

Regional Economic Report
July – September 2021

BANCO DE MÉXICO

Published– General Purpose

Information published by Banco de México

Outline

I. Regional Economic Report

II. Results July – September 2021

A. Regional Economic activity

B. Regional Inflation

C. Outlook for the Regional Economies

(based on data collected between September 27 and October 21, 2021)

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' expectations 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 Q3-2021, and the prospects of business agents surveyed between September 27 and October 21, 2021 on regional economic activity and inflation over the following twelve months are analyzed herein.

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B. Inflation

C. Economic outlook

(based on data collected between September 27 and October 21, 2021)

III. Final remarks

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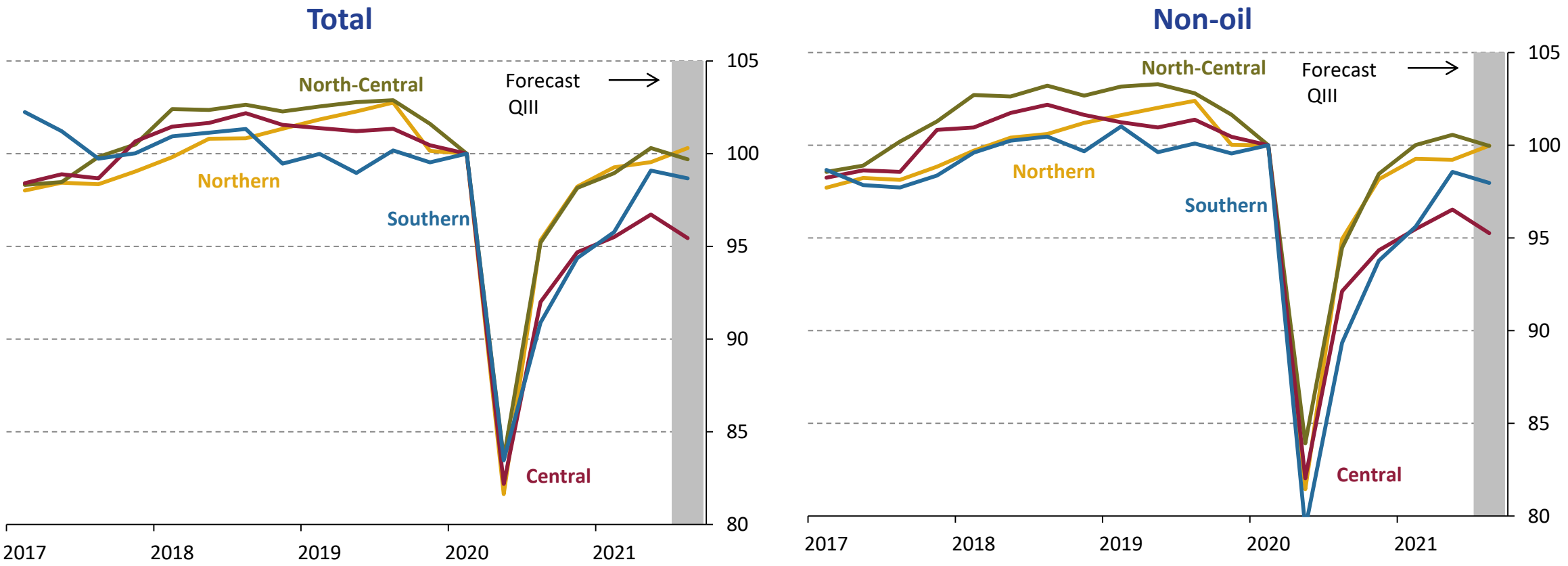
Regional Economic Activity

- **Economic activity** is estimated **to have contracted during Q3-2021 in the North-Central, Central and Southern regions**, after having recovered during the previous quarters. The following contributed to the above:
  - ✓ A less favorable evolution of tertiary activities, partly as a result of a temporary reduction in mobility caused by the upsurge of the pandemic, as well as a significant fall in business support services.
  - ✓ Weakening of the mining sector, and, with the exception of the Central region, of construction.
  - ✓ The negative evolution of the automotive industry due to the continued shortage of certain inputs.
- In contrast, activity in the **Northern region** is anticipated to **have continued expanding.**
  - ✓ The recovery in the Northern region has continued to benefit from the performance of manufacturing excluding transport equipment, while construction and agricultural and livestock product production has shown a favorable performance during Q3-2021.

