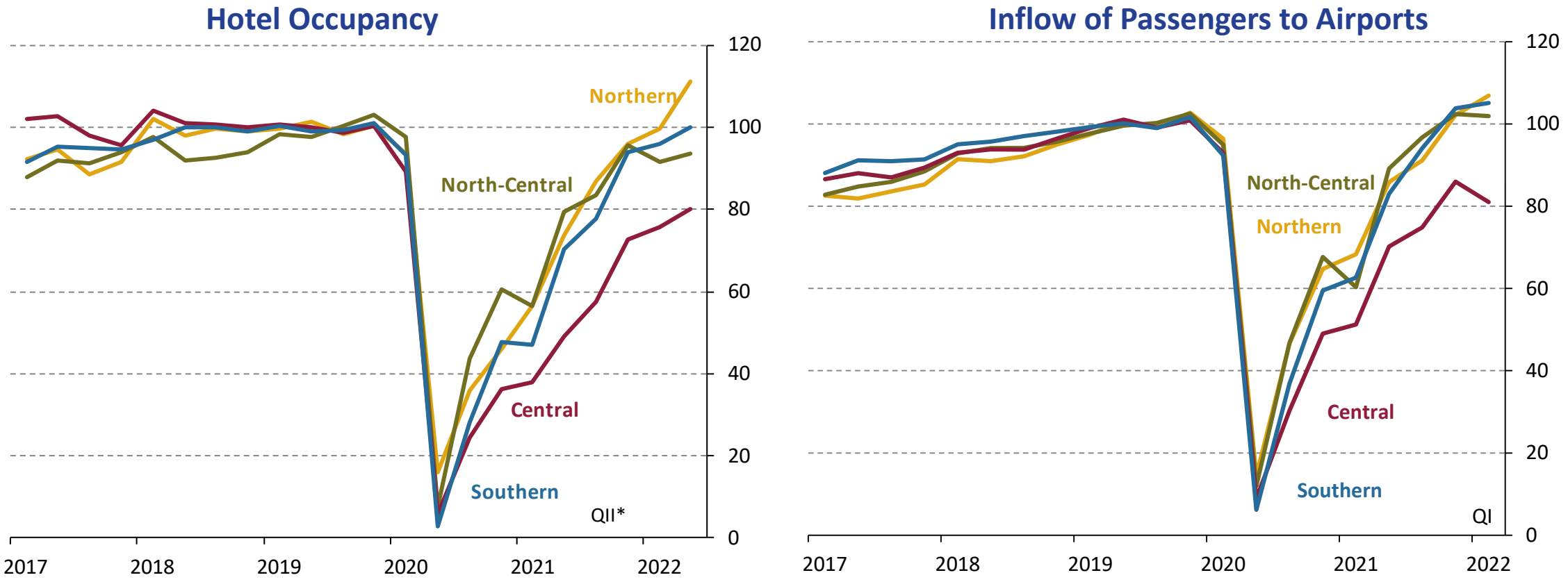


s. a. / Seasonally adjusted data.
Source: Estimated and seasonally adjusted by Banco de México with the series of Revenues of Retailers' Supply of Goods and Services by State from INEGI.

In Q1-2022, activity in the tourism sector weakened in all regions as a result of the upsurge in COVID-19 cases at the beginning of the quarter. The Central region continued showing a greater lag as compared to pre-pandemic levels.

Regional Indicators of Tourism

Index 2019=100, s. a.



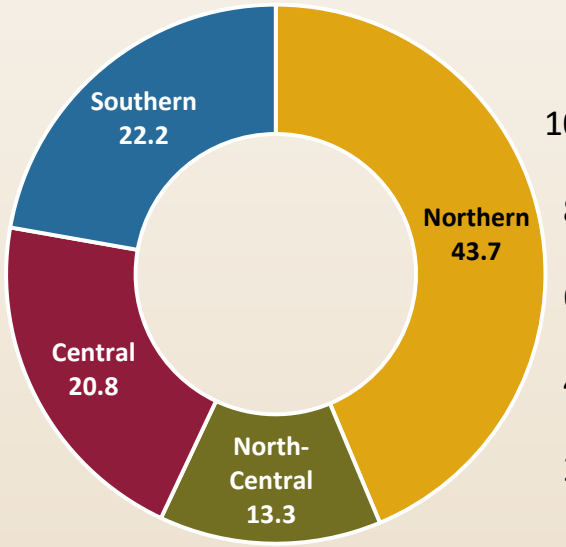
s. a. / Seasonally adjusted data.
*/ Data as of April 2022.
Source: Prepared and seasonally adjusted by Banco de México with data from the Mexican Secretariat of Tourism and the state-owned company Airport and Auxiliary Services (ASA, for its acronym in Spanish).

Impact of Natural Gas Price Fluctuations on Regional Manufacturing Activity

- Reference prices for natural gas have risen substantially since the beginning of the pandemic and have further increased due to geopolitical conflict.
- The Northern region is more exposed due to the higher share of natural gas consumption compared to the rest of the regions.
- The effects of these price increases on manufacturing are heterogeneous across regions, due in part to both the access to the pipeline network and how energy-intensive are the activities each region specializes in.

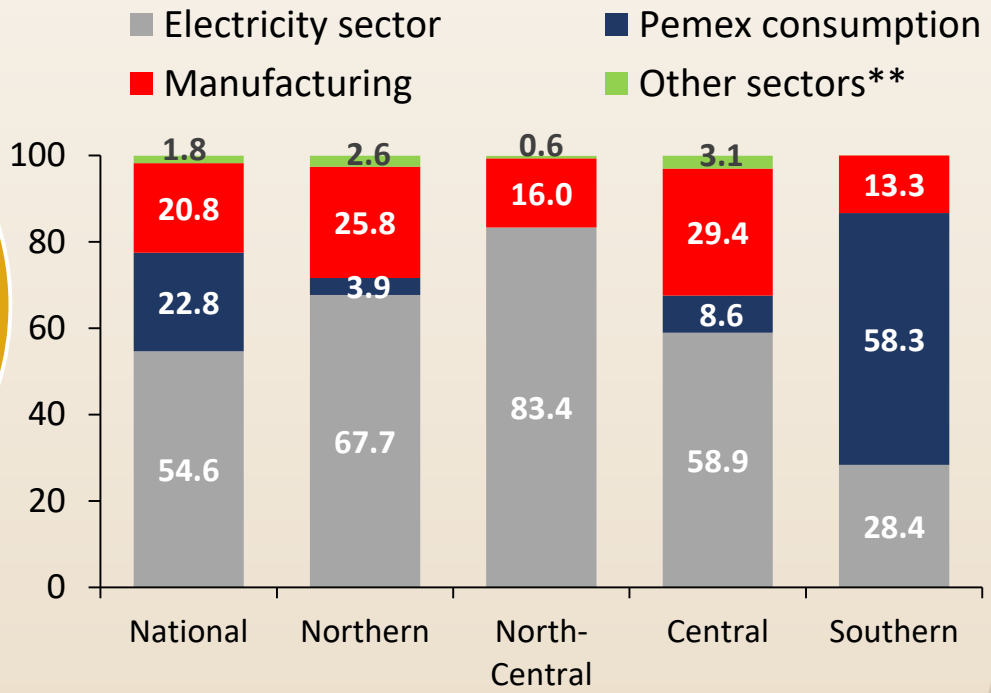
Natural Gas Consumption by Region

Data in percent for 2021*



Natural Gas Consumption by Sector

Data in percent for 2021*



*Includes the period from October 2020 to September 2021.
**Residential, services and transport sectors.
Source: Prepared by Banco de México with data from the Energy Information System.

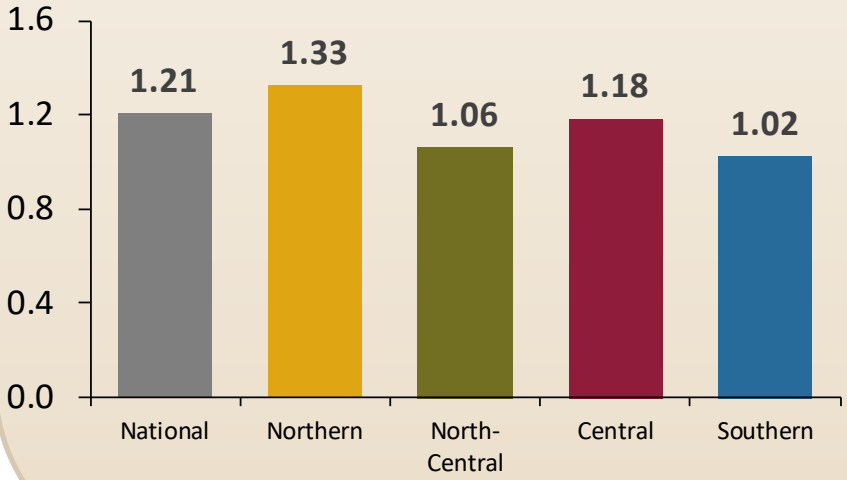
Impact of Natural Gas Price Fluctuations on Regional Manufacturing Activity

- The model proposed for this box allows to estimate a counterfactual scenario in which the natural gas price of 2021 remains at price levels observed in 2019.
- Results suggest that, in response to regional differences in energy consumption changes, the direct impact on GDP could be different across regions, with a higher impact in the Northern region.

Total Energy Consumption in the Manufacturing Sector

Counterfactual scenario with gas price observed in 2019 vs. base scenario with gas price observed in 2021

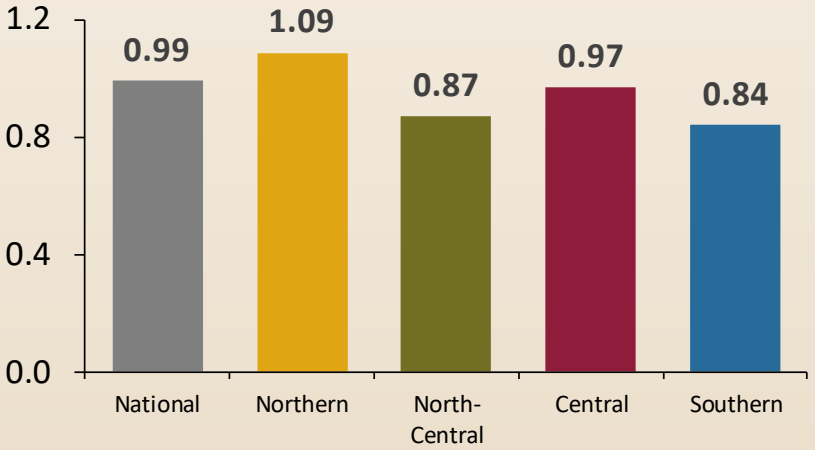
Data in percent



Manufacturing GDP

Counterfactual scenario with gas price observed in 2019 vs. base scenario with gas price observed in 2021

