

Regional Economic Report
July – September 2020

BANCO DE MÉXICO

Outline

I. Regional Economic Report

II. Results July – September 2020

A. Economic activity

B. Inflation

C. Economic outlook

(based on data collected between September 21 and October 15, 2020)

III. Final remarks

Regional Economic Report

- The Regional Economic Report is a quarterly publication on the trends in economic activity, inflation and business agents' expectations in Mexico's regions.
- The information presented herein is taken into account by Banco de México's Governing Board when evaluating the economic situation and the forecast for the Mexican economy.
- The economic performance and inflation in the regions in Q3 2020, and the prospects of business agents surveyed between September 21 and October 15, 2020 on regional economic activity and inflation over the following twelve months are analyzed herein.

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(based on data collected between September 21 and October 15, 2020)

III. Final remarks

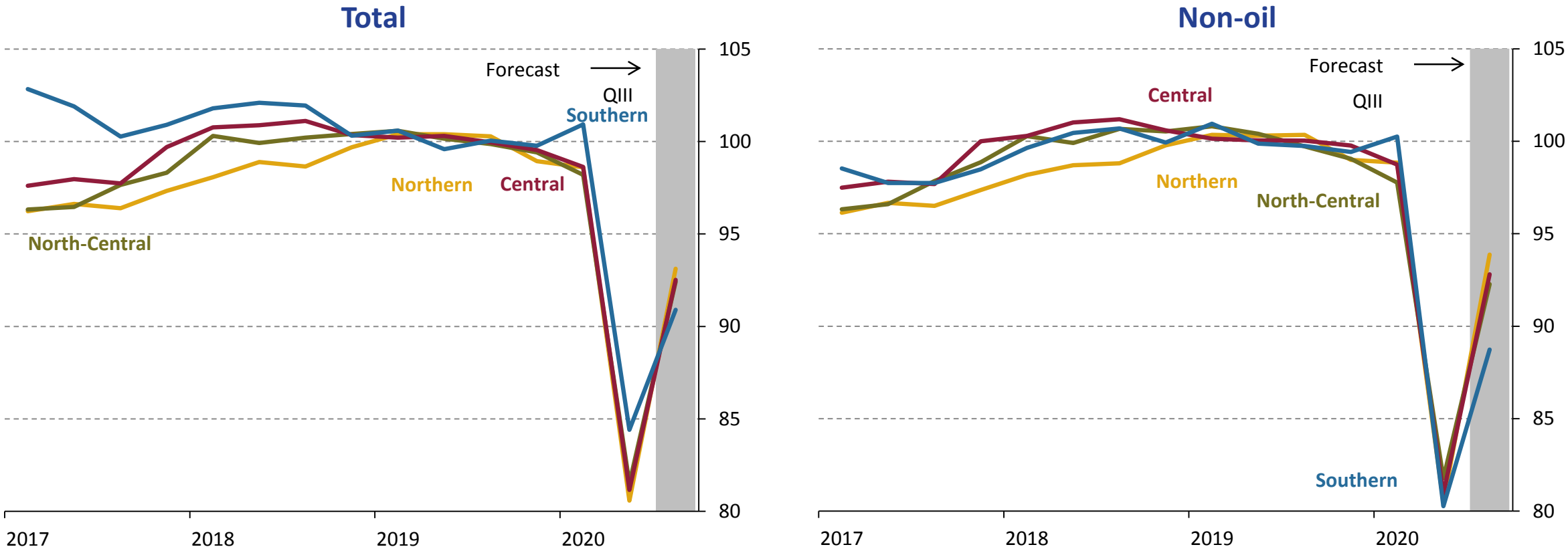
Regional Economic Activity

- After a sharp contraction during Q2 2020 as a result of the effects of the COVID-19 pandemic and the actions implemented to contain it, Mexico’s GDP began to recover during Q3 2020, although economic activity remained below pre-pandemic levels.
- The partial recovery of Mexico's economic activity during the reported quarter was also observed across all regions of the country, although in a differentiated manner depending on their different productive structures.
  - ✓ The Northern, North-Central and Central regions are estimated to have registered higher economic activity growth than the South.
  - ✓ At the sectoral level, during the third quarter, the recovery of manufacturing production is expected to be generalized across all regions, especially manufacturing production destined to the foreign market.
  - ✓ The Southern region has recovered at a relatively slower pace given that its economic activity is concentrated in non-manufacturing sectors, the recovery of which has been weaker than that of manufacturing, especially in activities such as tourism.

In Q3 2020, all regions are anticipated to have recovered, although the Northern, North-Central and Central regions are estimated to have registered a higher growth rate of economic activity, as compared to the South.

Quarterly Indicator of Regional Economic Activity

Index 2019=100, s. a.



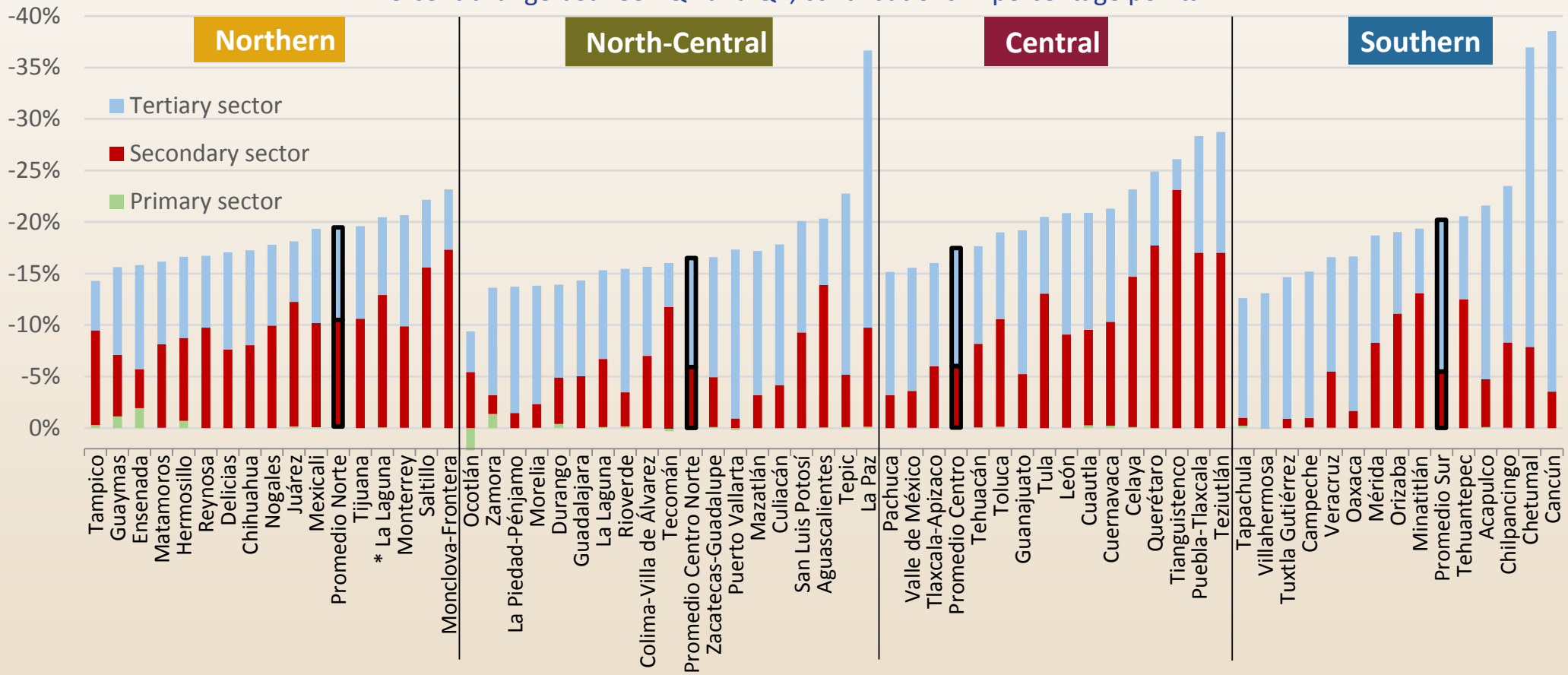
s. a. / Seasonally adjusted data.

Source: Estimated by Banco de México with seasonally adjusted series of domestic GDP and the Quarterly Indicator of Economic Activity by State (INEGI).

Economic Activity in Metropolitan Areas during the COVID-19 Pandemic

Estimated Fall in Economic Activity and Contributions to the Fall by Sector in the Main Metropolitan Areas in Mexico

Percent change between Q2 and Q1, contributions in percentage points



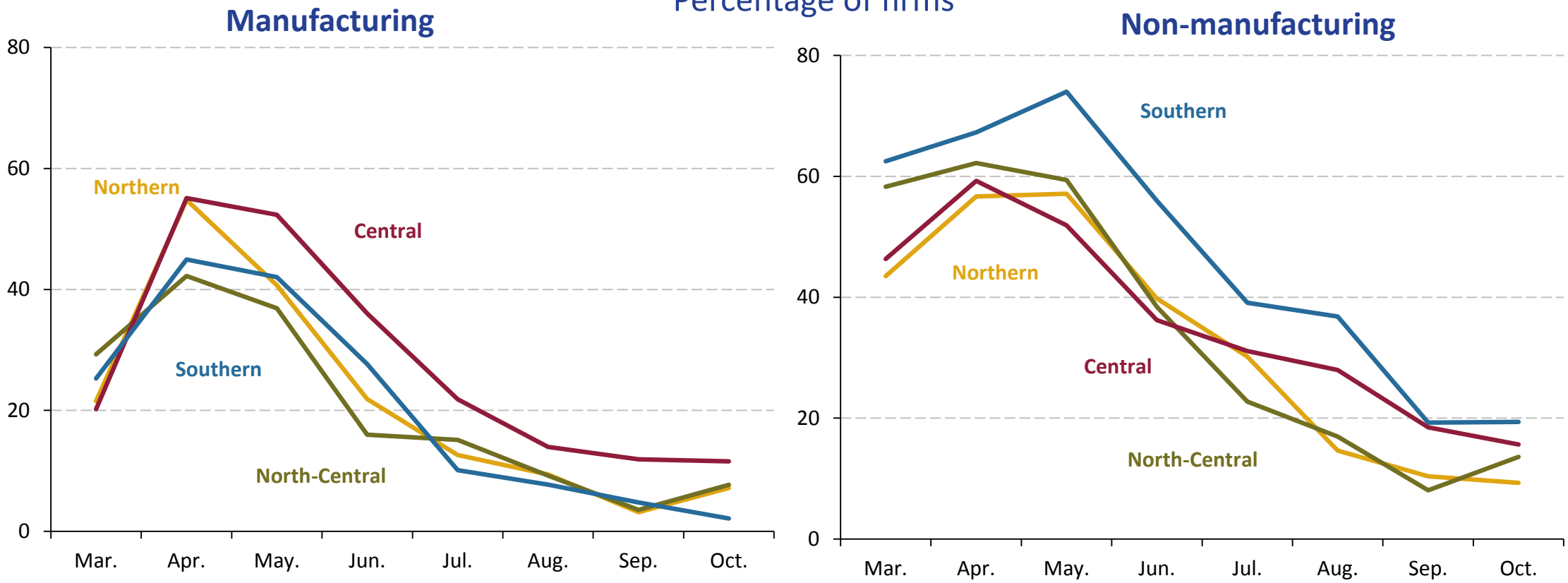
Source: Prepared by Banco de México with data from INEGI, 2019 Economic Censuses, SEDATU,CONAPO and NASA-VIIRS-DNB.

Note: (*) The Laguna metropolitan area is located in the Northern region. However, it includes the municipality of Gómez Palacio, Durango, which is part of the North-Central region.

During the reported quarter, firms began to gradually restart operations in all Mexican regions, to a greater degree in manufacturing, in a context where restrictions to economic activity have been easing.

Share of Firms that Suspended Activities Partially or Fully as a Consequence of the COVID-19 Pandemic: March-September 2020

Percentage of firms

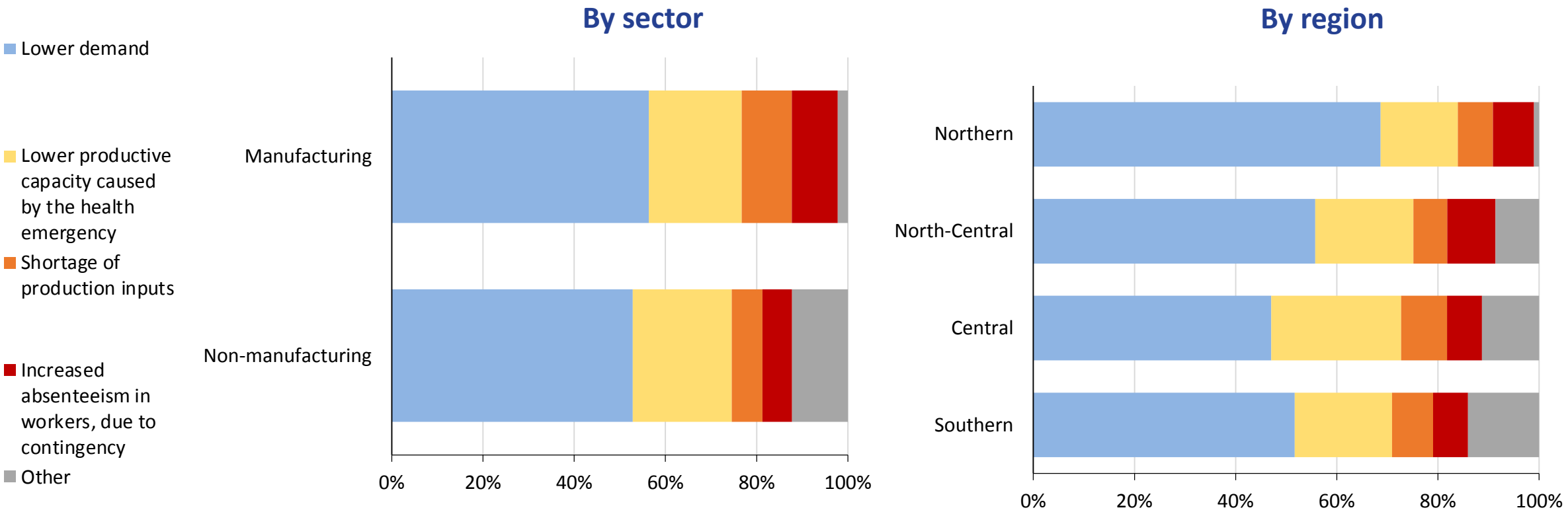


Source: Prepared by Banco de México with data from the Monthly Regional Economic Activity Survey, conducted between April 1 and 29, 2020, between May 4 and 28, 2020, between June 1 and 29, 2020, between July 1 and 31, 2020, between August 3 and 28, 2020, between September 1 and 29, 2020, and between October 1 and 29, 2020. The results are from responses to the question: " Due to the contingency to stop the spread of COVID-19, please indicate if the productive process in your firm was suspended fully or partially, exclusively due to this factor".