In Q3-2021, the recovery in the Central and Southern regions is anticipated to have halted. In contrast, economic activity in the Northern region is expected to have closed its gap with respect to economic activity levels in Q1-2020.

Quarterly Indicator of Regional Economic Activity

Index Q1-2020=100, s. a.



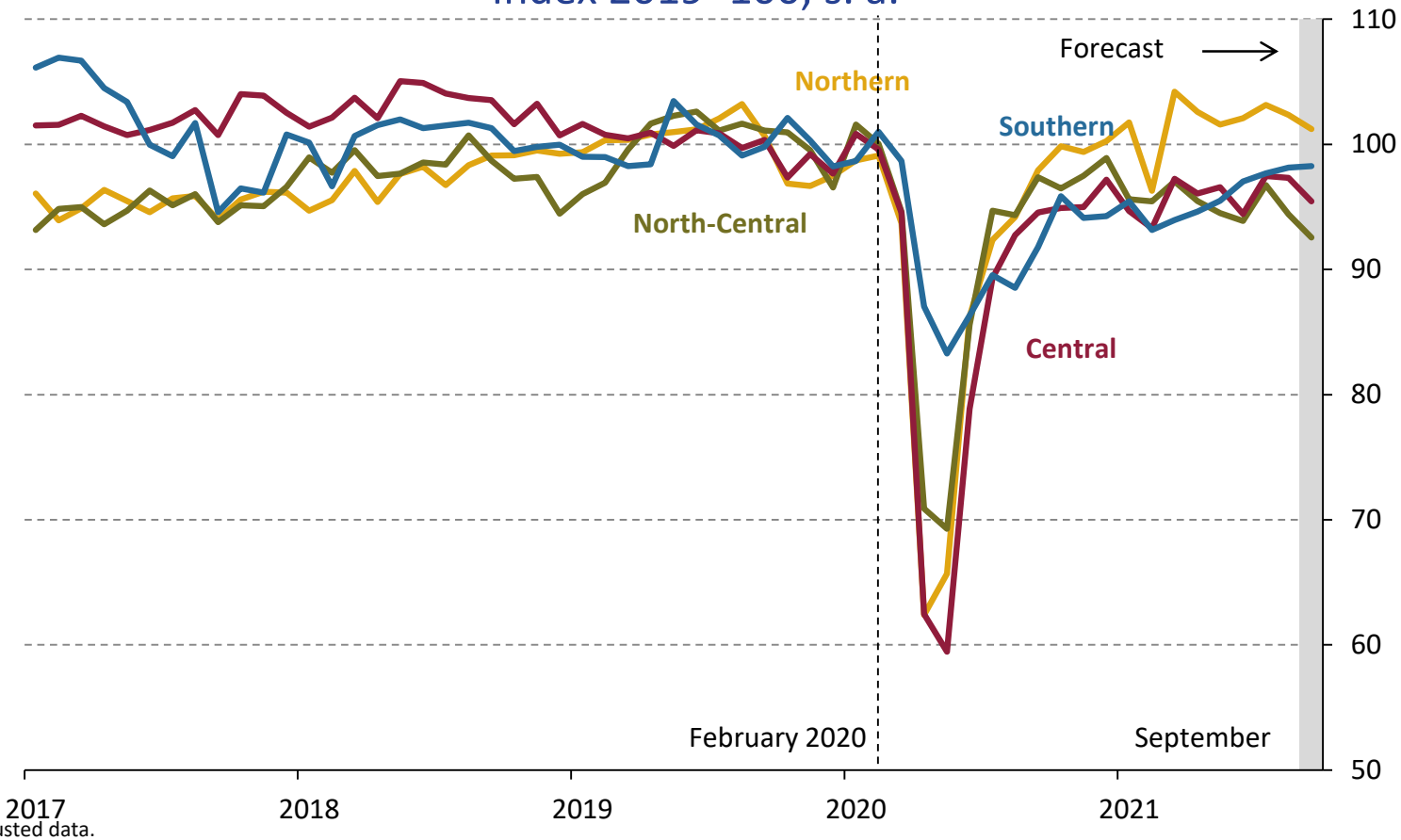
s. a. / Seasonally adjusted data.