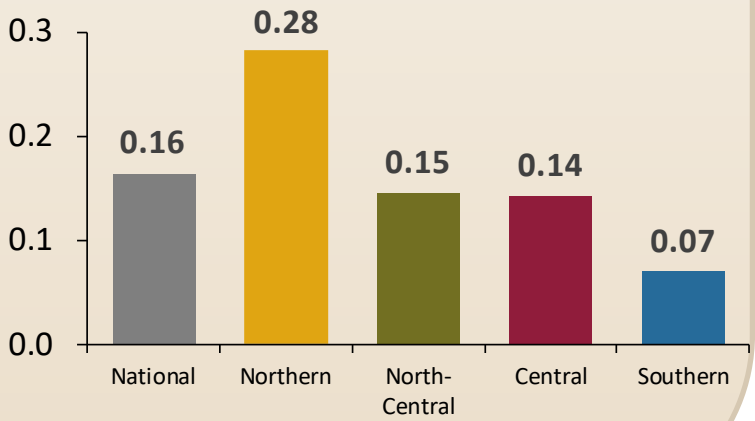
Data in percent



Total GDP

Counterfactual scenario with gas price observed in 2019 vs. base scenario with gas price observed in 2021

Data in percent

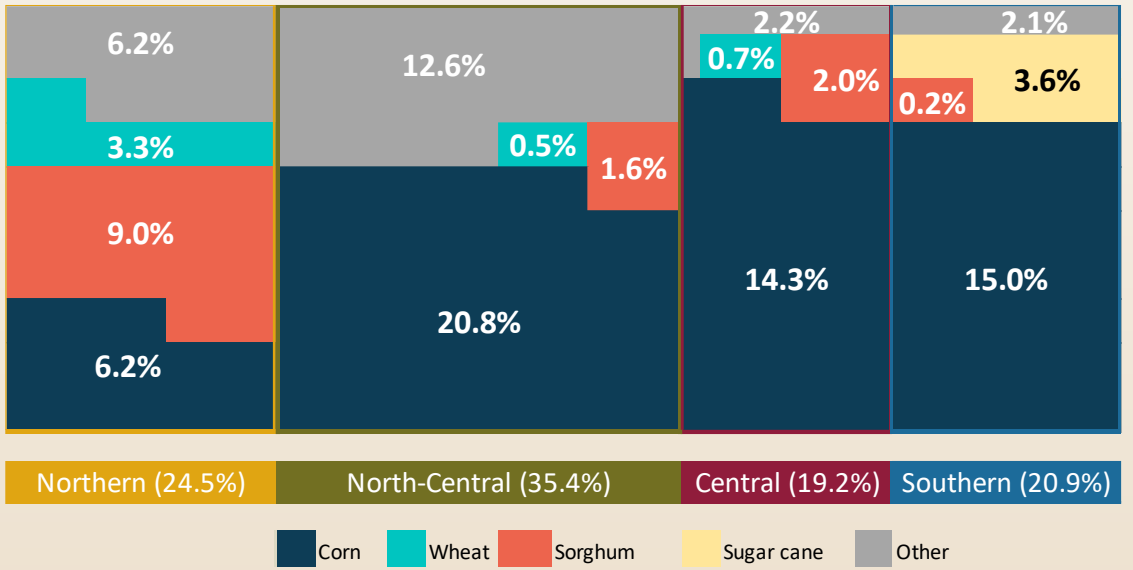


Note: Total energy consumption is the sum of natural gas, diesel, and electricity consumption in energy units.
Source: Banco de México based on the model presented in the box.

Estimation of the Regional Exposure in the Context of Changes in the Market of Nitrogen Fertilizers

- This box analyzes the extent of exposure of Mexican regions to changes in the market of nitrogen fertilizers.
- A methodology is implemented to disaggregate the use of nitrogen fertilizers at the national level (estimated at 3.7 million tons) by region, based on information about fertilization requirements by crop, state, and production cycle.
- The North-Central region concentrates the largest proportion of the area cultivated with crops that use nitrogen fertilizers, especially corn.

Distribution of the Area Cultivated Using Nitrogen Fertilizers at the National Level
Average 2019-2022
Percent



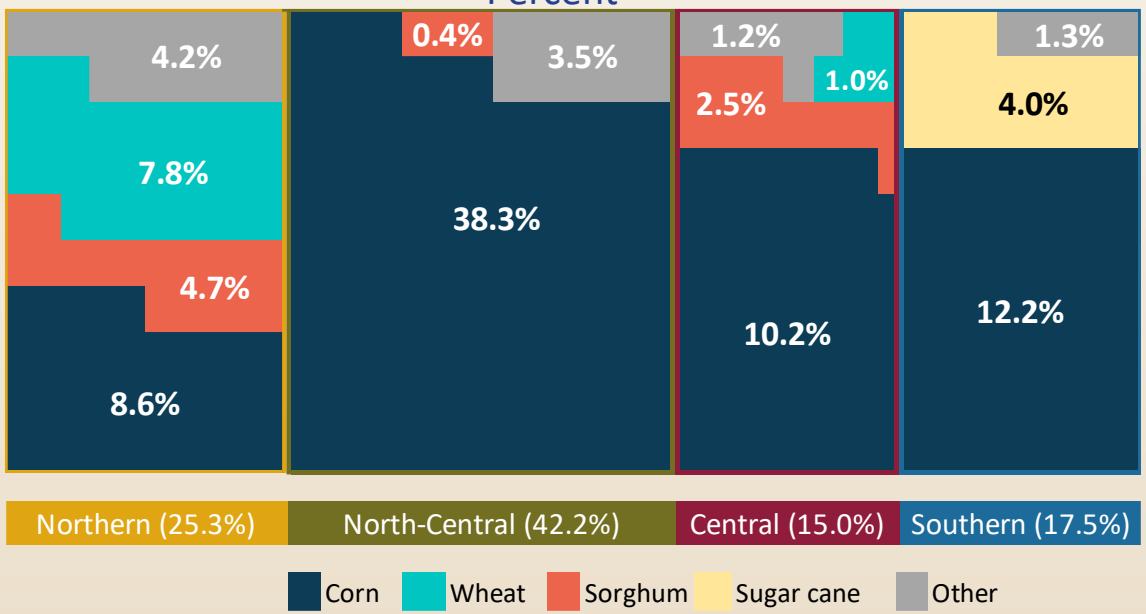
Note: The category "Other" includes the rest of the crops that use nitrogen fertilizers. The percentages of each region may not add up to 100% due to rounding.
Source: Banco de México based on information of Technology Packages from FIRA, SIAP, of EMIM from INEGI and SIAVI from the Ministry of Economics.

Estimation of the Regional Exposure in the Context of Changes in the Market of Nitrogen Fertilizers

- It is estimated that the North-Central region concentrates the largest use of nitrogen fertilizers, followed by the Northern, Southern and Central regions. The productive specialization, the area cultivated with crops that use these inputs, and the regional requirements of nitrogen fertilizers determine these results.

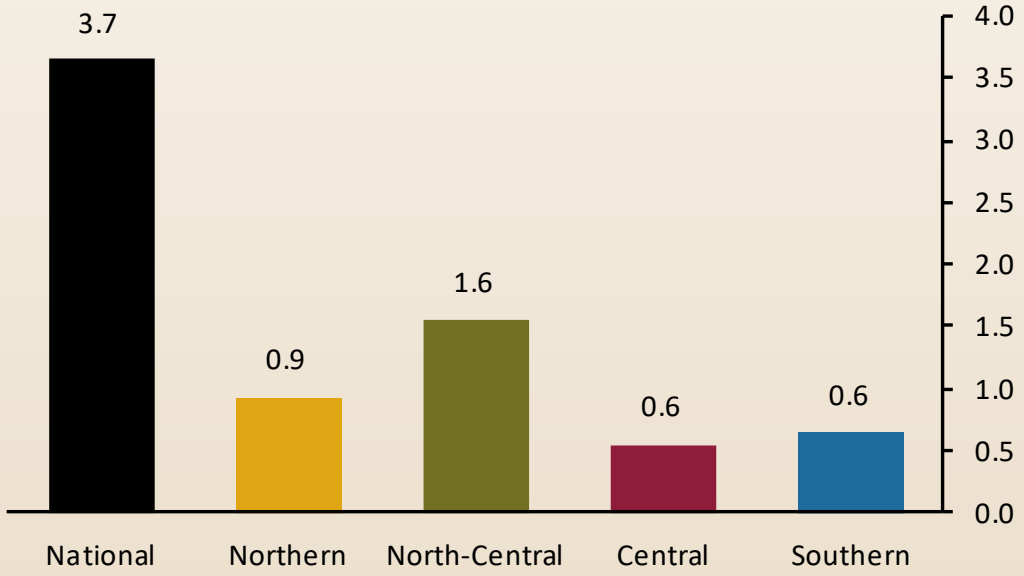
Estimated Distribution of the Use of Nitrogen Fertilizers at the National Level in 2022

Percent



Estimate of the Regional Use of Nitrogen Fertilizers in 2022

Million tons

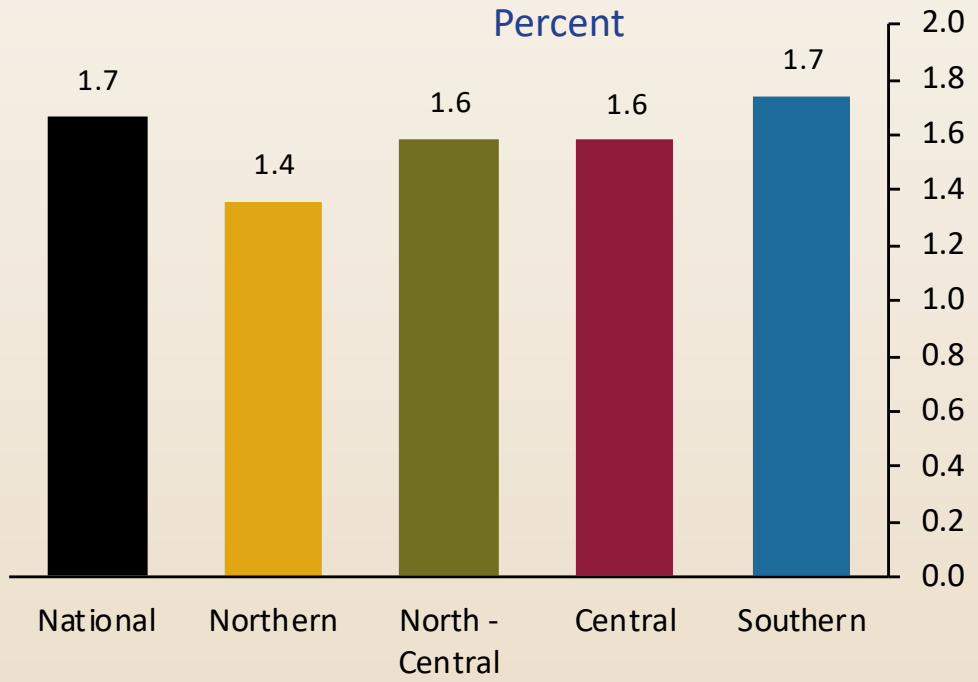


Note: The category "Other" includes the rest of the crops that use nitrogen fertilizers. The percentages of each region may not add up to 100% due to rounding.
Source: Banco de México based on information of Technology Packages from FIRA, SIAP, of EMIM from INEGI and SIAVI from the Ministry of Economics.