Business agents consulted for this Report, whose businesses exhibited production levels in October that were below those of February, attributed their lower activity levels to both demand and supply factors.

Contribution of Factors to the Fall in Production between October and February 2020

Average percentage attributed to each factor



Source: Prepared by Banco de México with data from the Monthly Survey of Regional Economic Activity, corresponding to data collected between November 3 and 27, 2020. The results are obtained from responses to the question: "Considering the impact on production of your business, indicate the percentage of contribution you would allocate to the following factors." This question is only responded by firms that reported negative impacts on production in October, with respect to February.

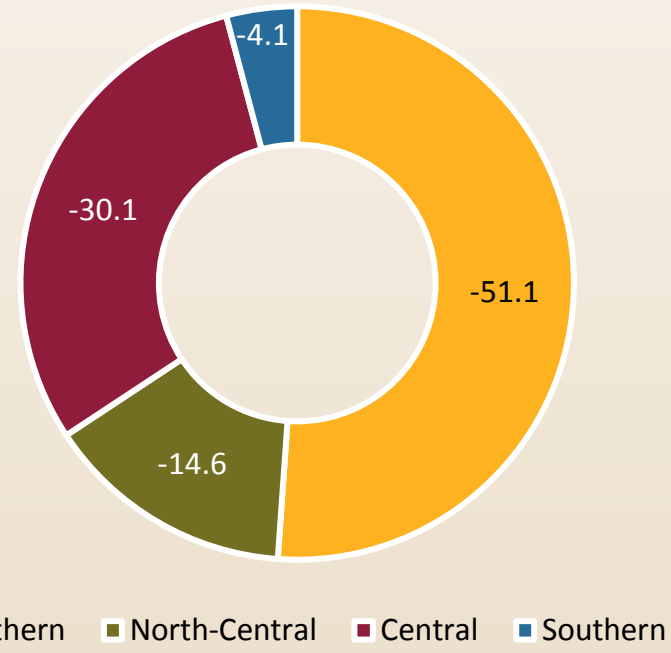
Disruptions in Global Supply Chains and their Possible Impact on Regional Gross Production in the context of the COVID-19 Pandemic

- Banco de México's regional **input-output matrices** are used to estimate, using the Ghosh supply model, the impact on gross production, which might have resulted from the initial supply shock on imported inputs, associated to the health emergency.

- The results suggest that disruptions in supply chains caused by said initial shock could have led to a **2.9% contraction in national gross production**, mainly concentrated in manufacturing. As a reference, **in Q2 2020, total national gross production contracted 19.9% with respect to Q1 2020**.

Contribution by Region to the Estimated Fall in Domestic Gross Production, in view of the Contraction in Intermediate Goods Imports at the beginning of the Pandemic

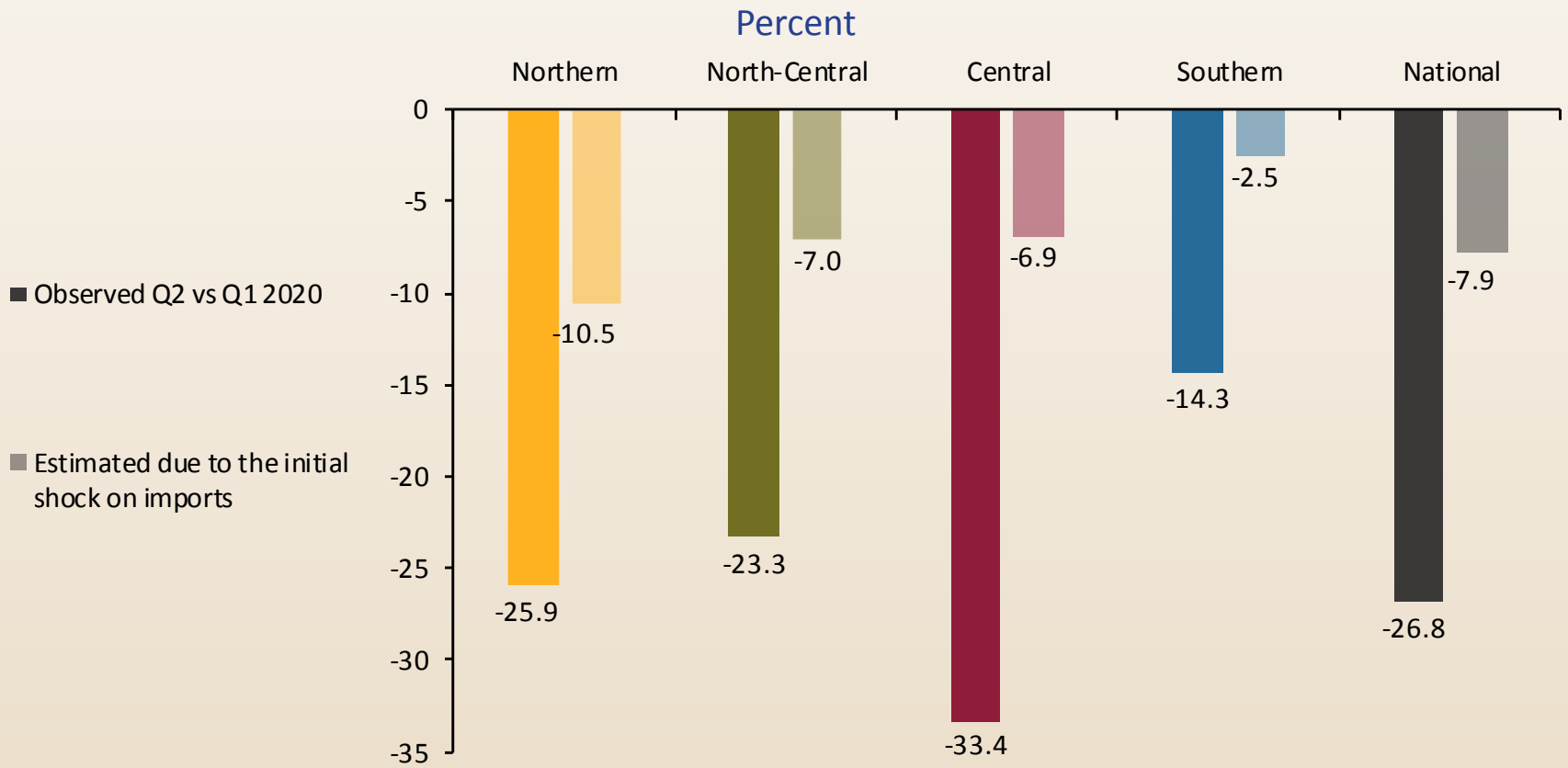
Percentage



Source: Estimated by Banco de México.

Disruptions in Global Supply Chains and their Possible Impact on Regional Gross Production in the context of the COVID-19 Pandemic

Fall in Manufacturing Production in Q2 and Estimated Fall in Manufacturing Gross Production Caused by the Contraction in Imports of Intermediate Goods at the Beginning of the Pandemic

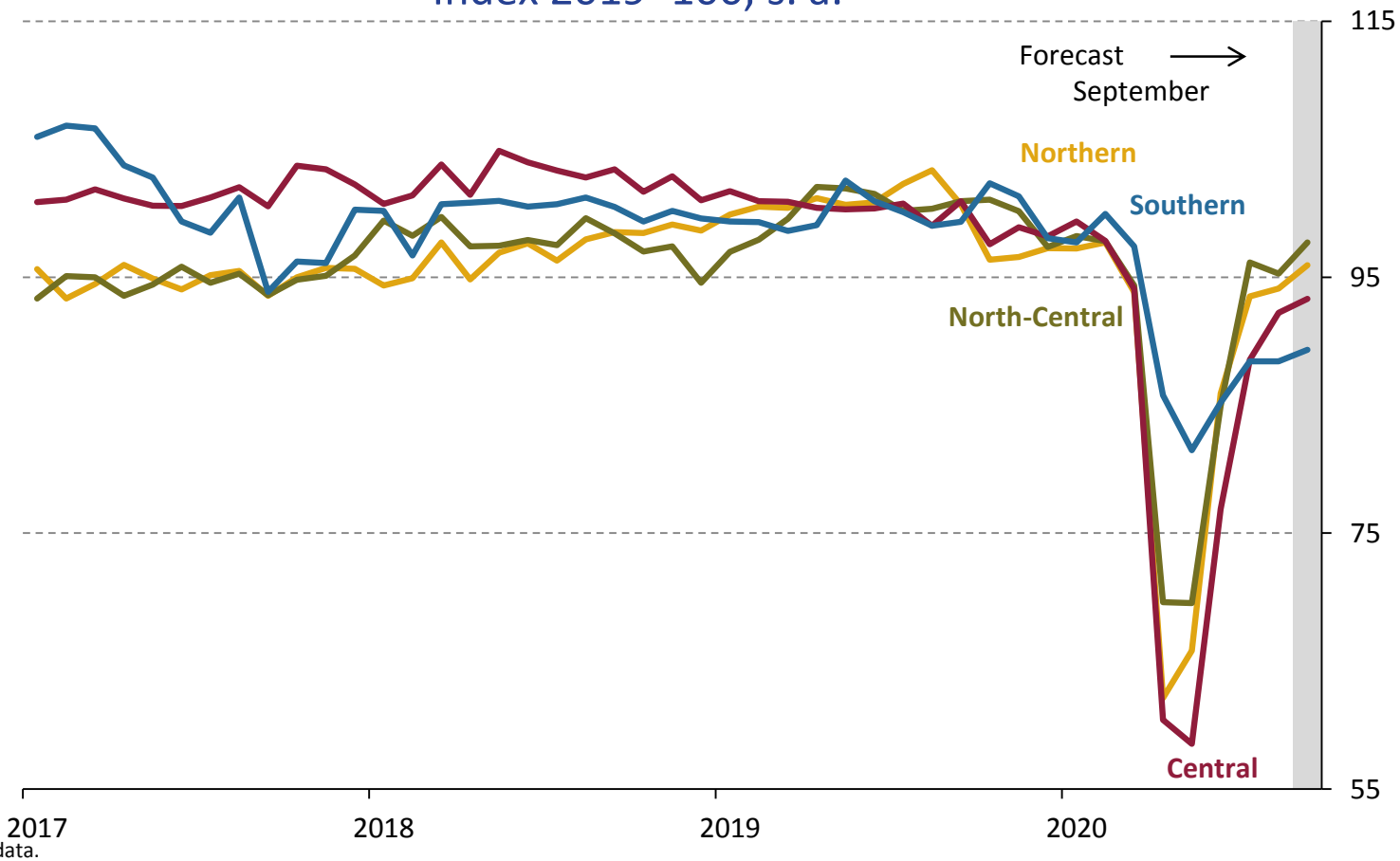


Source: Estimated by Banco de México. The observed fall is reported based on the seasonally adjusted Monthly Indicator of Manufacturing Activity, by State, INEGI.

In Q3 2020, manufacturing activity is anticipated to have recovered significantly in all regions, especially in the Northern and Central ones, due to their stronger link with the external market.

Regional Manufacturing Indicator

Index 2019=100, s. a.