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

For Q3-2021, manufacturing is estimated to have performed heterogeneously across regions. Transport equipment manufacturing has remained particularly affected by disruptions in input supply, while aggregate manufacturing excluding transport equipment maintained a positive trajectory in all regions.

Regional Manufacturing Indicator

Index 2019=100, s. a.



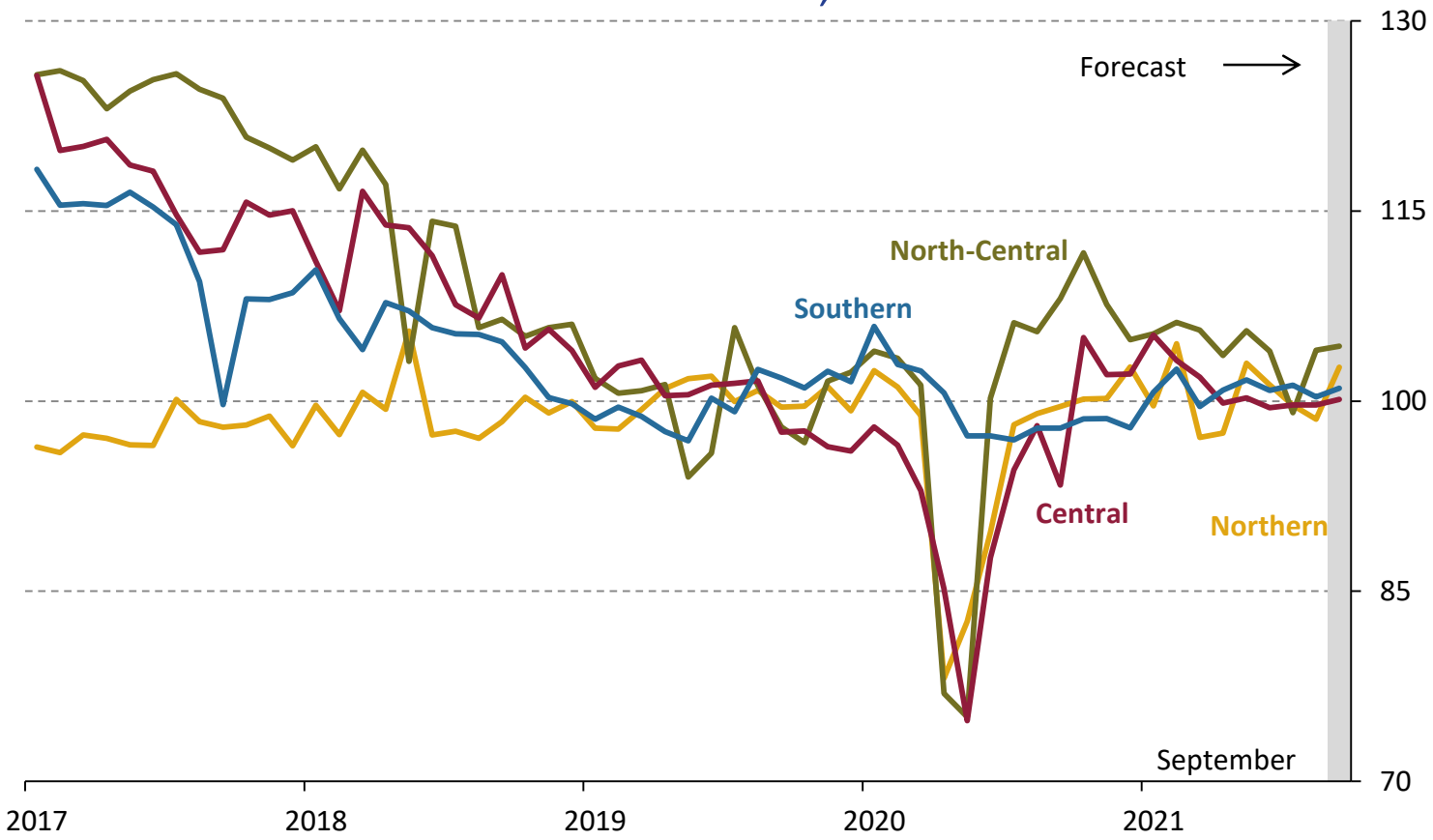
s. a. / Seasonally adjusted data.