Estimation of the Regional Exposure in the Context of Changes in the Market of Nitrogen Fertilizers

- It is estimated how a 10% increase in the cost of nitrogen fertilizers could affect the total production costs of the crops that use them the most (corn, sorghum, wheat, and sugar cane) taking as a reference the relative importance of these inputs in the total cost of production by hectare.
- The highest relative increase in total production cost is observed in the Southern region, followed by the Central, North-Central and Northern regions.
- As a reference, between February 2020 and April 2022, the international price of urea increased by 331.5%.

Estimated Weighted Increase of the Total Production Cost of Selected Crops* after a 10% Increase in the Cost of Nitrogen Fertilizers

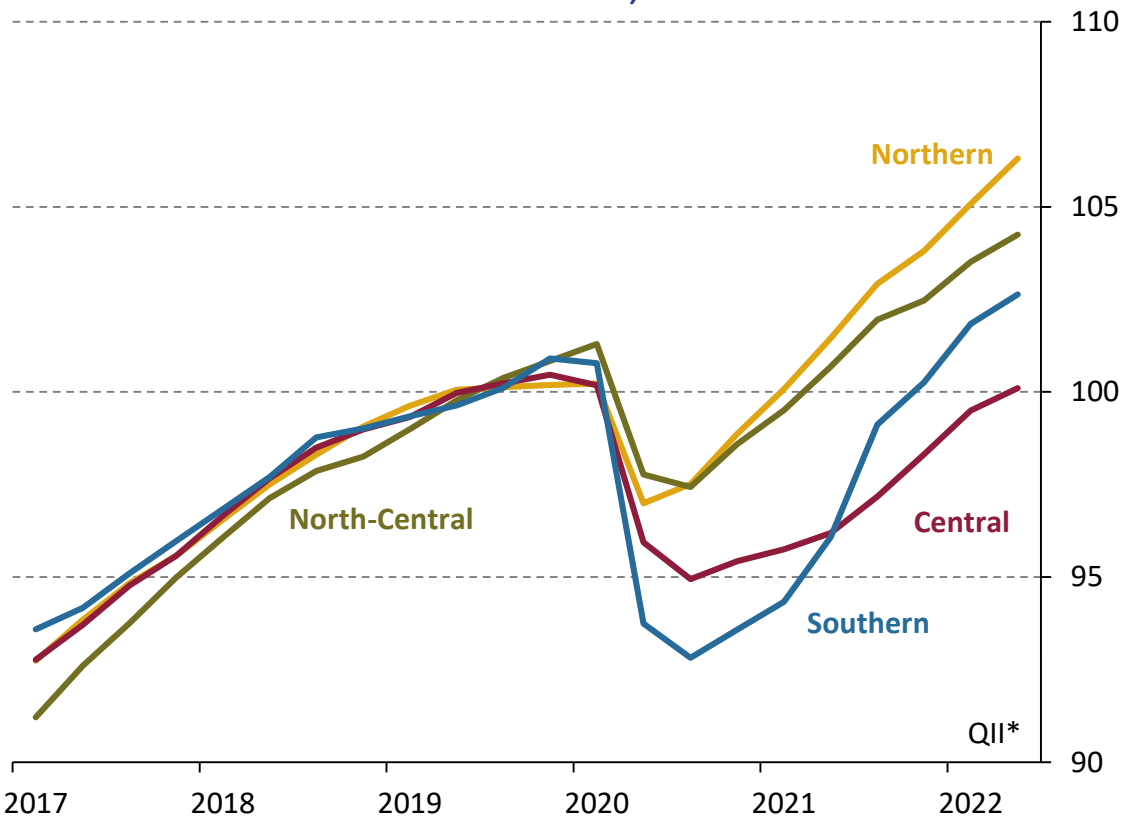


* The selected crops are corn, sorghum, wheat and sugar cane.
Source: Banco de México based on FIRA´s Technology Packages.

During Q1-2022, the number of IMSS-insured jobs continued recovering in all regions and further in Q2-2022. In the Northern region, this indicator registered a stronger recovery, while in the Central region it remained slightly below its pre-pandemic levels.

Number of IMSS-insured Workers

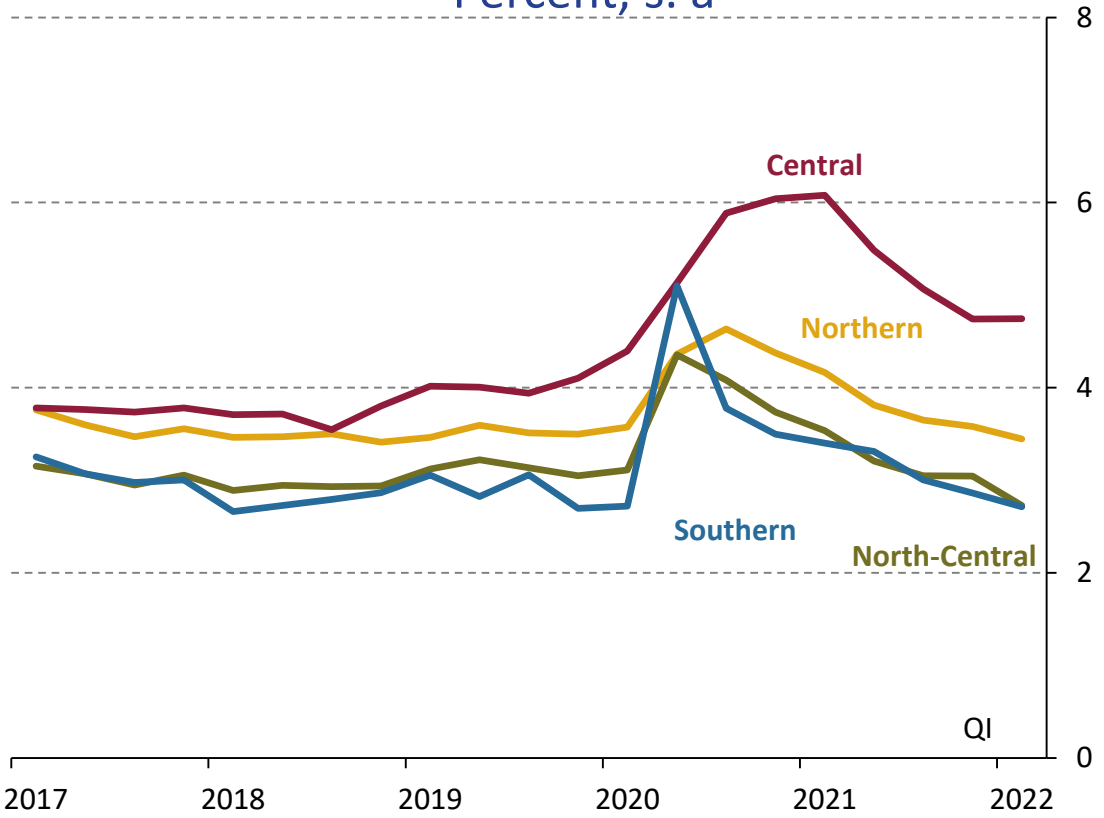
Index 2019=100, s. a. [1/]



s.a./ Seasonally adjusted data.
*/ Data as of April 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



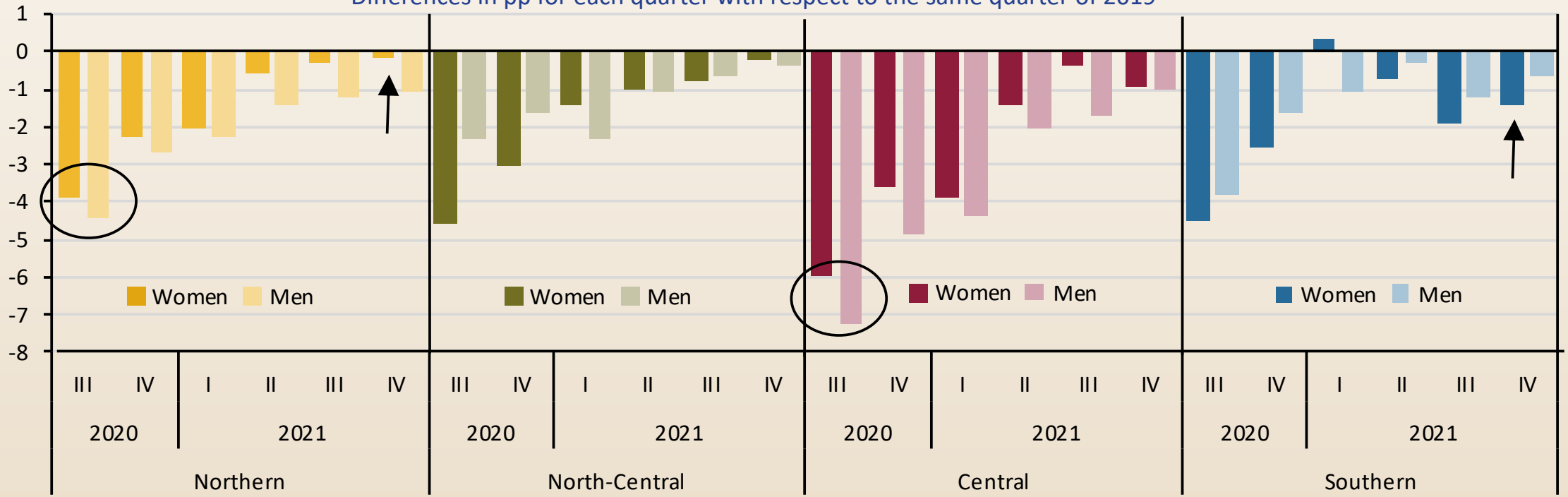
s.a./ Seasonally adjusted data.
Source: Prepared and seasonally adjusted by Banco de México with data from INEGI. Data as of Q2-2020 correspond to labor indicators for Mexican states with an estimate using INEGI statistical models and, starting from Q3-2020 correspond to the New Telephone Survey on Occupation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

Analysis of the Recovery in the Probabilities of Labor Participation and Employment of Men and Women during the Pandemic

- Labor force participation has been recovering in all regions, especially in the case of women in the Northern region. On the contrary, this improvement has been less notable for women in the Southern region.