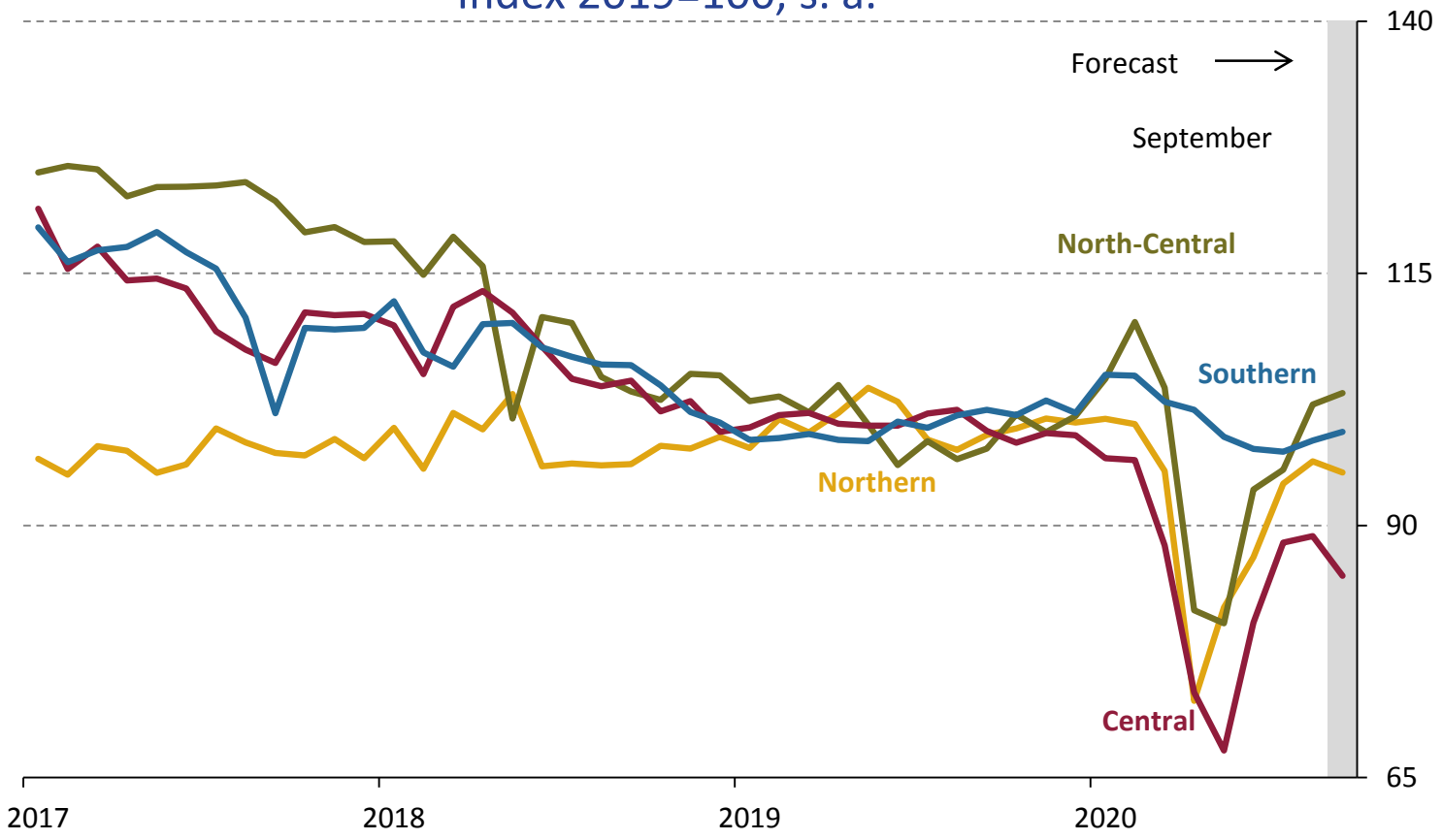
s. a. / Seasonally adjusted data.

Source: Estimated by Banco de México with seasonally adjusted series of the Monthly Indicator of Manufacturing Activity by state (INEGI).

During the period July-September, mining continued to recover. This was fundamentally attributed to the performance of the subsector of metal and non-metal minerals, following the suspension of activities in a considerable number of firms of this subsector during April and May, due to the health emergency.

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

Index 2019=100, s. a.

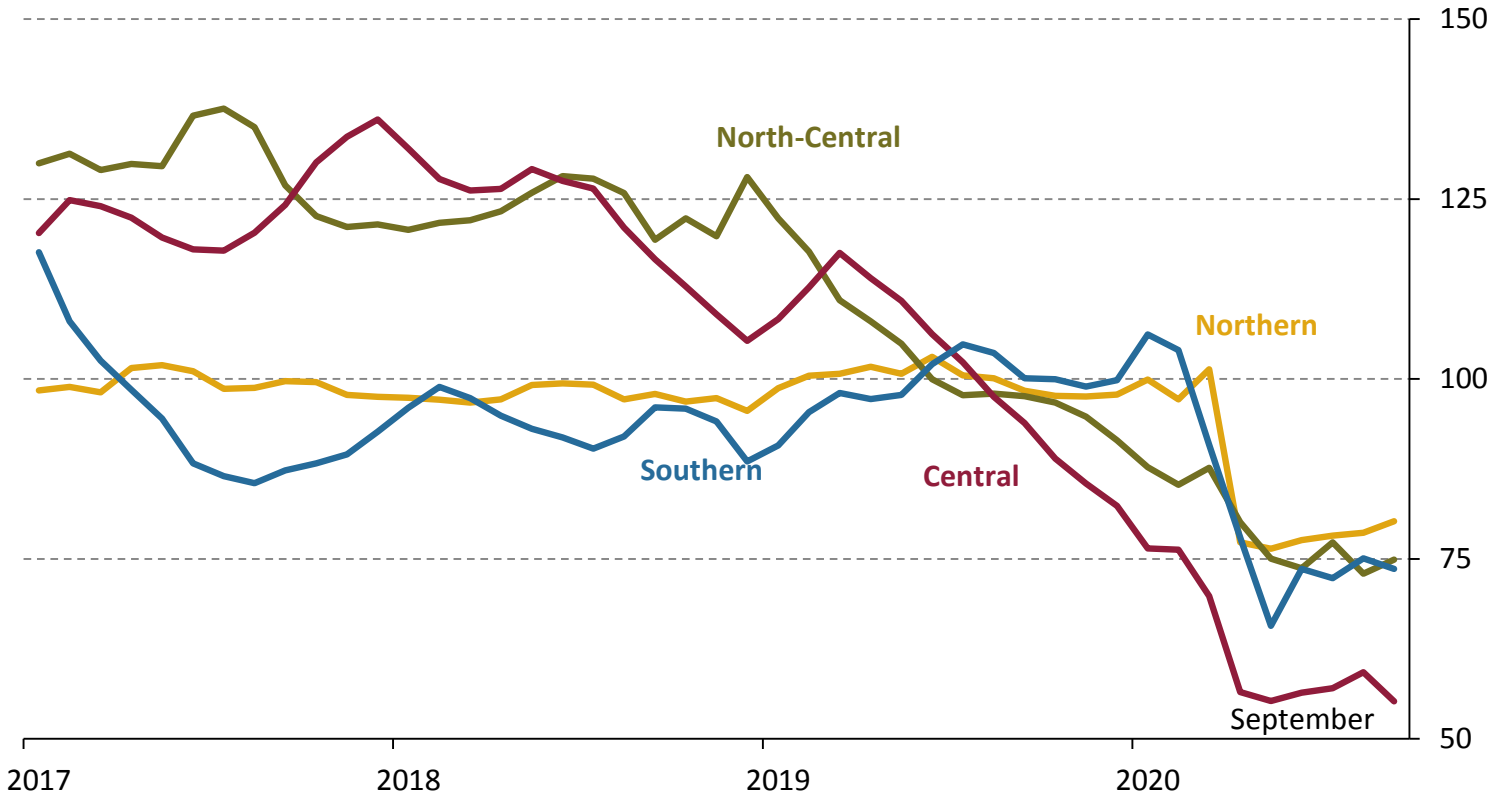


s. a. / Seasonally adjusted data.
Source: Estimated and seasonally adjusted by Banco de México with the series of the Monthly Indicator of Mining Activity by state (INEGI).

The incipient recovery of construction, which began between June and July in all regions of Mexico, weakened by the end of Q3 2020, except in the Northern region, although this activity remains significantly below the levels recorded prior to the beginning of the pandemic in the four regions.

Real Value of Production in the Construction Industry by Region

Index 2019=100, s. a. 3-month moving average except for 2020

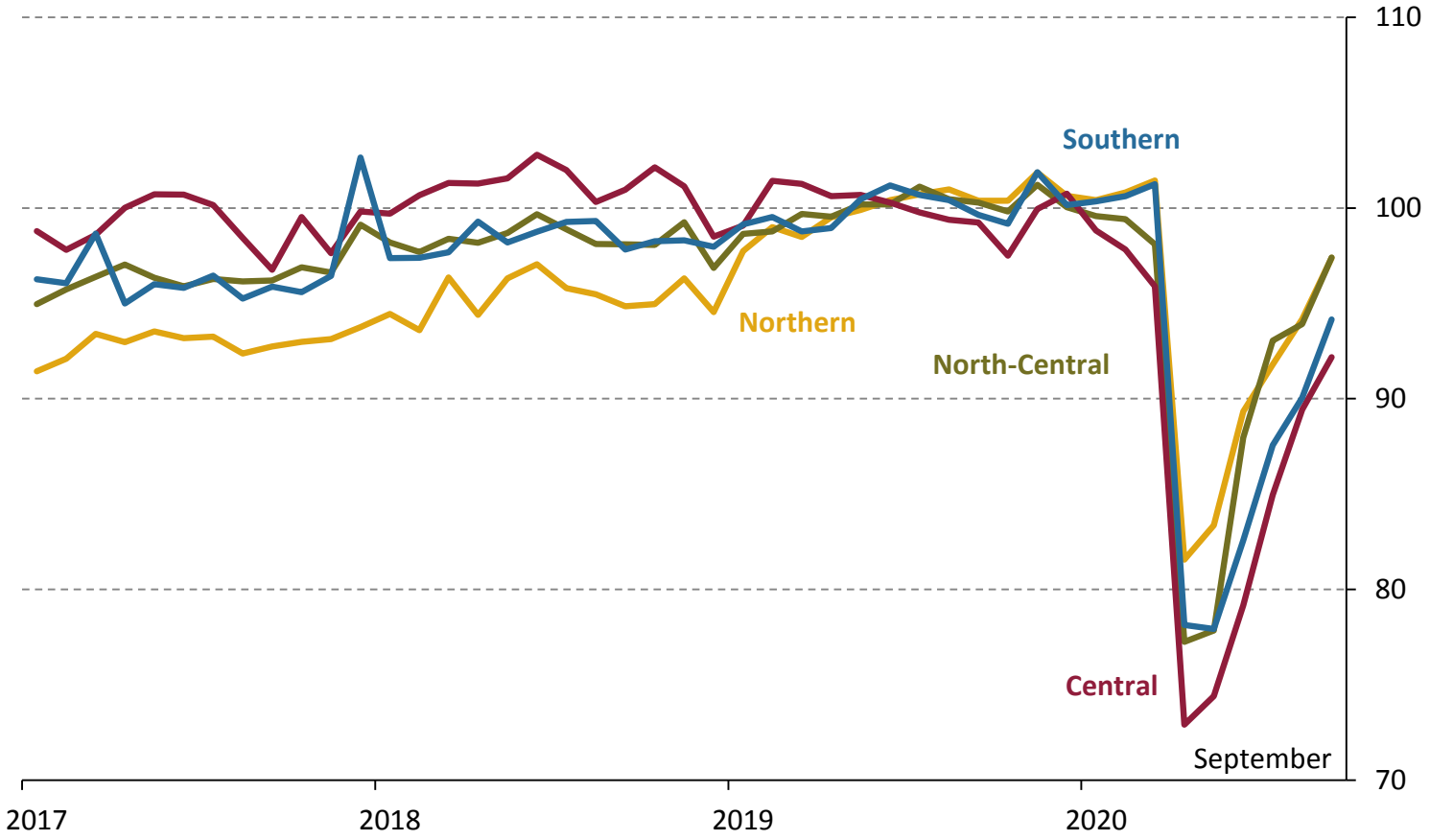


s. a. / Seasonally adjusted data.
Source: Prepared and seasonally adjusted by Banco de México with data from the National Survey of Construction Companies (INEGI).

During the period July-September 2020, trade, measured with the Index of Revenues from Retailers' Supply of Goods and Services, continued to recover in all regions of Mexico, as a reflection of the reopening of economic activity.

Regional Retail Trade Indicator

Index 2019=100, s. a.

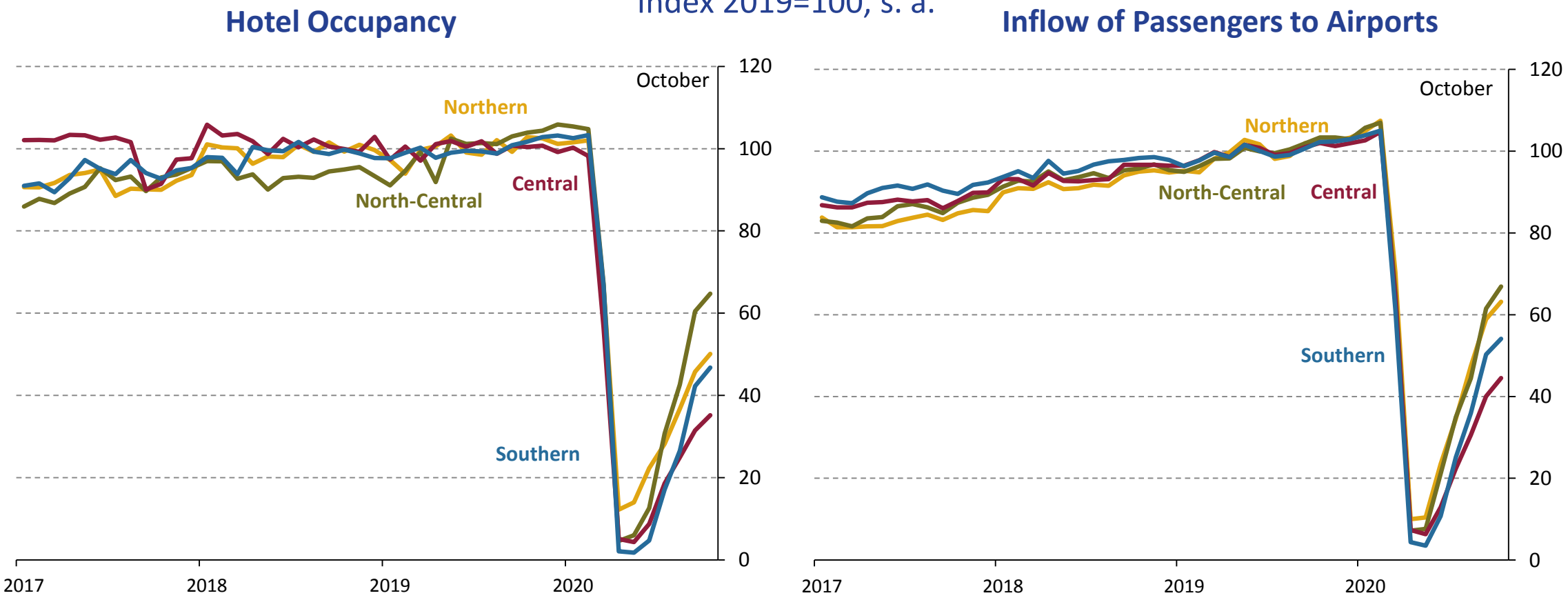


s. a. / Seasonally adjusted data.
Source: Prepared and seasonally adjusted by Banco de México, with the series of Revenues from Retailers' Supply of Goods and Services by state (INEGI).