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

In Q3-2021, mining in the Northern, North-Central and Southern regions is estimated to have contracted with respect to Q2-2021, while in the Central region it is estimated to have stagnated. The above, essentially as a consequence of the negative performance of oil extraction in the Northern and Southern regions, and of mineral extraction in the Central regions.

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

Index 2019=100, s. a.



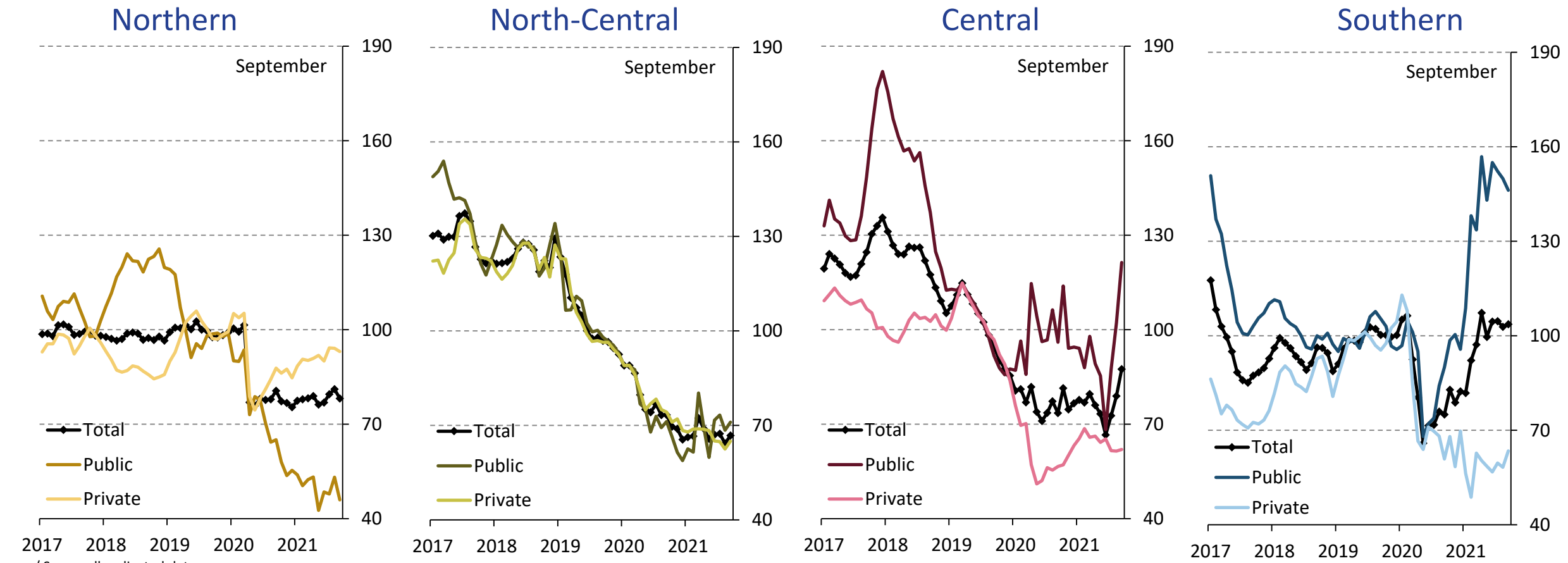
s. a. / Seasonally adjusted data.

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

In Q3-2021, construction improved slightly in the Northern region. In the center it reactivated due to the rebound in public construction. In contrast, in the North-Central region construction kept following a downward trajectory, while in the South it stagnated, although public construction remained at relatively high levels.