Differences in the Probability of Labor Force Participation by Region and Gender during the Pandemic

Differences in pp for each quarter with respect to the same quarter of 2019



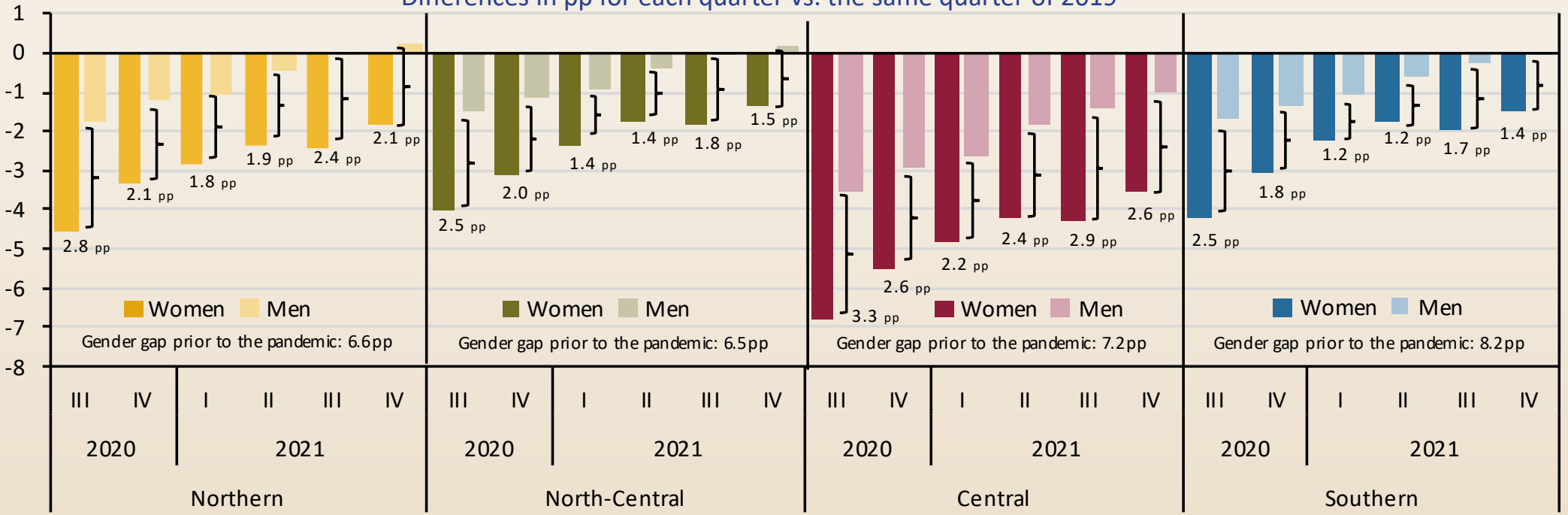
Note: All differences are statistically different from zero at 1% significance level.
Source: Prepared by Banco de México with data from ENOE, ENOE^{N}, INEGI.

Analysis of the Recovery in the Probabilities of Labor Participation and Employment of Men and Women during the Pandemic

- The probabilities of employment have also been recovering. They have even reached its pre-pandemic levels for men in the Northern and North-Central regions. On the contrary, the greatest lag is observed in the case of women in the Central region.

Differences in the Probability of Employment Estimated by Gender with Correction for Selectivity by Regions during the Pandemic

Differences in pp for each quarter vs. the same quarter of 2019



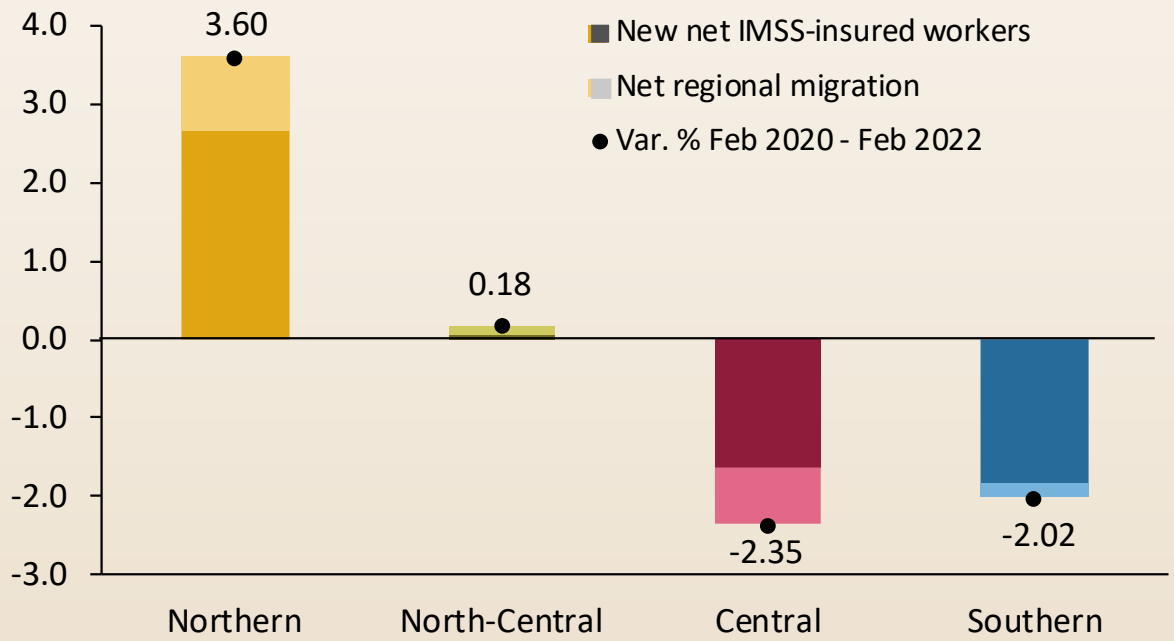
Note: All differences are statistically different from zero at 1% significance level.
Estimates are carried out using an econometric model that allows to control for the fact that not all individuals participate in the labor market.
Source: Banco de México with data from ENOE, ENOE^{N}, INEGI.

Relocation of Formal Employment in Mexico's Local Labor Markets

- By February 2022, national IMSS-insured employment had **exceeded** its pre-pandemic level, but with a **heterogeneous recovery** across regions and sectors.
- Compared to February 2020, formal employment relocated **from the Central and Southern regions to the Northern region**.

Percentage Change in IMSS-insured Employment, February 2020 to February 2022[1/]

Percent



1/ Employment figures include all insured workers in the IMSS registry (permanent and temporary), except those considered likely to be outsourced, who are identified as those who changed employer registration with at least nineteen other workers between July and September 2021, as well as those who changed employer registration from activity 233 Professional and technical services, for the same period. Considering possible subcontracted workers, the percentage change in national employment is 1.28%, and at the regional level, 4.59% in the Northern, 1.94% in the North-Central, -0.68% in the Central, and -1.11% in the Southern regions.
Source: Prepared by Banco de México based on IMSS data.

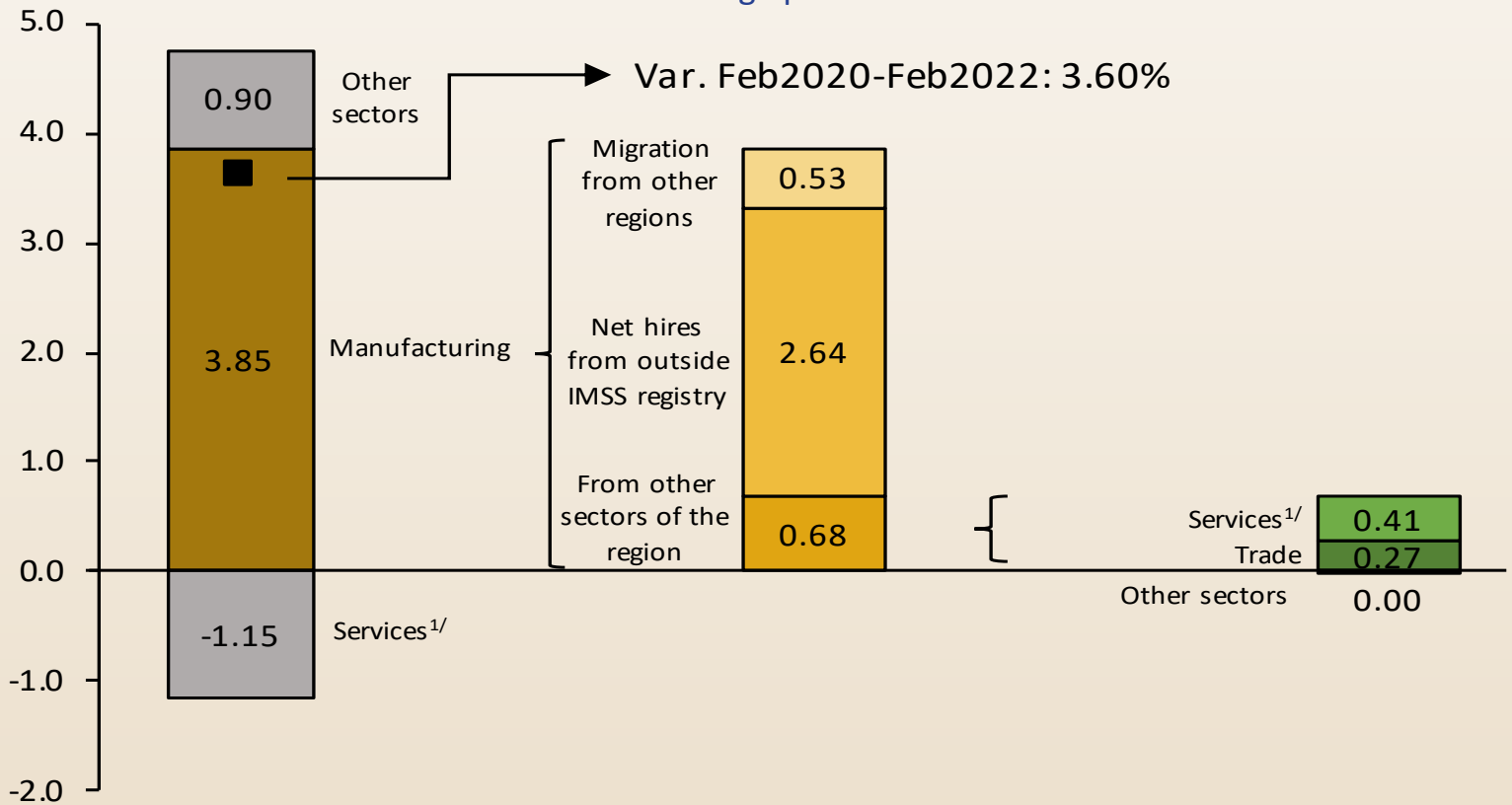
Information published by Banco de México

Relocation of Formal Employment in Mexico's Local Labor Markets

- Growth in employment in the Northern region **was largely driven** by the manufacturing sector, which **absorbed** workers from **other regions and sectors**.