The incipient recovery that tourism began to exhibit in June in all Mexican regions, continued during the period July-October. However, indicators are still below the pre-pandemic levels.

Regional Indicators of Tourism

Index 2019=100, s. a.



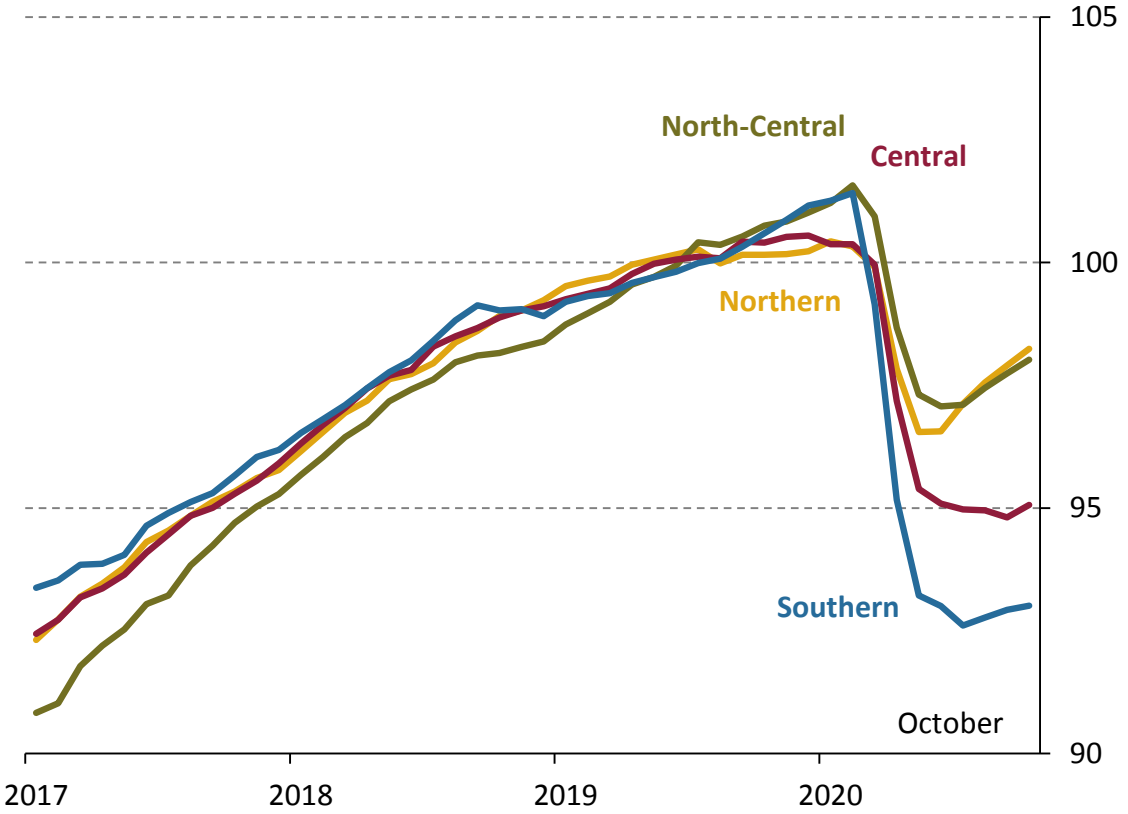
s. a. / Seasonally adjusted data.

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).

After the contraction in all regions of Mexico in Q2 2020, the number of IMSS-insured workers recovered slightly during the period July-October in the North, and, to a lower degree, in the North-Central region, while in the Central and Southern regions it stagnated.

Number of IMSS-insured Workers

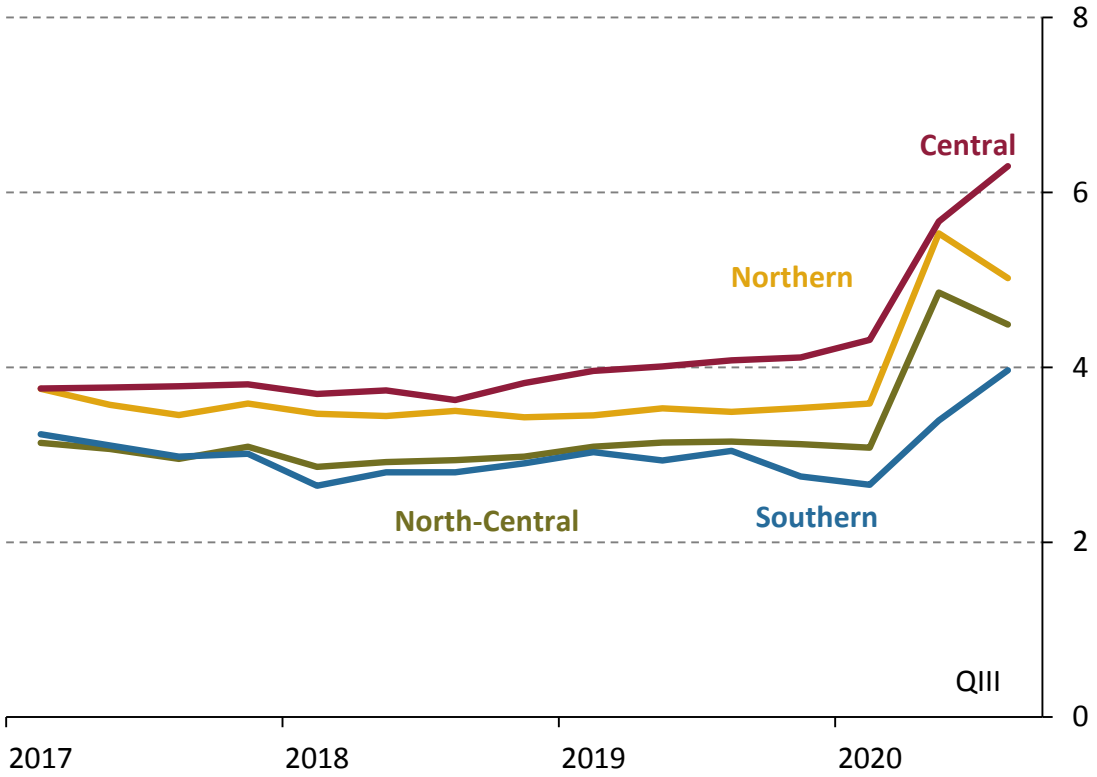
Index 2019=100, s. a. 1/



s. a. / Seasonally adjusted data.
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 as of Q1 2020. Data of Q2 2020 correspond to the Telephone Survey on Occupation and Employment (ETOE), and data from Q3 correspond to the New Telephone Survey on Occupation and Employment (ENOEN) , without a seasonal adjustment.

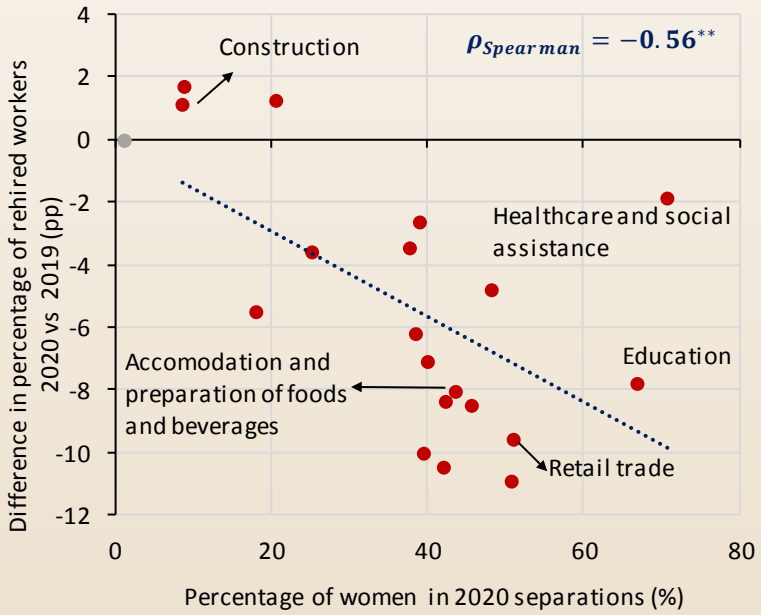
Reemployment in the Mexican Regions' Formal Labor Market in the Context of the COVID-19 Pandemic

Percentage of rehired workers in 2019 and 2020 by gender and region[1/]

Gender	National	Northern	North-Central	Central	Southern
2020 (%)					
Total	**39.5**	**44.9**	**39.7**	**37.4**	**35.9**
Men	**42.6**	48.1	42.2	40.5	39.4
Women	**33.5**	38.6	34.6	31.7	27.5
2019 (%)					
Total	**43.9**	**47.6**	**42.5**	**42.9**	**40.6**
Men	**46.4**	50.7	44.7	45.3	43.5
Women	**39.1**	42.2	38.2	38.6	33.7
Difference 2020-2019 (pp)					
Total	**-4.4**	**-2.8**	**-2.9**	**-5.5**	**-4.7**
Men	**-3.9**	-2.7	-2.5	-4.8	-4.1
Women	**-5.6**	-3.7	-3.6	-7.0	-6.2

1/ Percentage of rehired workers between May and September, with respect to total job separations between February and April 2019 and 2020.
Source: Estimated by Banco de México with data from IMSS.

Relationship between reemployment percentage and women's proportion in job separations by sector



** Denotes statistical significance at 5%.
Source: Estimated by Banco de México with data from IMSS.

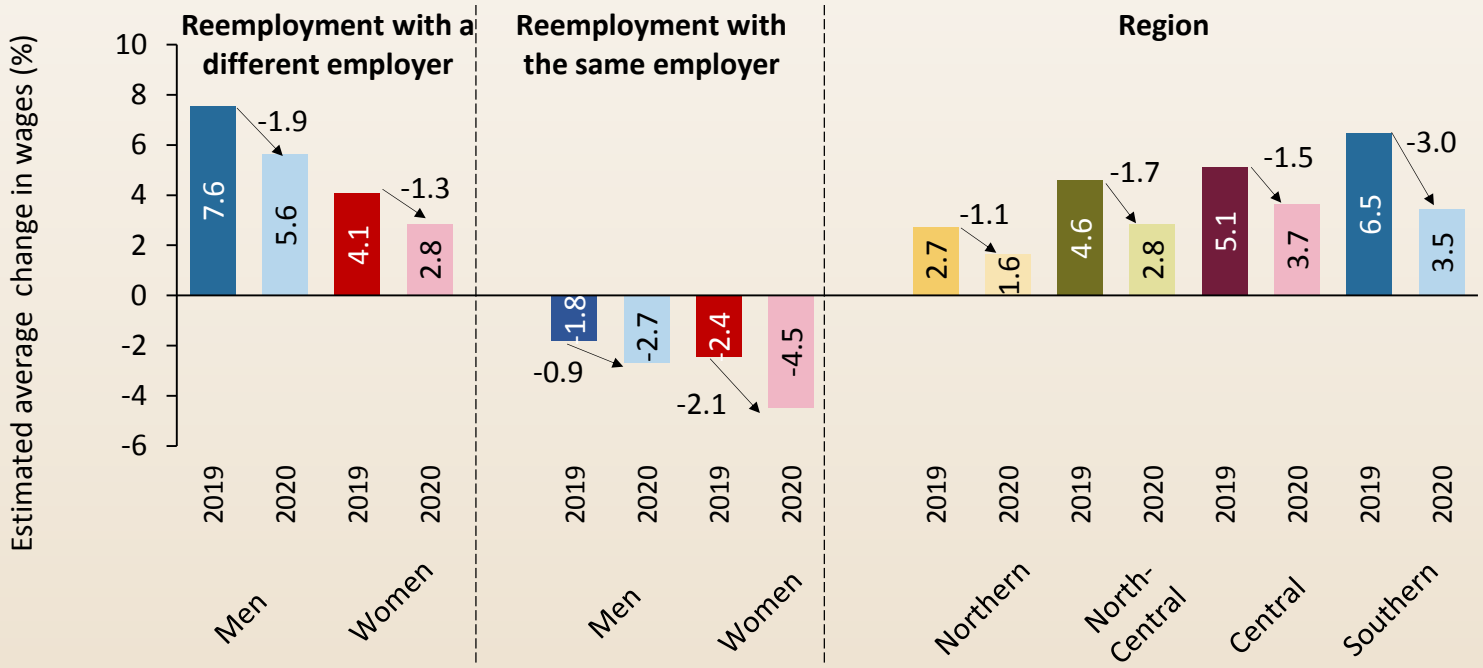
Estimates for the average probability of reemployment in 2019 and 2020 [1/]

Gender	Estimated reemployment average probability	
	Men	**Women**
2019	0.464***	0.388***
2020	0.419***	0.350***
Difference 2020 - 2019	-0.045	-0.039

1/ For workers who lost their formal employment between February and April 2019 and 2020, a probit model was estimated for the probability of being reemployed from May to September of each year. The model controls for sector of economic activity, age group and region, among other explanatory variables.
*** Denotes statistical significance at 1%.
Source: Estimated by Banco de México with data from IMSS.