Real Value of Production in the Construction Industry by Region

Index 2019=100, s. a. 3-month moving average except for 2020 and 2021



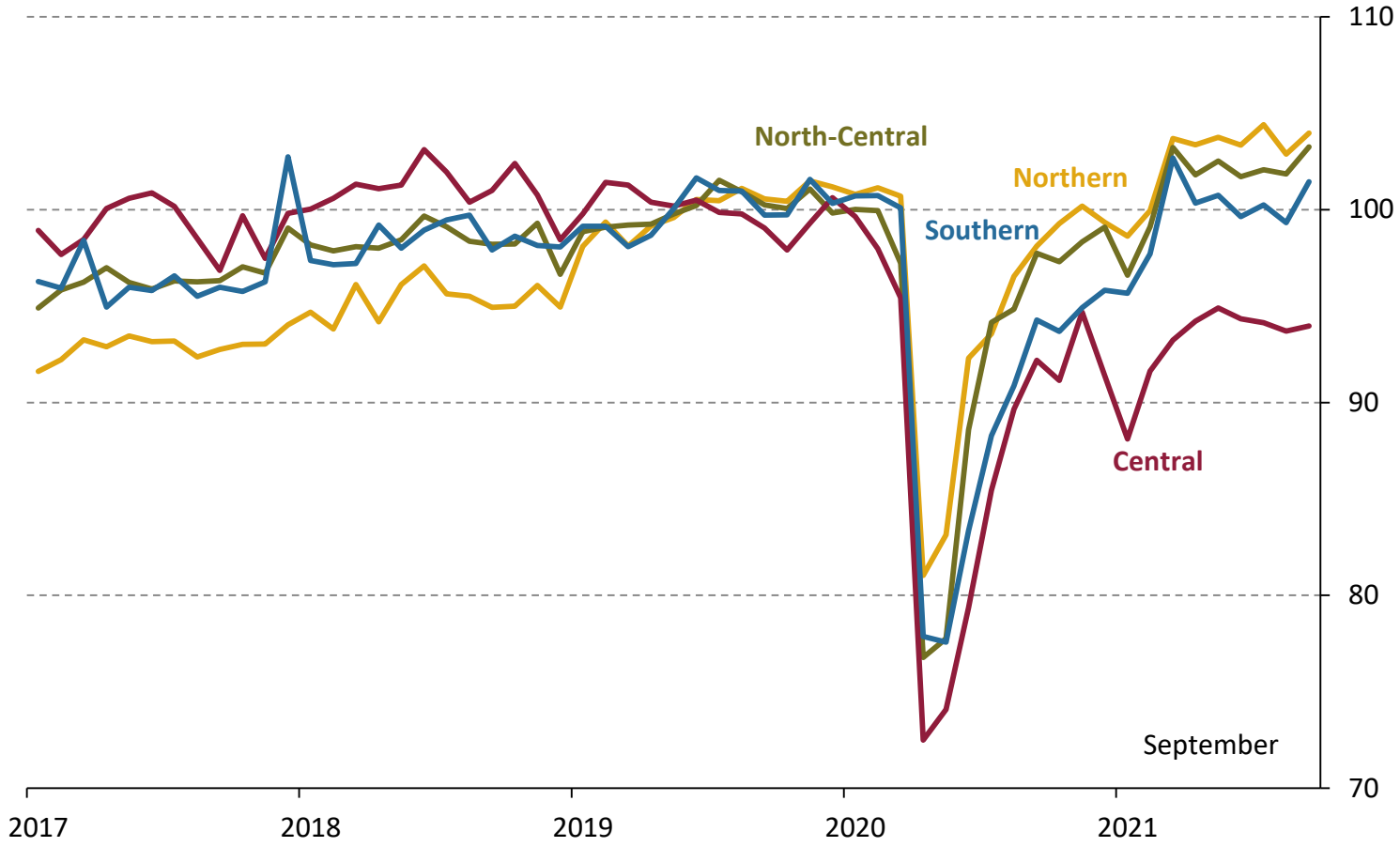
s. a. / Seasonally adjusted data.

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

During Q3-2021, commercial activity slowed down in all regions with respect to the previous quarter, even contracting in the Central region, so that it remains the region with the lowest recovery in the context of the pandemic.

Index of Revenues from Retailers' Supply of Goods and Services

Index 2019=100, s. a.



s. a. / Seasonally adjusted data.