Contributions to the Percentage Change in Employment between Feb2020-Feb2022 in the Northern Region

Percentage points



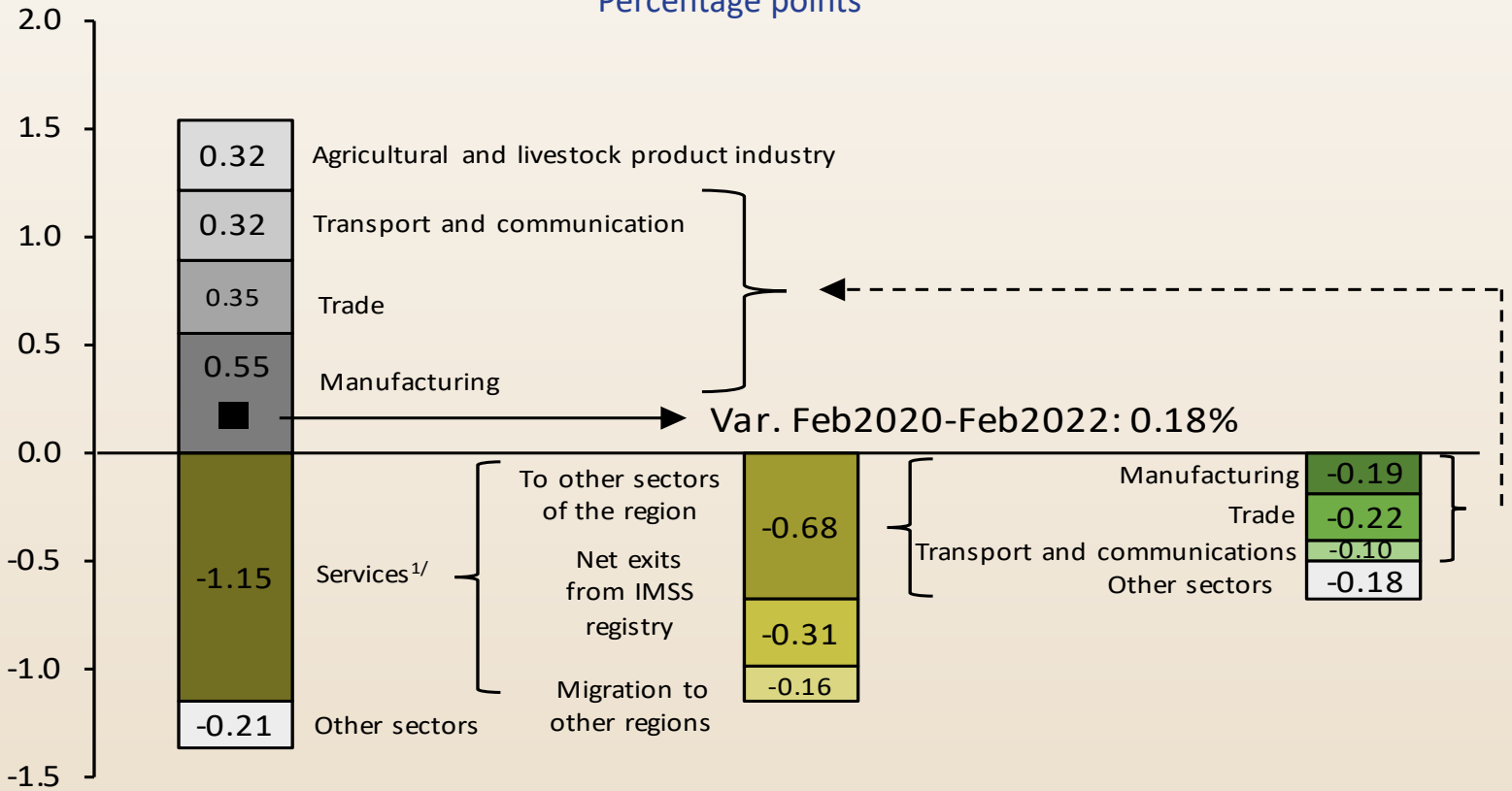
Note: Employment figures include all insured workers in the IMSS registry (permanent and temporary), except those considered likely to be outsourced, who are identified as those who changed employer registration with at least nineteen other workers between July and September 2021, as well as those who changed employer registration from activity 233 Professional and technical services, for the same period.
1/ The services sector refers to services to businesses, individuals and households. Community services are included in "Other sectors".
Source: Prepared by Banco de México based on IMSS data.

Relocation of Formal Employment in Mexico's Local Labor Markets

- In the North-Central region, the manufacturing, commerce, and farming sectors **tended to re-employ those who left service jobs.**

Contributions to the Percentage Change in Employment between Feb2020-Feb2022 in the North-Central Region

Percentage points



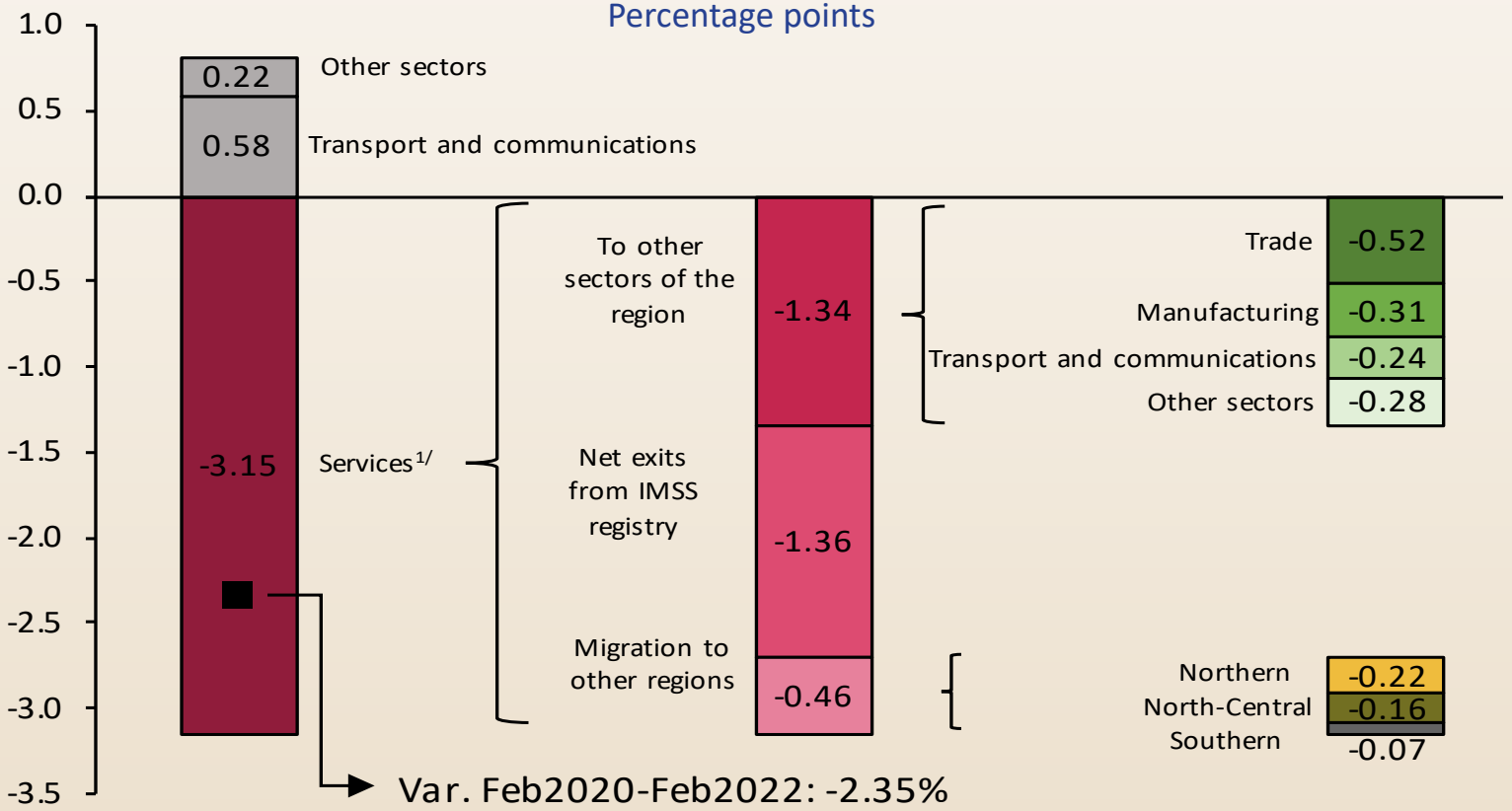
Note: Employment figures include all insured workers in the IMSS registry (permanent and temporary), except those considered likely to be outsourced, who are identified as those who changed employer registration with at least nineteen other workers between July and September 2021, as well as those who changed employer registration from activity 233 Professional and technical services, for the same period.
1/ The services sector refers to services to businesses, individuals and households. Community services are included in "Other sectors".
Source: Prepared by Banco de México based on IMSS data.

Relocation of Formal Employment in Mexico's Local Labor Markets

- In the Central region, the decrease in employment in services largely reflected on **exits from the formal labor market, as well as shifts among sectors** within the region.

Contributions to the Percentage Change in Employment between Feb2020-Feb2022 in the Central Region

Percentage points



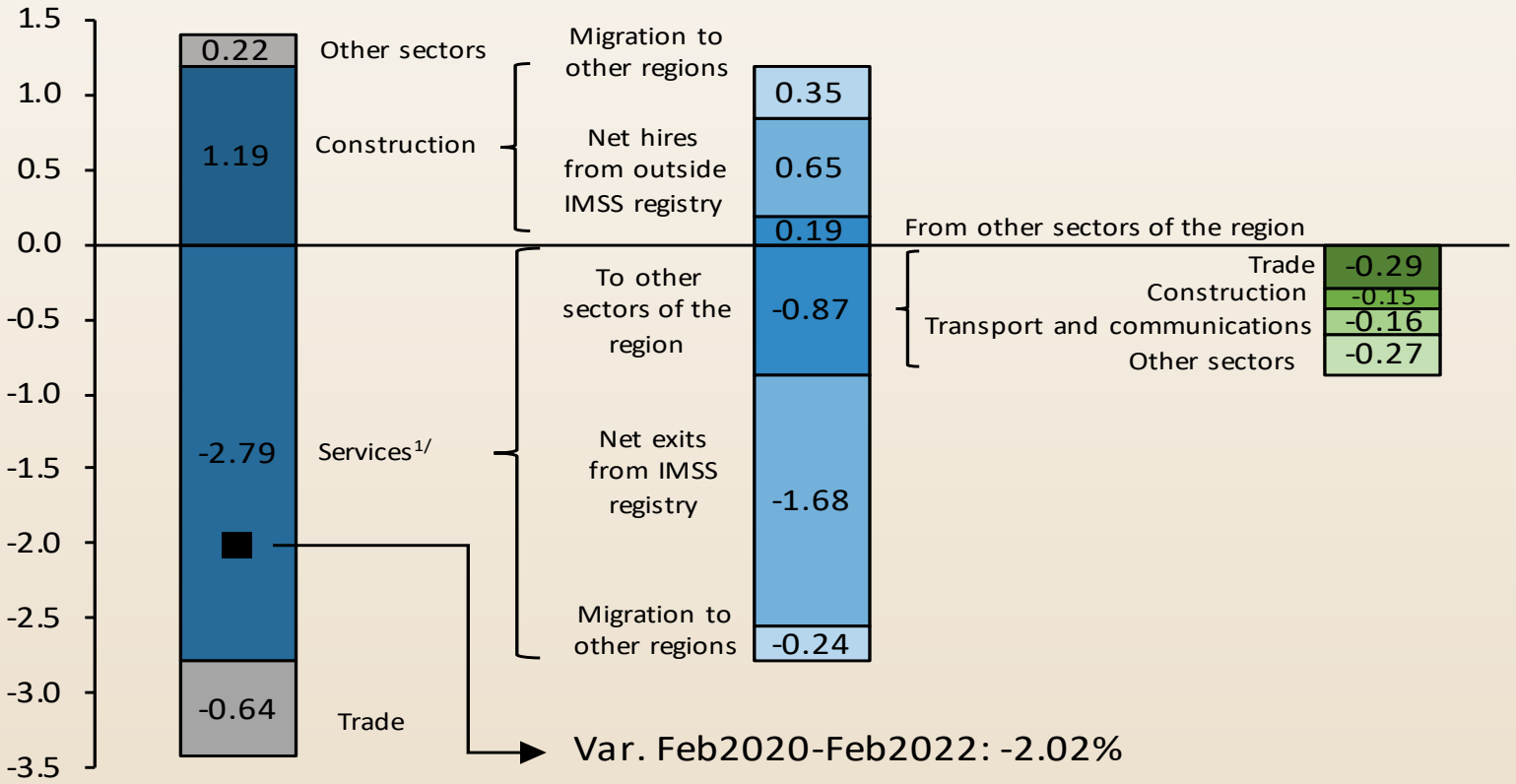
Note: Employment figures include all insured workers in the IMSS registry (permanent and temporary), except those considered likely to be outsourced, who are identified as those who changed employer registration with at least nineteen other workers between July and September 2021, as well as those who changed employer registration from activity 233 Professional and technical services, for the same period.
1/ The services sector refers to services to businesses, individuals and households. Community services are included in "Other sectors".
Source: Prepared by Banco de México based on IMSS data.