Reemployment in the Mexican Regions' Formal Labor Market in the Context of the COVID-19 Pandemic

Estimates for average change in wages in 2019 and 2020[1/]



1/ A linear regression model was estimated for changes in workers' wages. The model controls for by sector of economic activity, among other explanatory variables. All estimated changes in wages are statistically significant at 1%.
Source: Estimated by Banco de México with data from IMSS.

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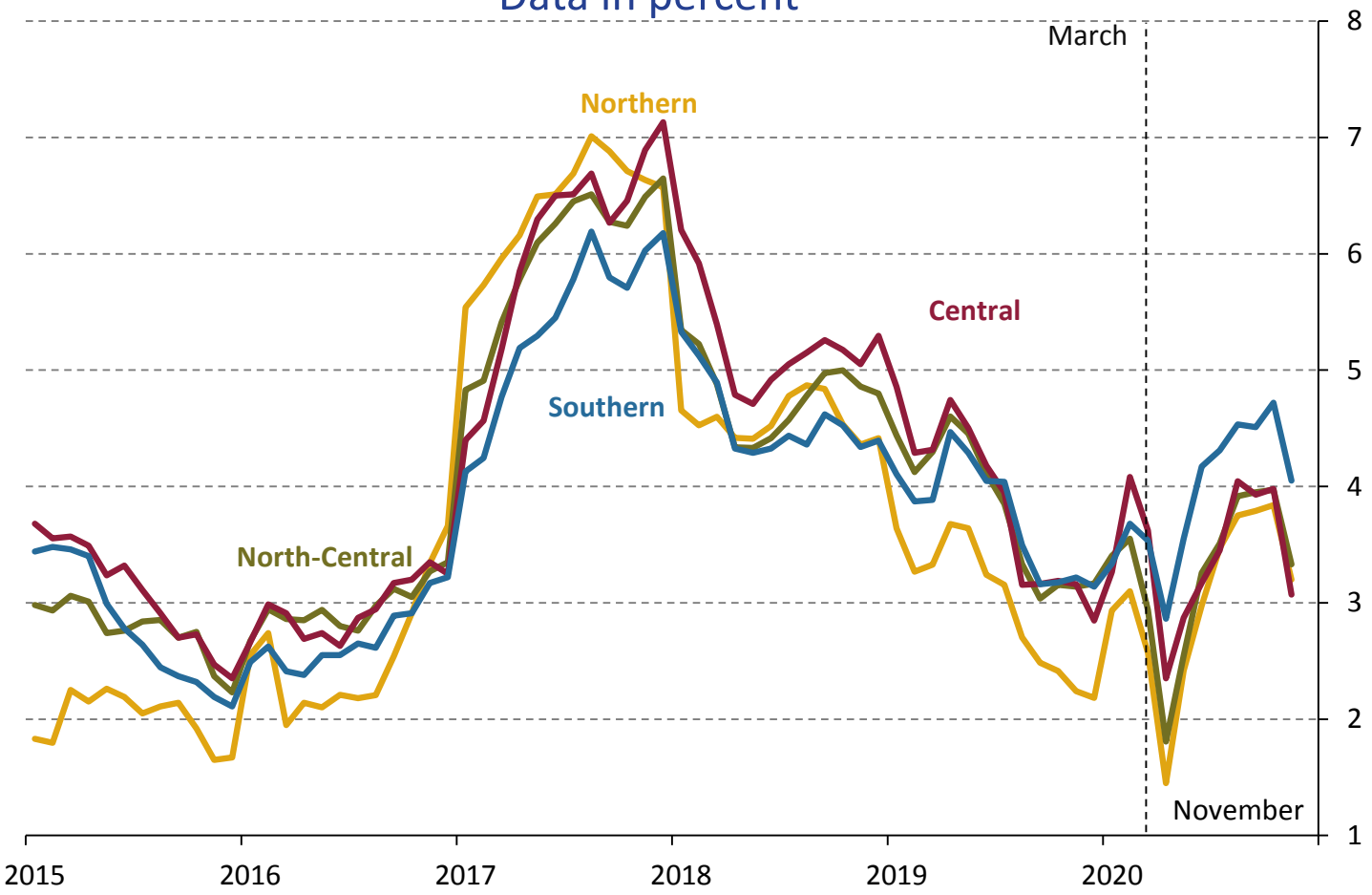
(based on data collected between September 21 and October 15, 2020)

III. Final remarks

National and regional inflation has been affected by the COVID-19 pandemic. As a result, the levels observed in Q3 2020 were above those recorded in Q2 2020.

Annual Headline Inflation, by Region

Data in percent

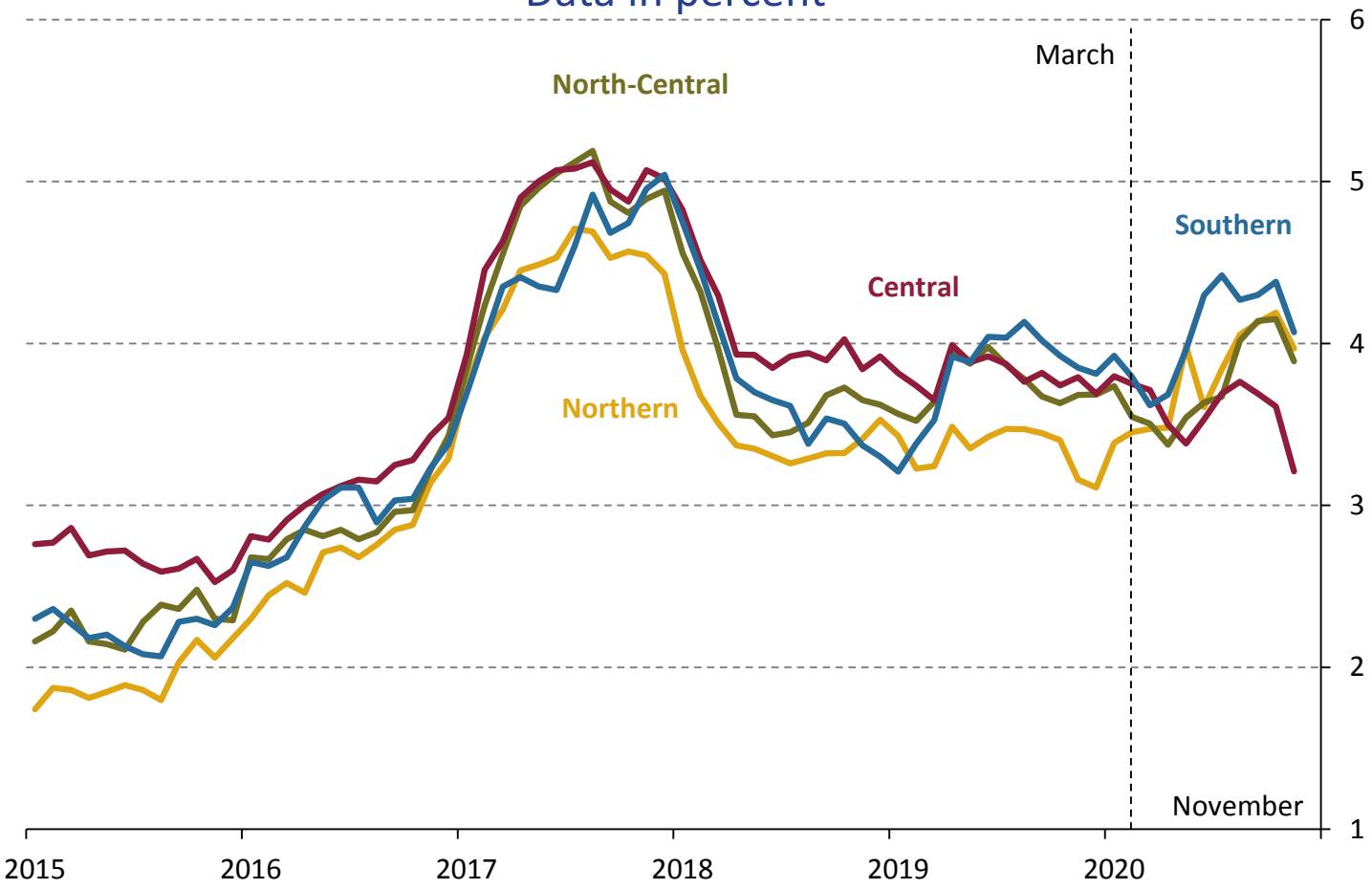


Source: Prepared by Banco de México with data from INEGI and Banco de México.

Annual core inflation in all regions presented higher average levels in Q3 2020 with respect to Q2 2020. This evolution stemmed from the fact that the increase in merchandise inflation was higher than the reduction in the annual change of services prices.

Annual Core Inflation, by Region

Data in percent

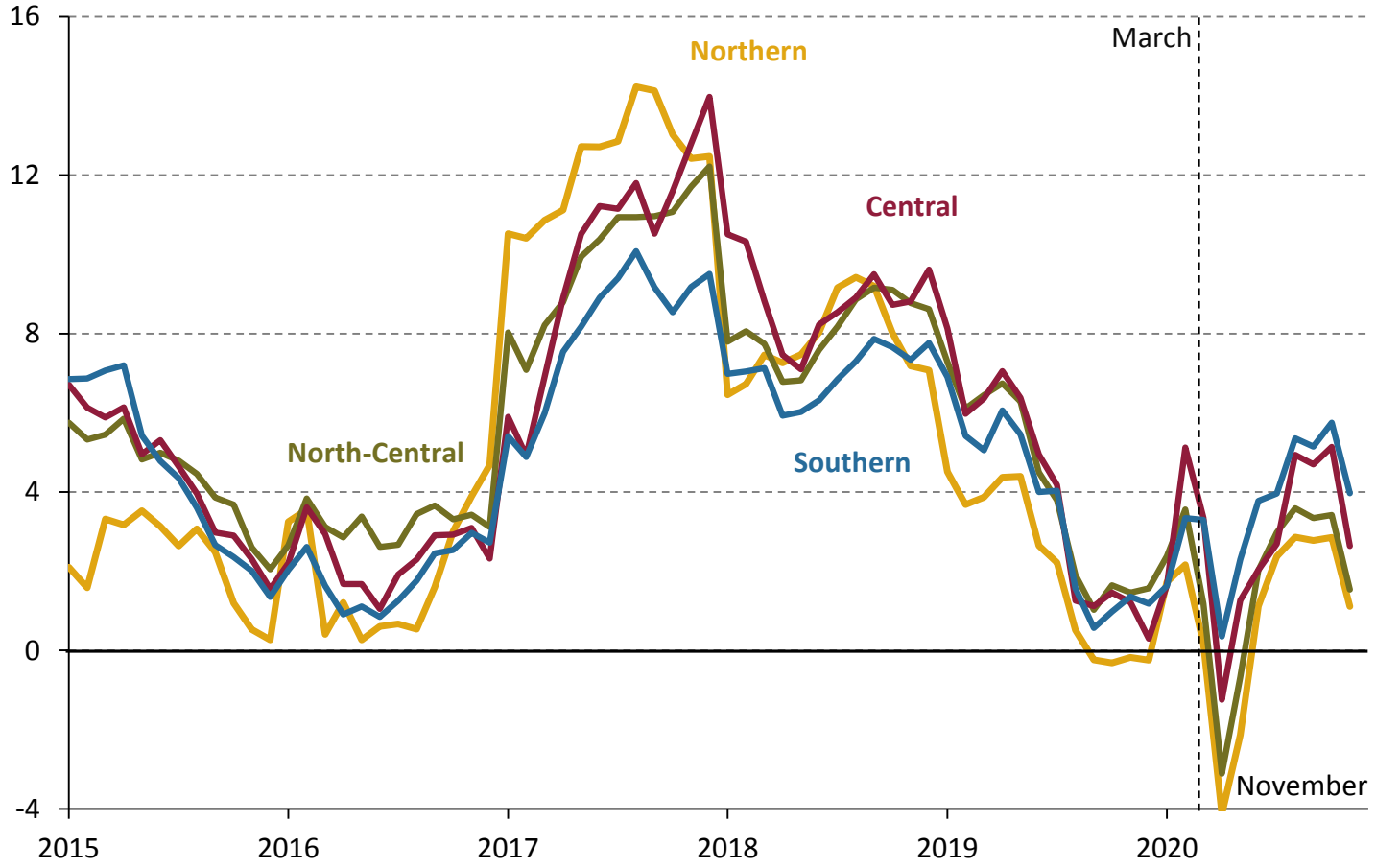


Source: Prepared by Banco de México with data from INEGI and Banco de México.

In all regions, non-core inflation followed an upward trend between May and August, mainly as a result of the increase in energy global prices, which mirrored the performance of their international references, in a context of a slight recovery in economic activity and of certain supply restrictions.