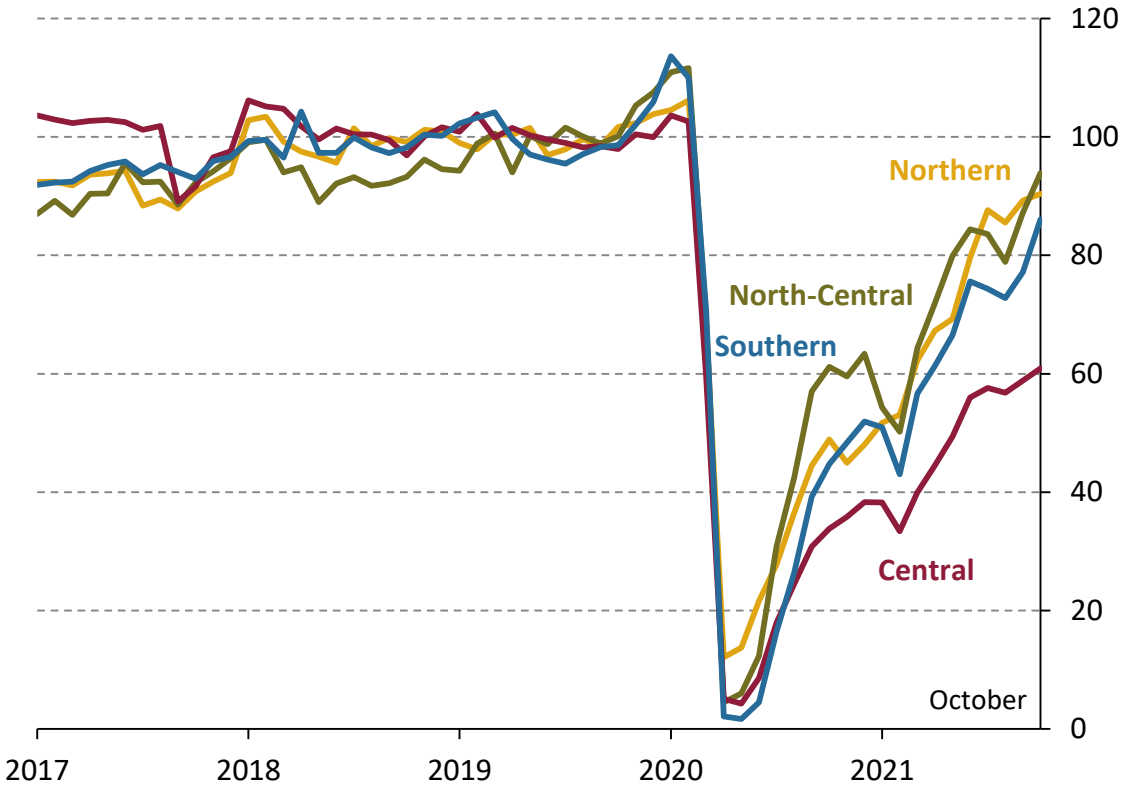
Source: Estimated and seasonally adjusted by Banco de México with the series of Revenues of Retailers' Supply of Goods and Services, by State, from INEGI.

Tourism continued to recover in Q3-2021 in all regions of Mexico, although at a slower rate than in Q2-2021 and still remaining below the levels registered prior to the beginning of the pandemic, especially in the Central region.