Relocation of Formal Employment in Mexico's Local Labor Markets

- **Construction attenuated the loss of employment** in the Southern region, and absorbed some service sector workers.

Contributions to the Percentage Change in Employment between Feb2020-Feb2022 in the Southern Region

Percentage points



Note: Employment figures include all insured workers in the IMSS registry (permanent and temporary), except those considered likely to be outsourced, who are identified as those who changed employer registration with at least nineteen other workers between July and September 2021, as well as those who changed employer registration from activity 233 Professional and technical services, for the same period.
1/ The services sector refers to services to businesses, individuals and households. Community services are included in "Other sectors".
Source: Prepared by Banco de México based on IMSS data.

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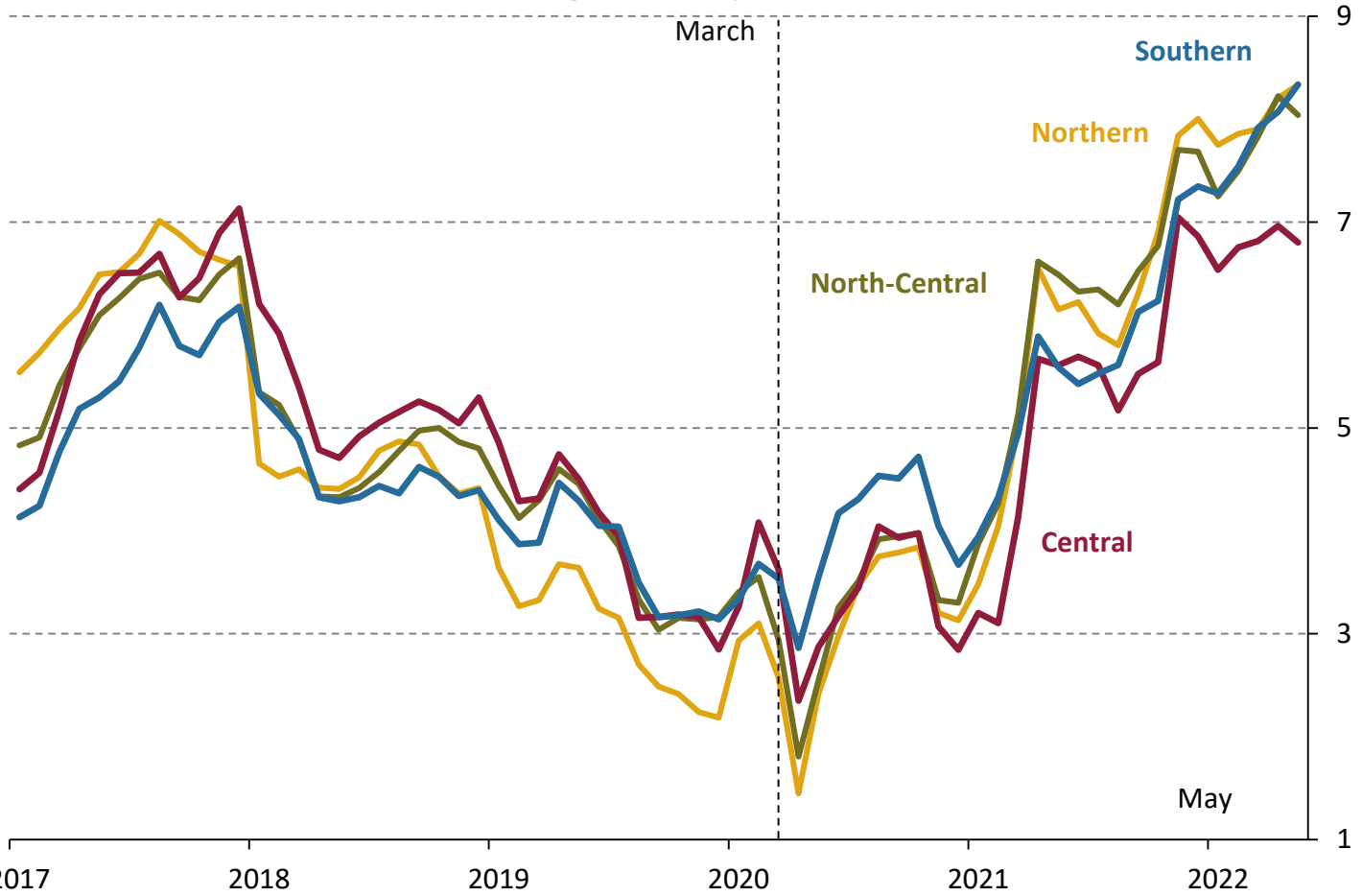
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The prevalence of the effects of pandemic shocks combined with the most recent shocks stemming from the military conflict exerted greater pressure on inflation in all regions in Q1-2022.

Annual Headline Inflation by Region

Figures in percent

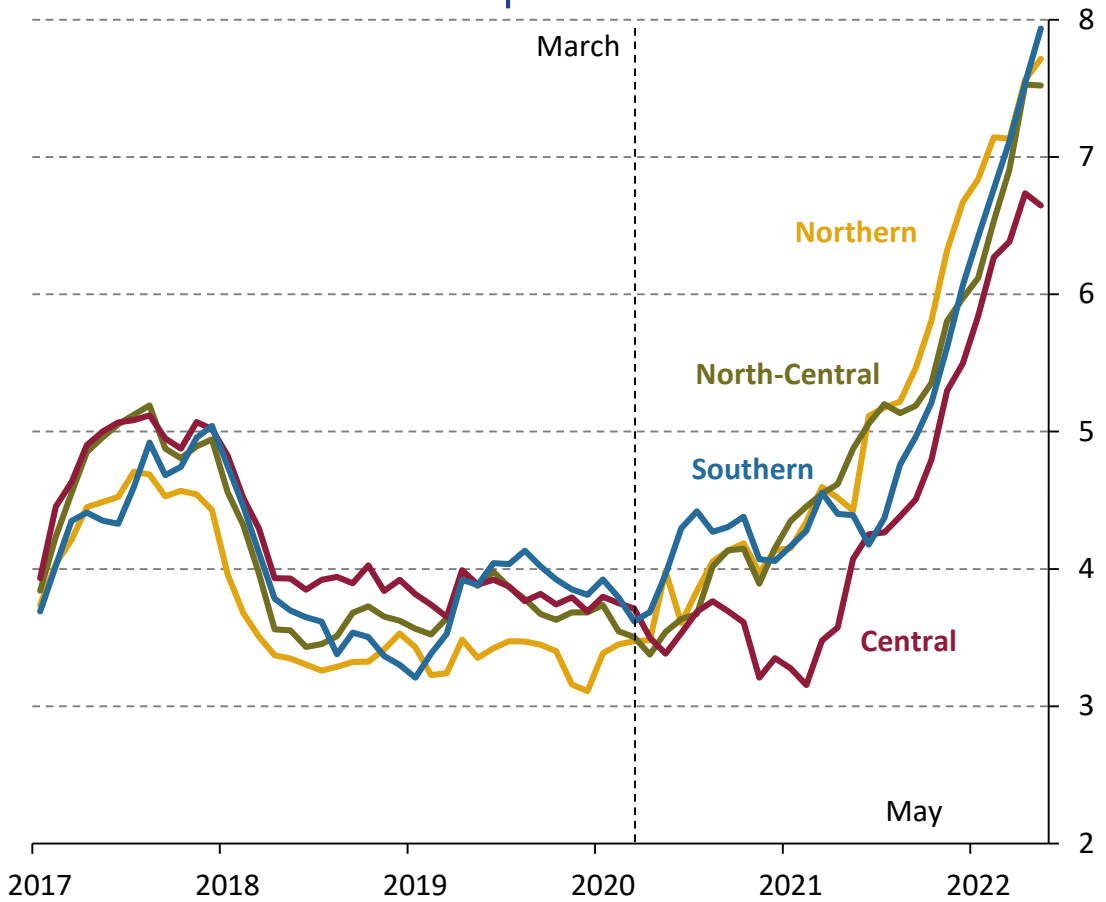


Source: Prepared by Banco de México with INEGI data.

In all regions, annual core inflation continued trending upwards during the reported period, reaching levels unseen in two decades.