Annual Non-core Inflation, by Region

Data in percent

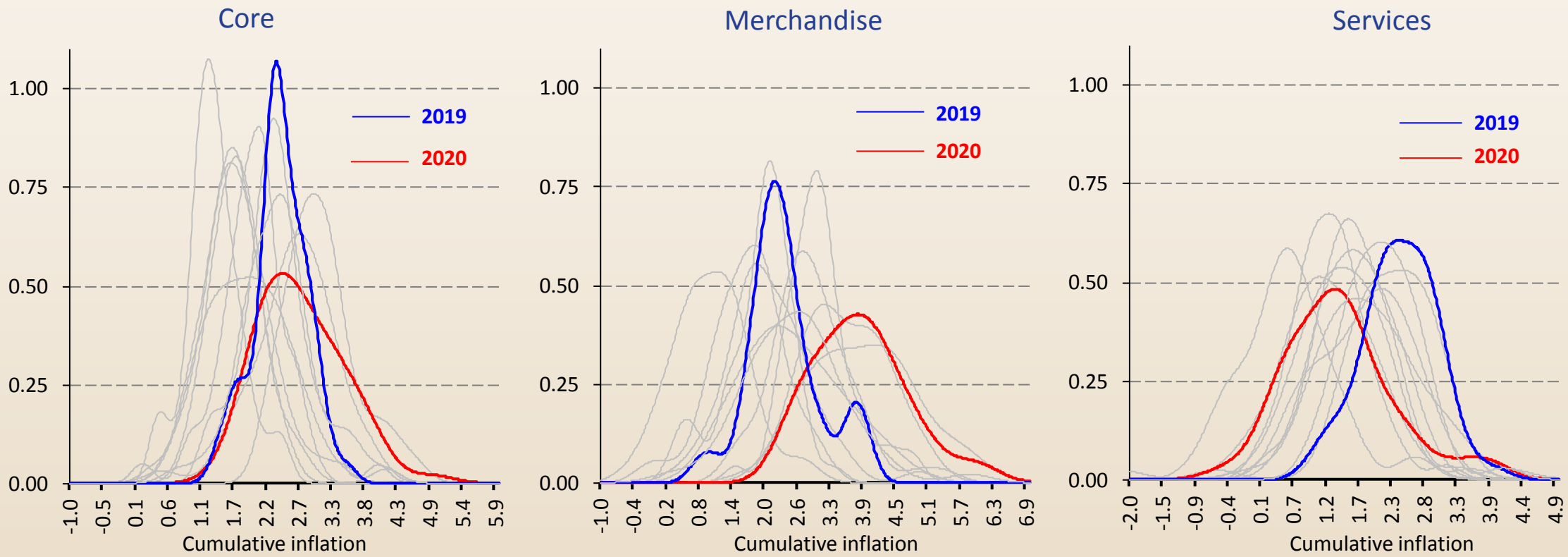


Source: Prepared by Banco de México with data from INEGI and Banco de México.

Impact of the COVID-19 Pandemic on the Evolution of Inflation in Mexican Cities

Density Functions of Cumulative Inflation between February and November by City

Data in percent



The density function is obtained by using a kernel of the normal density function. Curves in grey show density functions in recent years: 2009 to 2018.
Source: Banco de México.

Weight and Price Effects on Regional Core Inflation

Inflation difference = Weight effect + Price effect

$$\alpha^r \pi^r - \alpha^{mx} \pi^{mx} = \alpha^r \pi^r - \alpha^{mx} \pi^r + \alpha^{mx} \pi^r - \alpha^{mx} \pi^{mx}$$

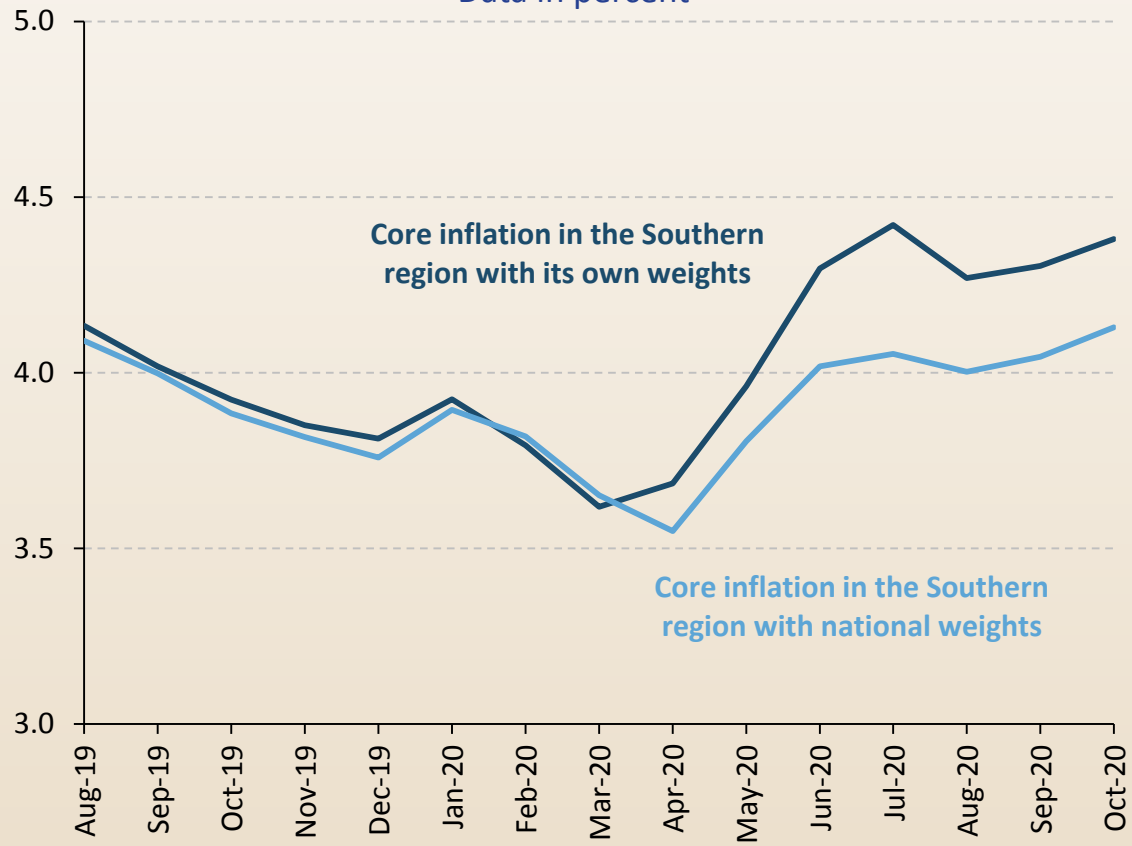
$\alpha^{mx} = vector\ of\ national\ weights$
$\pi^{mx} = vector\ of\ national\ price\ changes$
$\alpha^{r} = vector\ of\ weights\ by\ region$
$\pi^{r} = vector\ of\ price\ changes\ by\ region$

Annual Core Inflation
October 2020

	Difference from the national level	Weight effect	Price effect
	Percentage points	Percentage points	Percentage points
Northern	0.21	-0.12	0.33
North-Central	0.17	0.06	0.10
Central	-0.37	-0.10	-0.27
Southern	0.40	0.25	0.15

Source: Banco de México and INEGI.

Core Inflation in the Southern Region
Data in percent

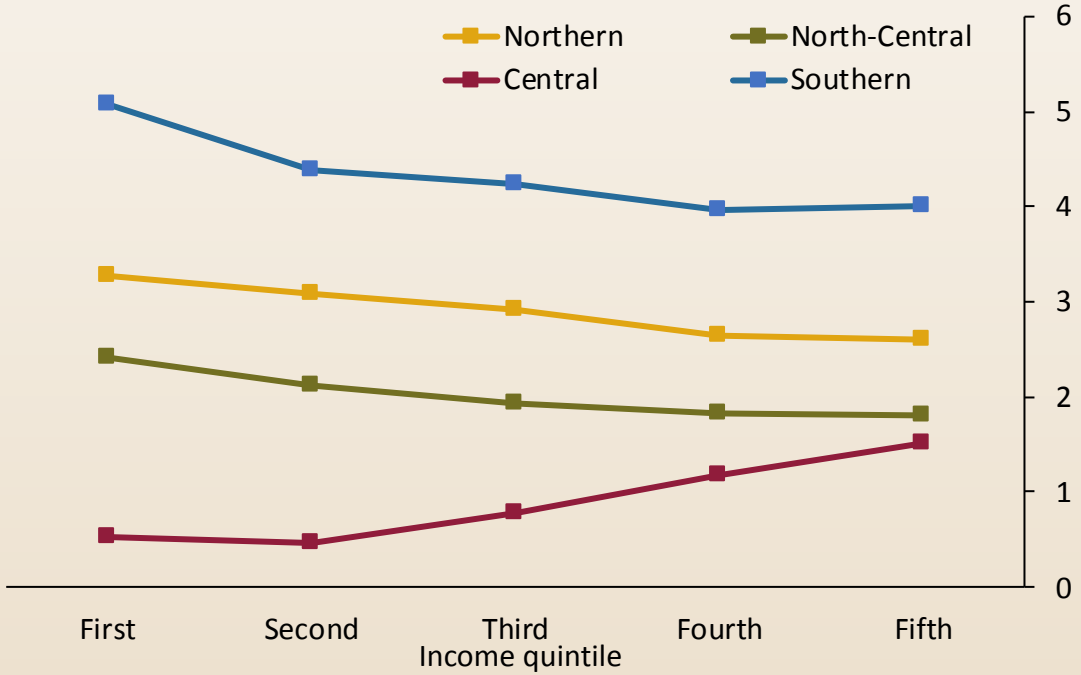


Source: Banco de México and INEGI.

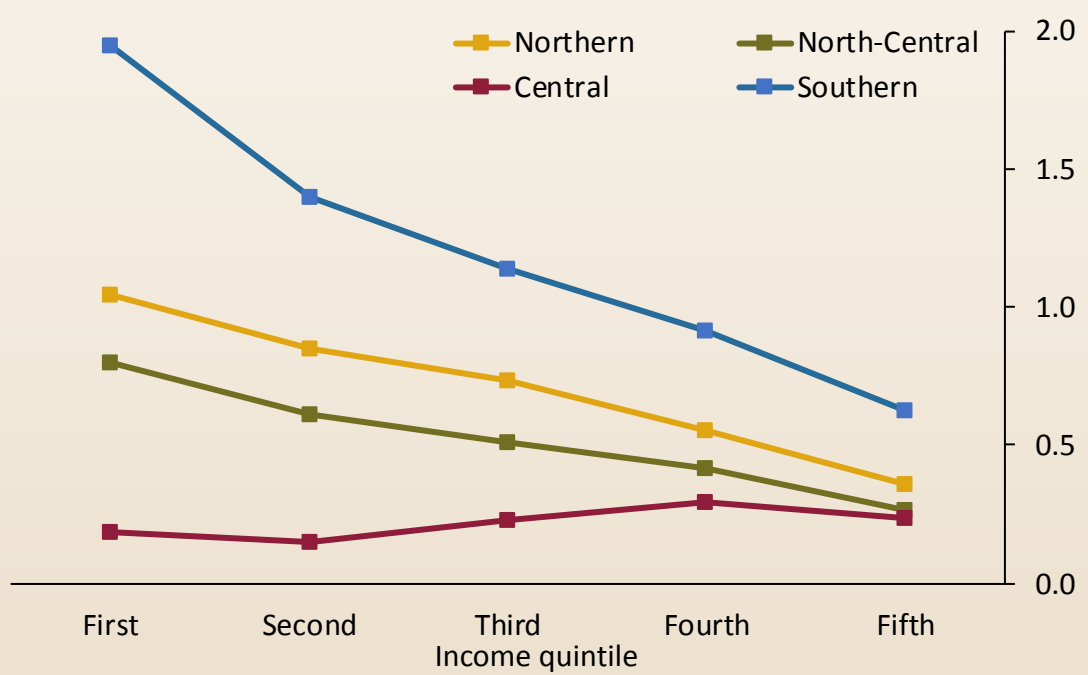
Increases in Cost of Food during the COVID-19 Pandemic in Mexican Regions

Change in Cost of an Average Food Basket based on ENIGH 2018 between February and October [1/]

As a Percentage of the Cost of Food Basket in February



As a Percentage of the Household Current Expenditure in February



Source: Prepared by Banco de México with data from the 2018 National Survey on Income and Household Expenditure, and price indices by item and city of CPI, INEGI.
1/ The considered group of food items includes 216 processed and unprocessed products, registered in urban and rural households' consumption of the 2018 ENIGH, which are grouped into 101 items (core and non-core) that are part of the CPI base of July 2018, to measure food and non-alcoholic beverages inflation.

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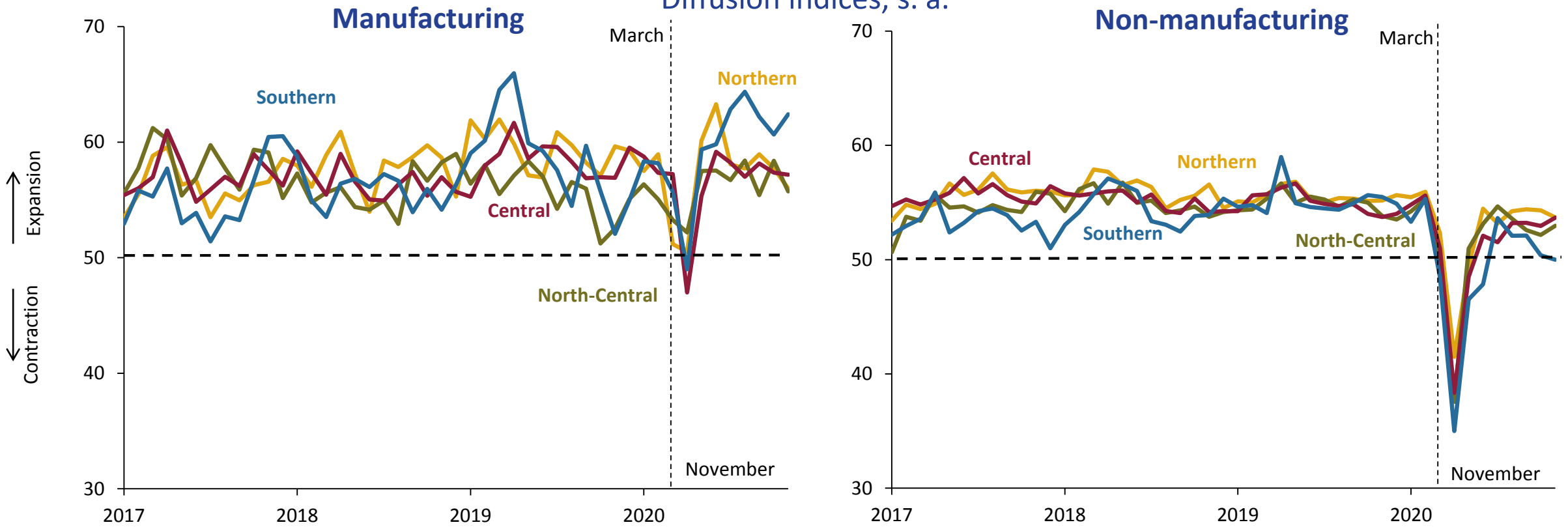
(based on data collected between September 21 and October 15, 2020)

III. Final remarks

After business agents' expectations deteriorated during the period of March-April in the context of the COVID-19 pandemic, the evolution of Regional Indices of Manufacturing and Non-manufacturing Orders suggests an improvement in said expectations starting from May in all regions of Mexico.