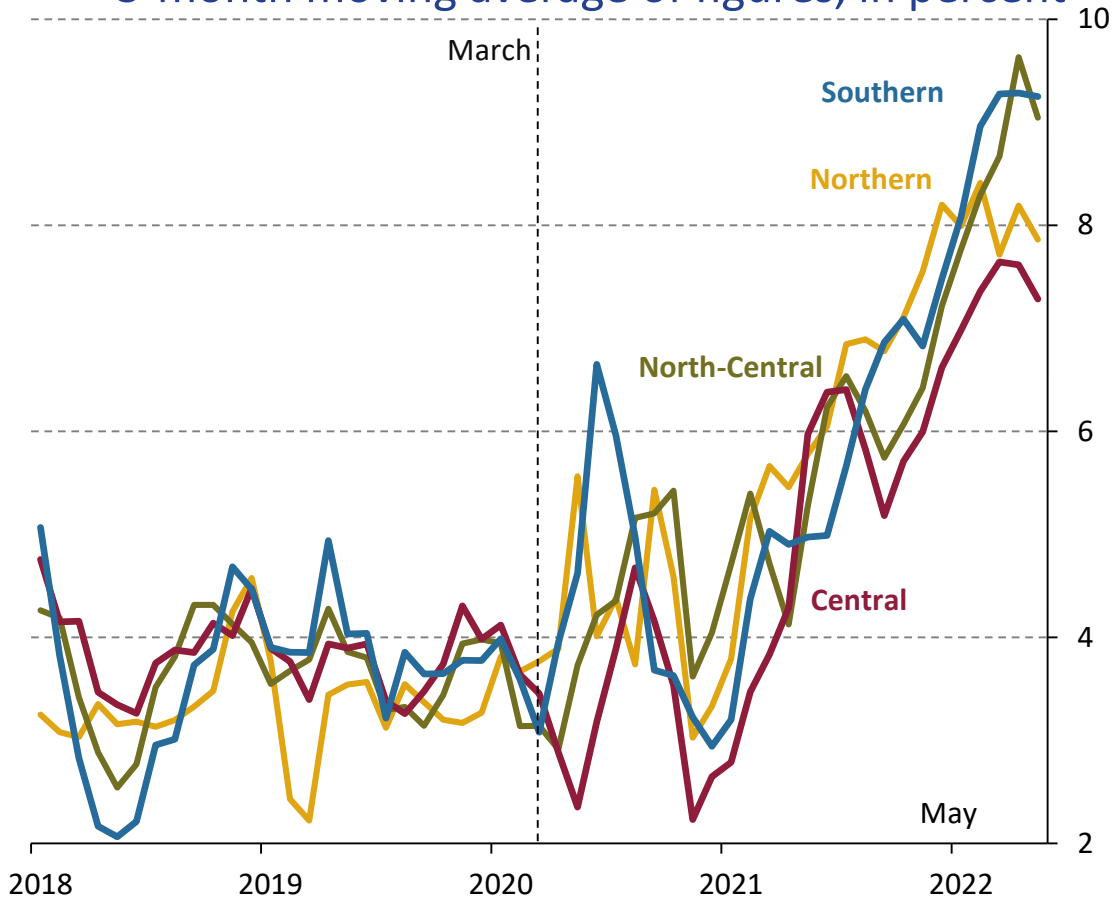
Annual Core Inflation by Region

Data in percent



Annualized Seasonally Adjusted Monthly Variation of the Core Inflation Index

3-month moving average of figures, in percent



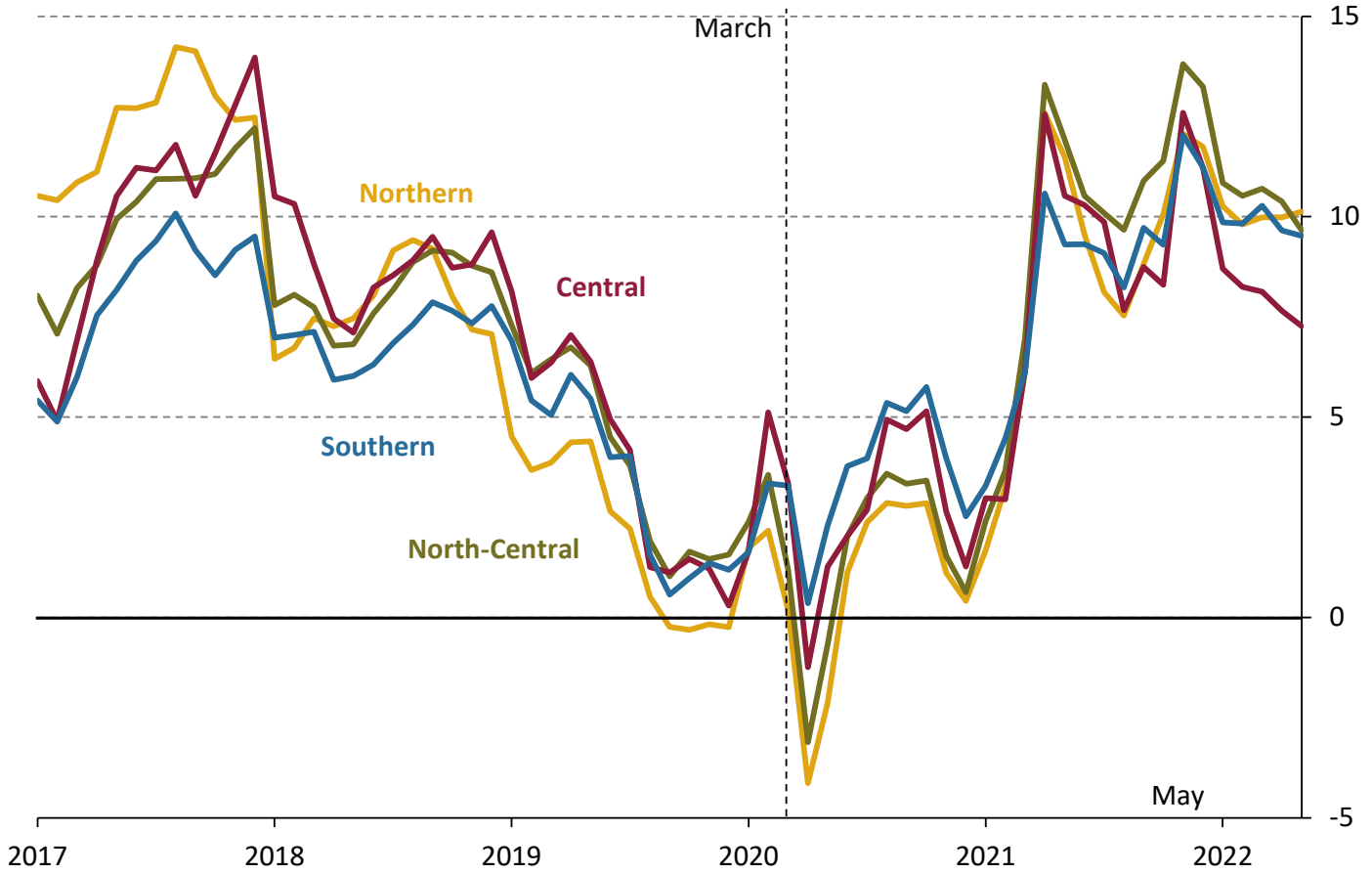
Source: Prepared by Banco de México with INEGI data.

Information published by Banco de México

In all regions, annual non-core inflation declined between Q4-2021 and Q1-2022, although it remains at high levels, mainly due to the high inflation rates of agricultural and livestock products.

Annual Non-core Inflation by Region

Figures in percent



Source: Prepared by Banco de México with INEGI data.

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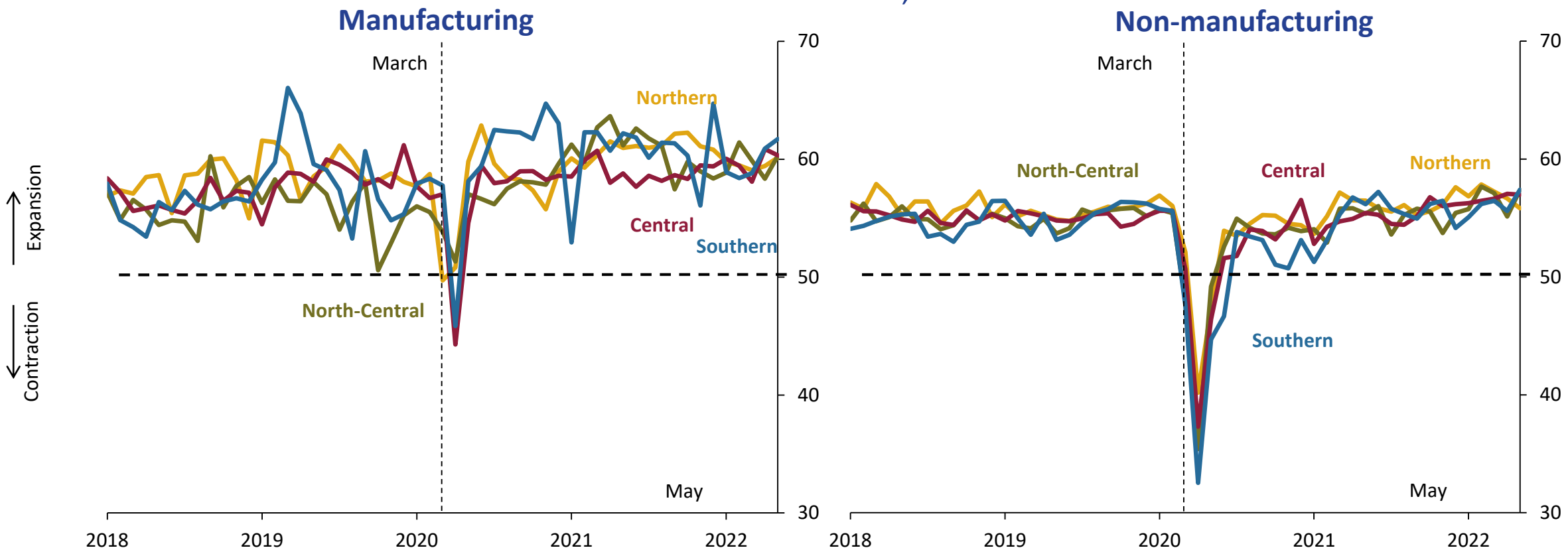
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Regional manufacturing and non-manufacturing orders indexes remain in expansionary territory.

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

Diffusion indexes, s. a.



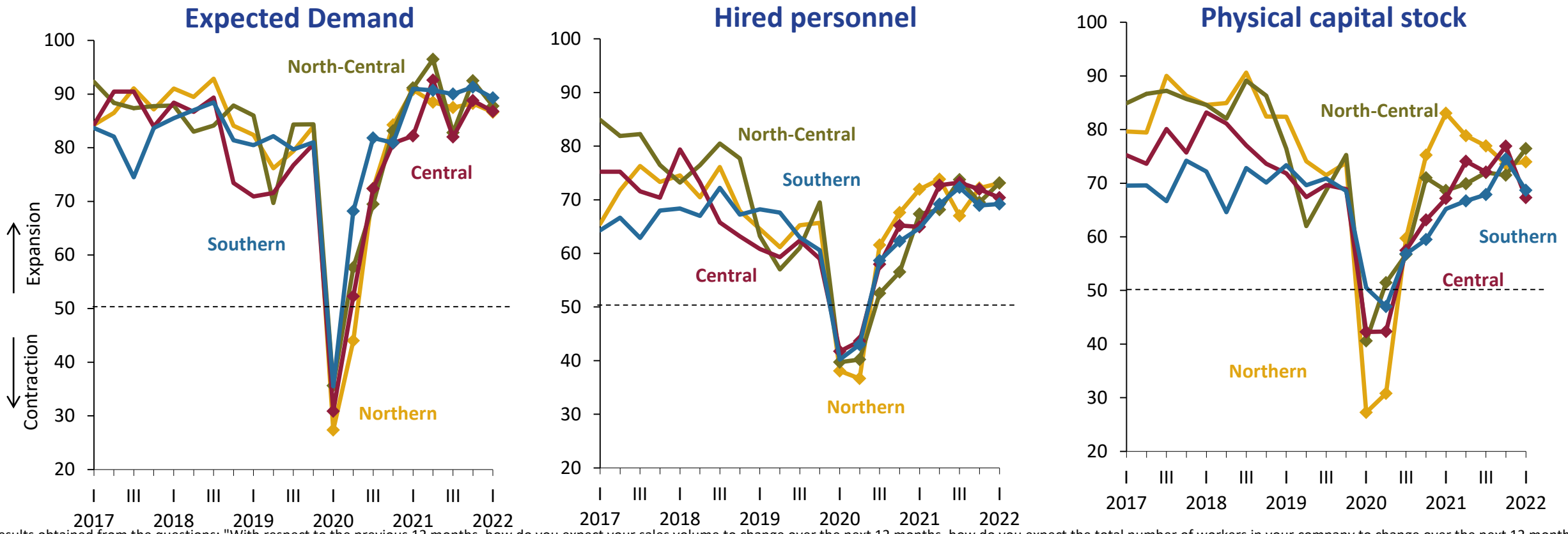
s. a./ Seasonally adjusted figures.
Source: Banco de México.