Regional Index of Manufacturing and Non-manufacturing Orders: Activity Outlook, Next 3 Months

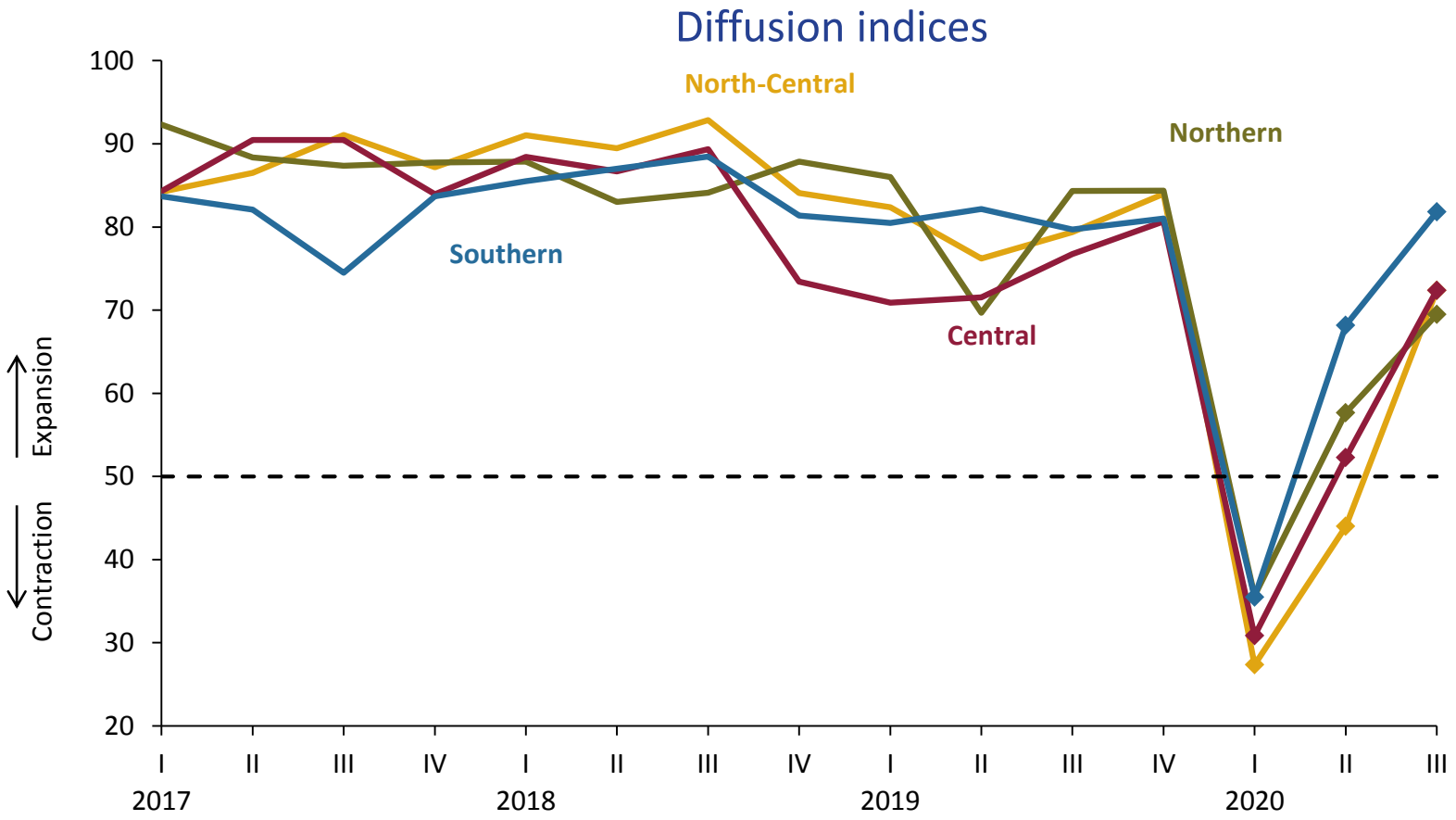
Diffusion indices, s. a.



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

As for the demand for firms' goods and services, the results of the most recent interview program indicate that expectations of business agents consulted across all sectors have further improved in such a way that the diffusion index that captures their demand expectations (i.e. next 12 months) was above 50 points for the first time in all regions.

Business Agents' Expectations: Demand over Next 12 Months 1/

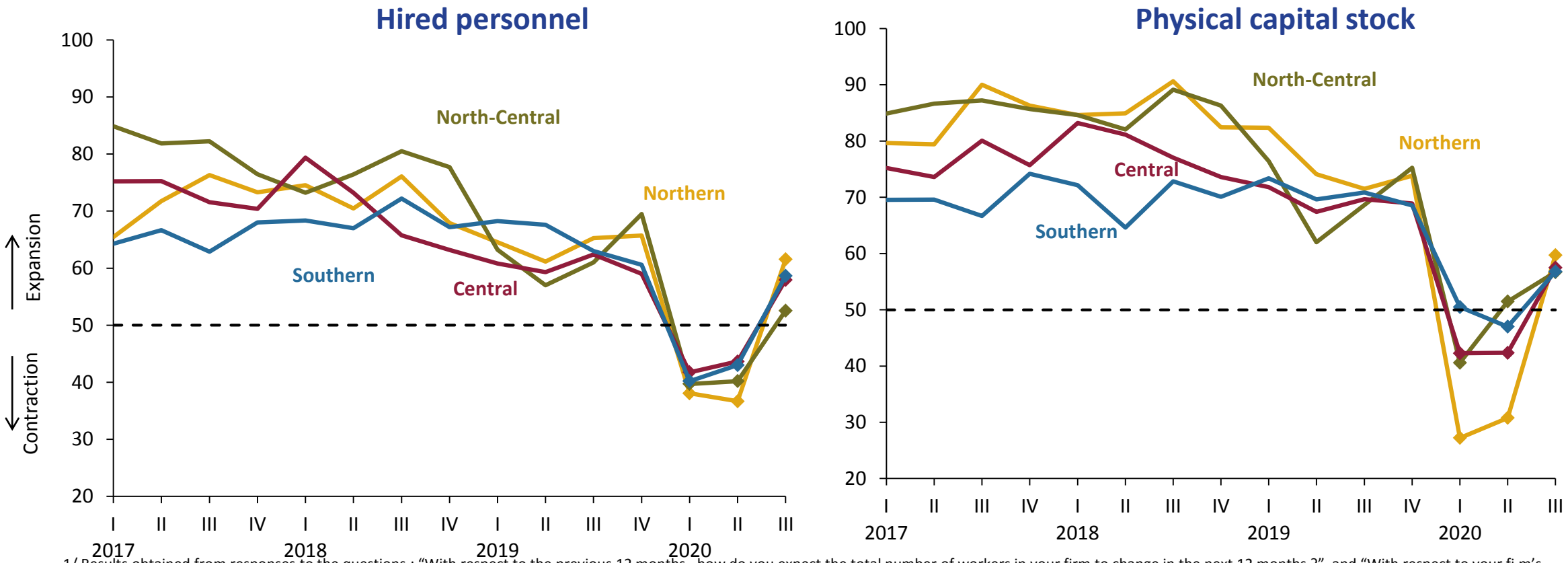


1/ Results obtained from responses to the question: "With respect to the volume of sales of your own goods and services in the previous 12 months, how do you expect your sales volume to change in the next 12 months?. Data corresponding to Q1, Q2, and Q3 2020 was obtained from data collected between March 23 and April 23, between June 22 and July 16, and between September 21 and October 15, 2020, respectively", from interviews conducted by Banco de México.

Regarding expectations about the number of personnel working in companies and investment in fixed assets, during Q3 2020 indicators registered an increase in all regions of the country; nevertheless, none of them have regained the level recorded in Q4 2019.

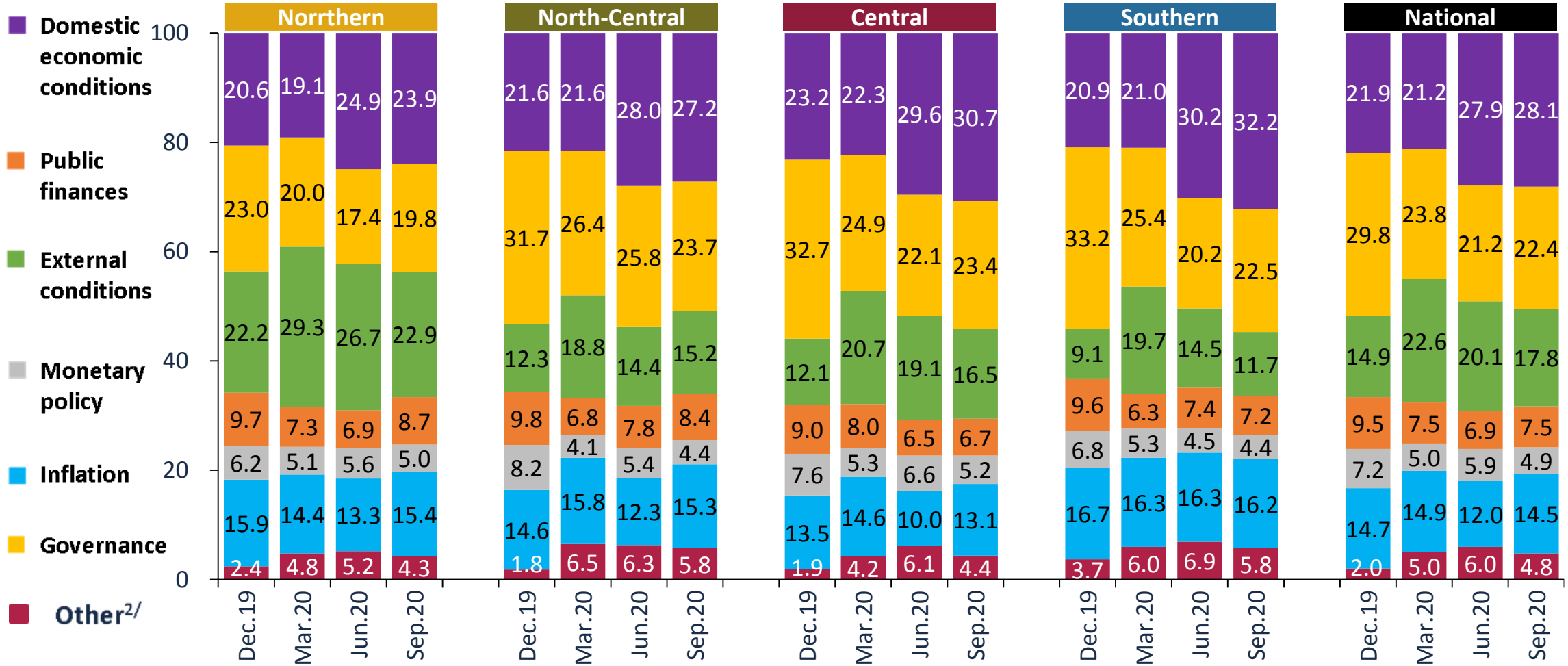
Business Agents' Expectations: Hired Personnel and Physical Capital Stock, Next 12 Months [1/]

Percentage of responses



1/ Results obtained from responses to the questions : "With respect to the previous 12 months , how do you expect the total number of workers in your firm to change in the next 12 months ?", and "With respect to your fi m's investment in fixed assets during the previous 12 months, how do you expect investment levels to change in the following 12 months?, from interviews conducted by Banco de México. Data corresponding to Q1, Q2, and Q3 2020 were obtained from data collected between March 23 and April 23, between June 22 and July 16, and between September 21 and October 15, 2020, respectively.

Percentage Distribution of Business Agents' Responses when Interviewed about the Main Three Factors that Could Hinder Growth of Economic Activity in their States, in the Next 6 Months (based on data collected between September 1 and 29, 2020) 1/



1/ Question: Which do you consider to be the main three limiting factors for growth of economic activity in your state during the next 6 months? This question is similar to that included in the questionnaire of the Survey among Private Sector Forecasters. Figures for September 2020 were obtained based on data collected between September 1 and 29, 2020.

2/ The question includes different specific factors, as well as an open option "other", in which business contacts can indicate other factors they consider relevant. In the case of data collected in June 2020 in this item it is noteworthy that practically all responses make a reference of the COVID-19 pandemic.

Source: Banco de México.

Business Agents' Opinion on Risks to Regional Economic Activity (based on data collected between September 21 and October 15, 2020) 1/

Upward risks

- That the spread of the pandemic recedes, possibly as a result of new treatments or the introduction of an effective vaccine.
- That private investment reactivates as a result of the contribution of stimuli granted in different areas for that purpose.