Information published by Banco de México

The diffusion indexes of expectations on demand, number of workers, and firms' fixed asset investment remained in expansionary territory in all regions during Q1-2022.

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

Diffusion indexes



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?", conducted in the interviews conducted by Banco de México. Expectations corresponding to each Report were generally collected during the four weeks following the closure of the quarter being reported. In the case of the first quarter of 2022, they were obtained between March 28 and April 28, 2022.

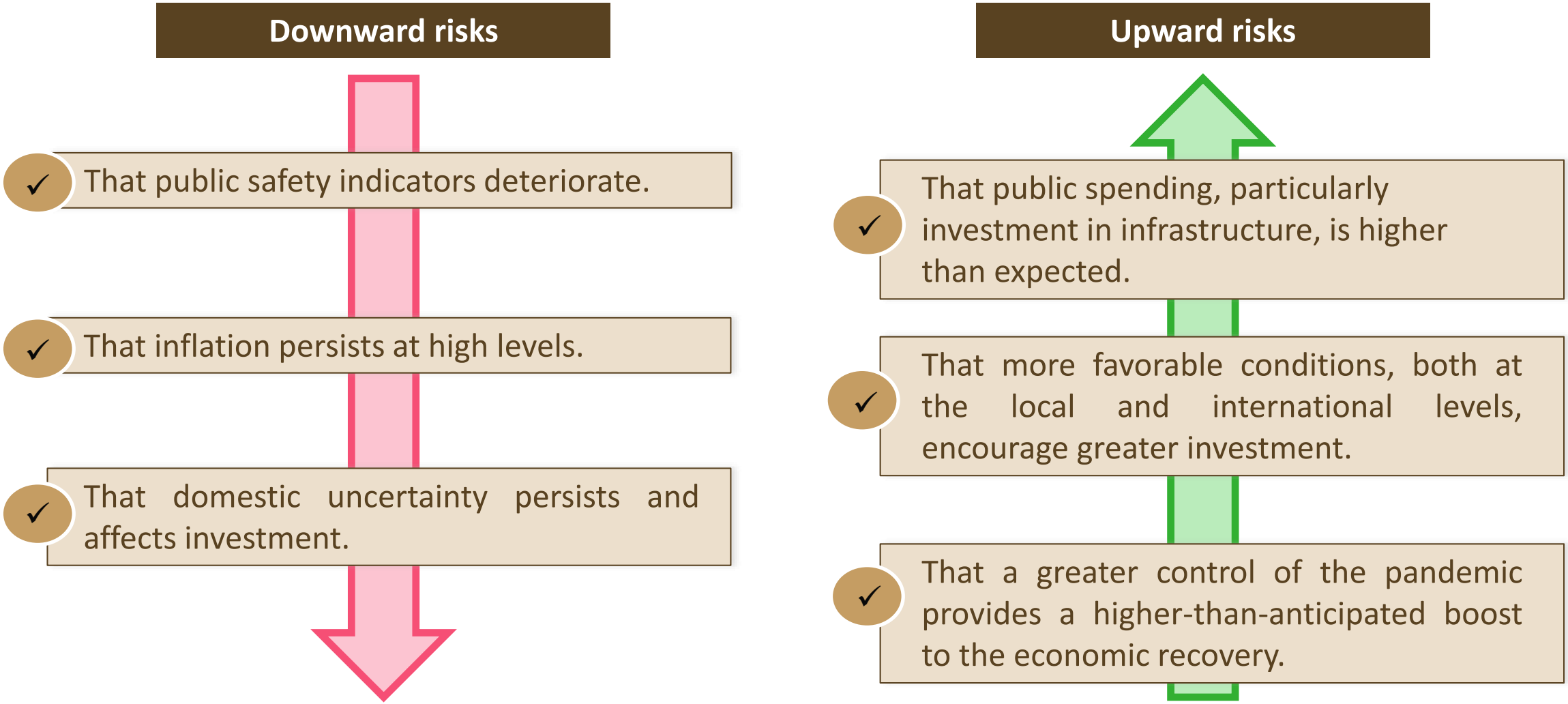
Main Responses of Business Agents when Asked About the Top Three Factors that Could Hinder Growth of Economic Activity in Their Entities in the Next Six Months

Based on information collected between March 1 and March 31, 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	**31.0%**	Inflation	**28.8%**	Inflation	**28.5%**	Inflation	**31.8%**
2	External conditions	**23.3%**	External conditions	**20.6%**	External conditions	**20.5%**	Governance	**20.0%**
3	Governance	**17.1%**	Governance	**19.2%**	Domestic economic conditions	**20.2%**	Domestic economic conditions	**19.2%**

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 March 2022 were obtained based on information collected between March 1 and March 31, 2022.
Source: Banco de México.

Business Agents' Opinion on Risks to Regional Economic Activity (based on data collected between March 28 and April 28, 2022) 1/

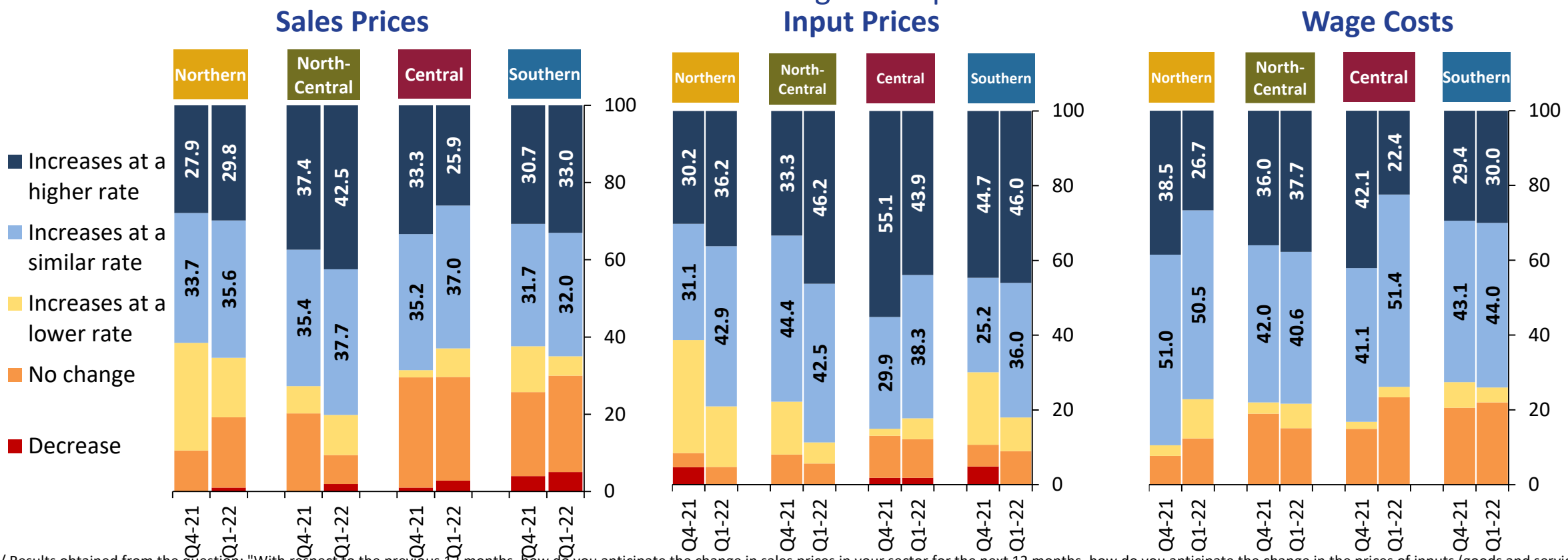


1/Results obtained from the questions: "What are the 2 main events/situations/facts that if they were to occur would boost the economic performance of your state in the next 12 months?" and "What are the 2 main events/situations/facts that if they were to occur would limit the economic performance of your state in the next 12 months?", asked in the interviews conducted by Banco de México between March 28 and April 28, 2022.

In all regions, most interviewed business agents anticipate that sales prices of the goods and services they offer, input prices, and wage costs will increase at a similar or higher rate for the next twelve months as compared to the previous twelve months.

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 question: "With respect to the previous 12 months, how do you anticipate the change in sales prices in your sector for the next 12 months, how do you anticipate the change in the prices of inputs (goods and services) used in your sector for the next 12 months, and how do you anticipate the change in wages and salaries of workers in your sector for the next 12 months?" asked in the interviews conducted by Banco de México. Expectations corresponding to each Report were generally collected during the four weeks following the closure of the quarter being reported. In the case of the first quarter of 2022, they were obtained between March 28 and April 28, 2022.

Outline

I. Regional Economic Report

II. Results January – March 2022

A. Economic Activity

B. Inflation

C. Economic outlook

(based on data collected between March 28 and April 28, 2022)

III. Final remarks

Information published by Banco de México

Final remarks

1 Looking ahead, the regional economies are expected to continue recovering.

- ✓ **Progress in the vaccination process**, both nationally and globally, will continue to be key to achieve a **more robust economic recovery.**
  - **This would help to strengthen regional economic activity, particularly in those regions such as the Central and Southern regions that specialize in services** that have been particularly affected by the pandemic. **However, there is the possibility that new variants of the virus emerge.**
- ✓ **The functioning of global supply chains** is also expected **to normalize,** and those sectors that have been affected by the price increases and shortages of inputs during the pandemic, particularly the **automotive sector in the Northern and Central regions,** are foreseen to perform better. However, there is the risk of input prices increasing further due to the military conflict between Russia and Ukraine.
  - **This conflict** could imply adverse effects for the regions, particularly in those activities that are more intensive in the use of inputs whose prices are more sensitive to the evolution of the conflict, as illustrated in this Report in the case of **nitrogen fertilizers for agricultural production, especially in the North-Central and Southern regions, and natural gas in the manufacturing industry, particularly in the Northern region.**
- ✓ **Construction of large infrastructure projects in some states of the Southern region** will continue generating significant economic spillovers in that region, in addition to supporting the recovery of employment.

2 In order to face the challenges posed by the international context and boost regional economic growth, it is necessary to foster adequate conditions that enable the recovery of sustainable private investment, particularly by strengthening the rule of law and public safety in all regions.

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Regional Economic Report

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