Downward risks

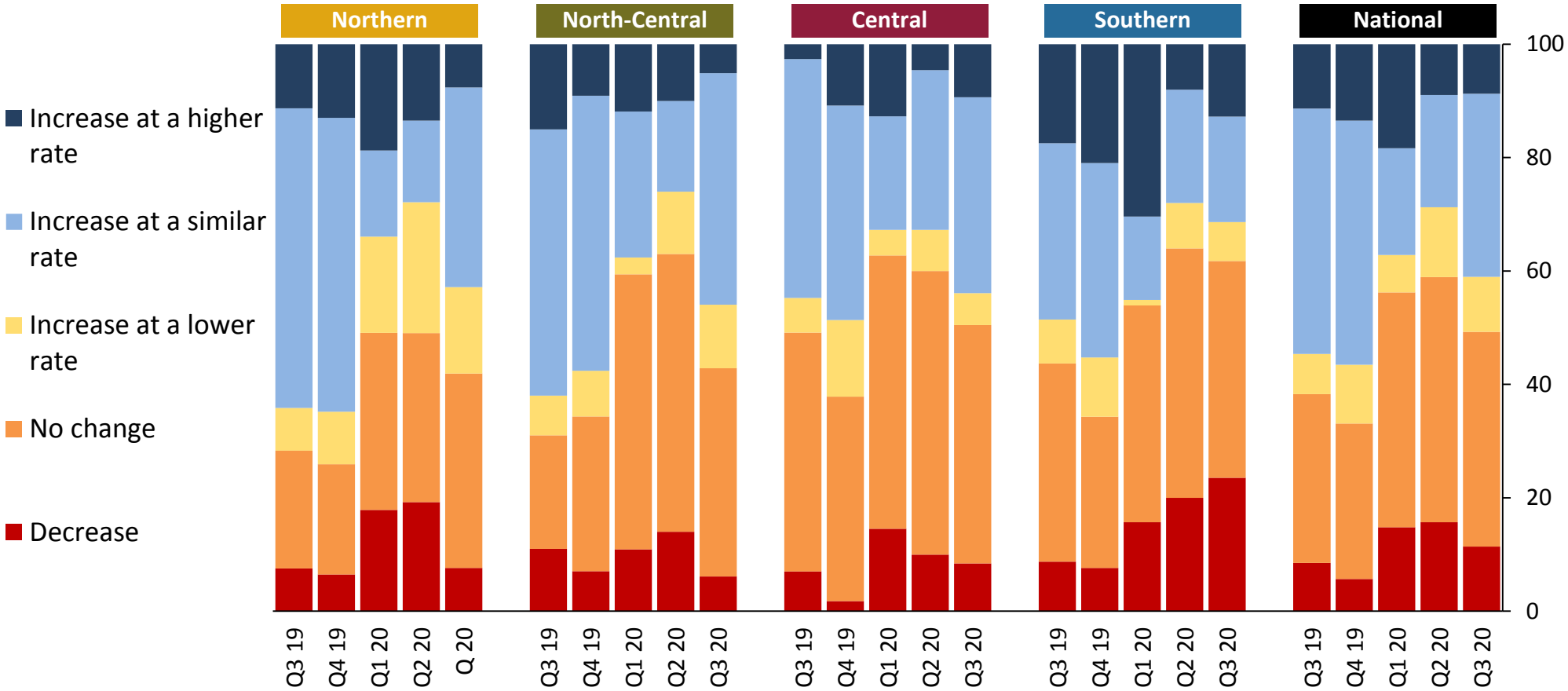
- That social distancing measures are extended or resumed in view of new virus outbreaks, with the consequent impact on economic activity.
- That public security indicators continue to deteriorate.
- That the environment of domestic uncertainty that has affected investment continues to prevail.

1/ Results obtained from responses to the questions: "Which are the main 2 events/situation/facts that, if they occur, would boost economic performance in your state in the next 12 months?" and "Which are the main 2 events/situations/facts that, if they occur, would hinder economic growth in your state in the next 12 months?", from interviews conducted by Banco de México between September 21 and October 15, 2020.

With respect to sales prices for own goods and services, the share of business agents that expects them to increase at a lower rate, to remain unchanged, or even to decrease over the next twelve months, declined in all regions.

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

Percentage of responses

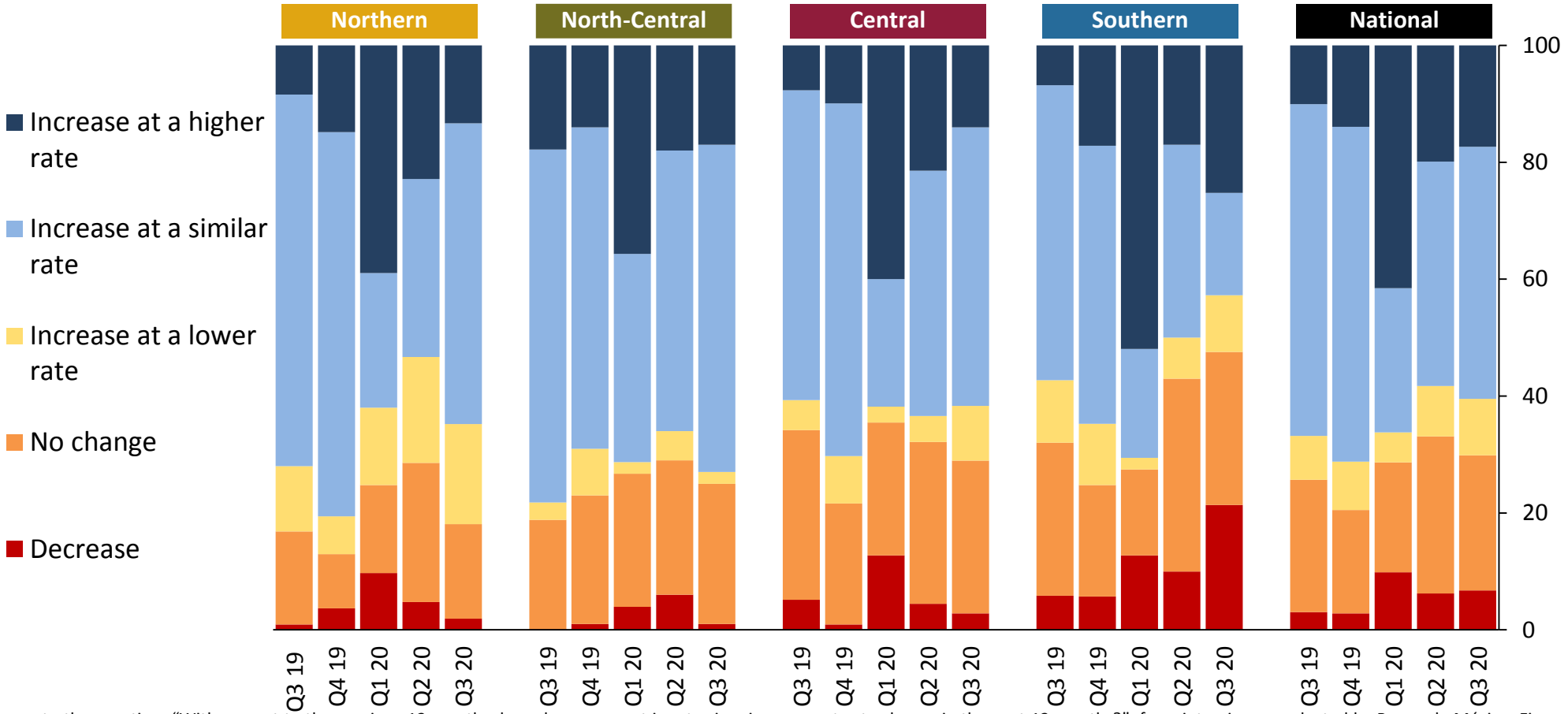


1/ Results obtained from responses to the question: "With respect to the previous 12 months, how do you expect sales prices in your sector to change in the next 12 months?", from interviews conducted by Banco de México. Figures for Q1, Q2 AND Q3 2020 were obtained from data collected March 23 and April 23, June 22 and July 16, and September 23 and October 15, 2020, respectively.

The percentage of business agents that expect their input prices to increase at a lower rate, to remain at the same level or even to decrease during the next 12 months, declined in the Northern and North-Central regions, while in the Central and Southern regions it rose.

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

Percentage of responses

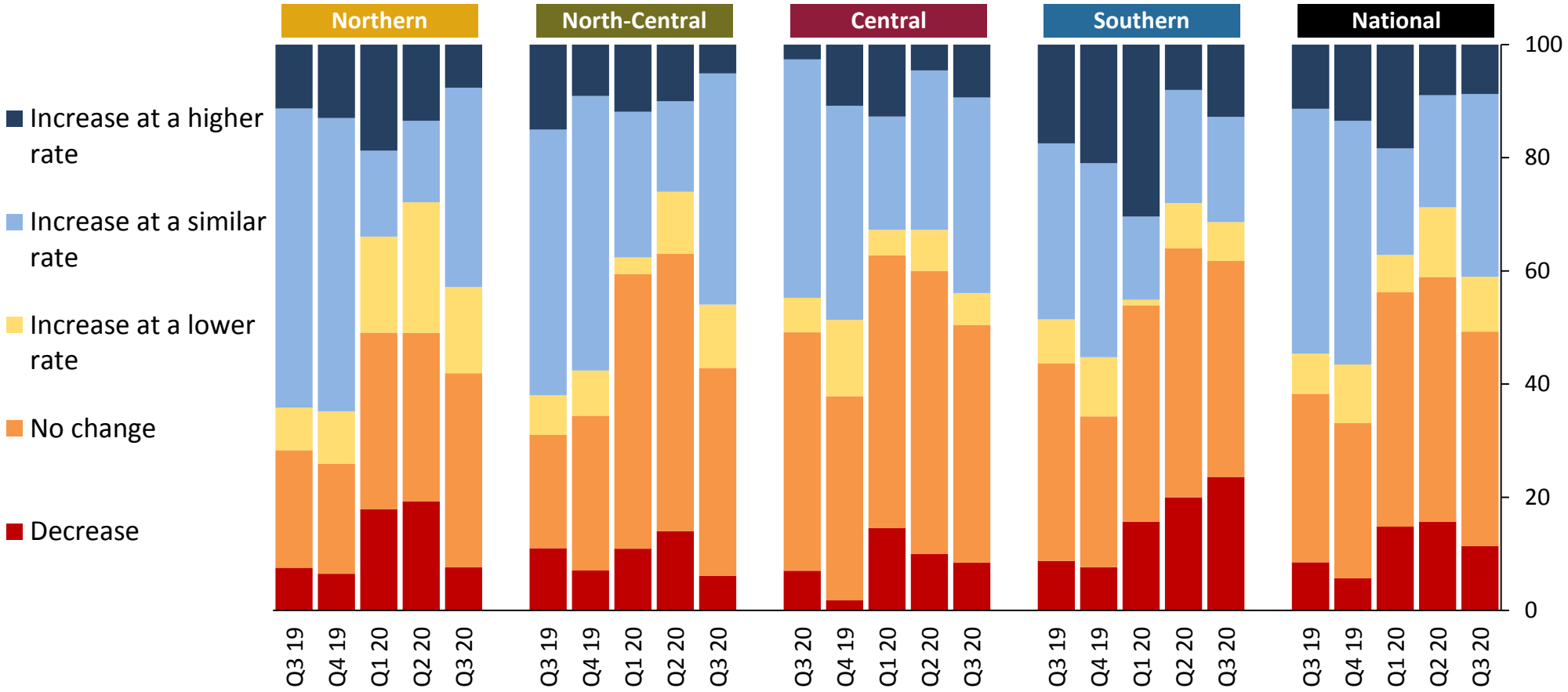


1/ Results obtained from responses to the question: "With respect to the previous 12 months, how do you expect input prices in your sector to change in the next 12 months?", from interviews conducted by Banco de México. Figures for Q1,Q2 and Q3 2020 were obtained from data collected between March 23 and April 23, June 22 and July 16, and September 23 and October 15, 2020, respectively.

Finally, the share of business agents that expects wage costs to increase at a lower rate, to remain unchanged, or even to decrease over the next twelve months, declined in all regions.

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

Percentage of responses



1/ Results obtained from responses to the question: "With respect to the previous 12 months, how do you expect wages and salaries of personnel working in your sector to change in the next 12 months?", from interviews conducted by Banco de México. Figures for Q1,Q2 and Q3 2020 were obtained from data collected between March 23 and April 23, June 22 and July 16, and September 23 and October 15, 2020, respectively.

Outlook

I. Regional Economic Report

II. Results July – September 2020

A. Economic activity

B. Inflation

C. Economic outlook

(based on data collected between September 21 and October 15, 2020)

III. Final remarks

Final remarks

1. **Economic activity is expected to have recovered in all regions** during the reported quarter, albeit in a heterogeneous manner. This recovery was largely supported by the evolution of external demand for manufactures, although also by the reactivation of the domestic market.

2. **All regions recorded higher average annual inflation** during the reference quarter as compared to the previous one, as a result of the higher levels of core and non-core inflation. The higher levels of core inflation in the Southern region stood out.

3. Interviewed business agents highlighted the following risks:

   - ✓ *To the upside: i) **that the spread of the pandemic recedes**, possibly as a result of new treatments or the introduction of an effective vaccine; and (ii) **that public investment reactivates** as a result of the contribution of stimuli granted in different areas for that purpose.*

   - ✓ *To the downside: i) That **social distancing measures** are extended or resumed in view of new virus outbreaks, with the consequent **impact on economic activity**; (ii) that **public safety** indicators continue to deteriorate, and (iii) that the **environment of domestic uncertainty** that has affected investment **continues to prevail.***

4. Looking forward, **the recovery will most likely be heterogeneous** among the different regional economies. Indeed, **both the type of sectors in which they specialize** and their degree of linkage to domestic and foreign markets will continue to influence their recovery trajectories. The performance of the regions will also **depend on their ability to adapt to the changes brought about by the pandemic**, such as a more intensive use of technologies and faster automation, as well as their flexibility to **reallocate resources to higher value-added activities.**



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