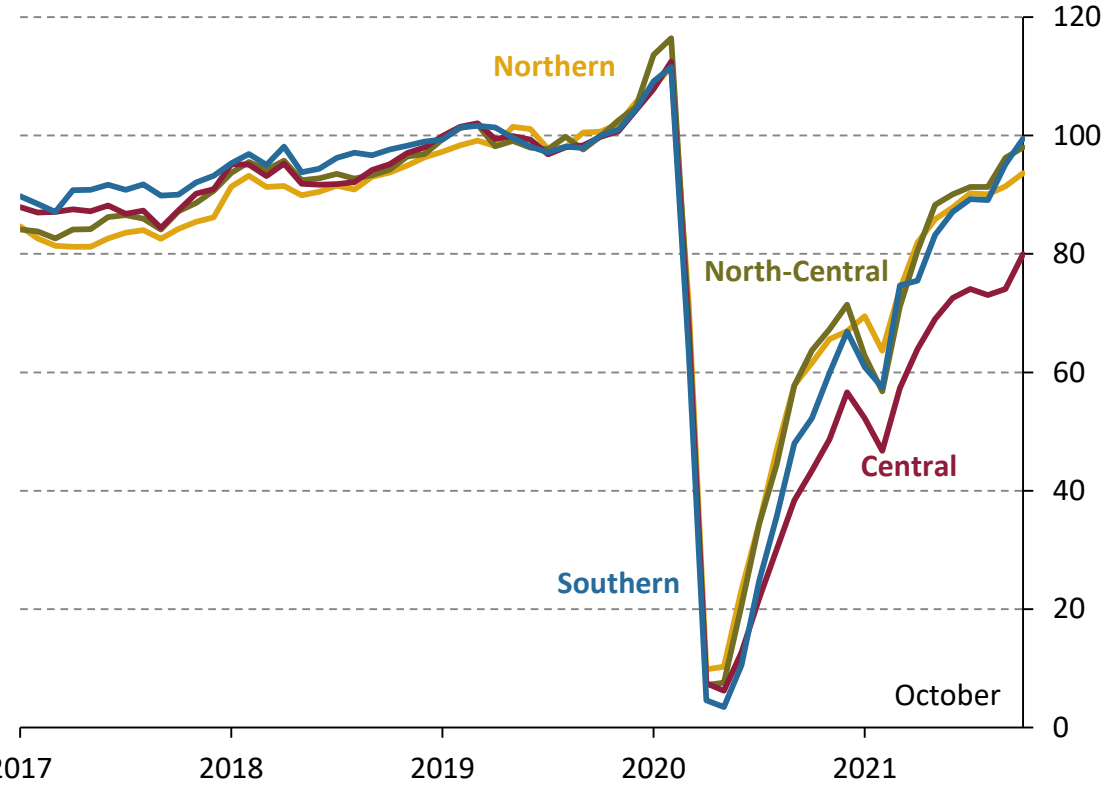
Regional Indicators of Tourism

Index 2019=100, s. a.

Hotel Occupancy



Inflow of Passengers to Airports



s. a. / Seasonally adjusted data.

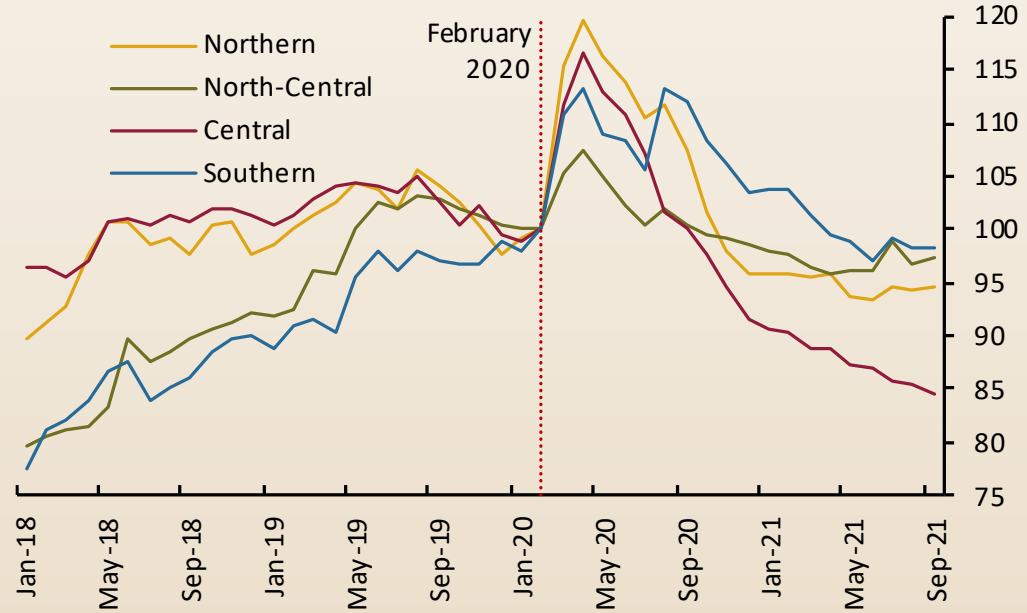
Source: Prepared and seasonally adjusted by Banco de México with data from the Mexican Secretariat of Tourism and the state-owned company Airport and Auxiliary Services (ASA, for its acronym in Spanish).

Regional Evolution of Bank Lending to Firms in the Context of the COVID-19 Pandemic

- During the first months of the pandemic, bank lending to firms increased in all regions. Subsequently, it has been declining, particularly in the Central region.

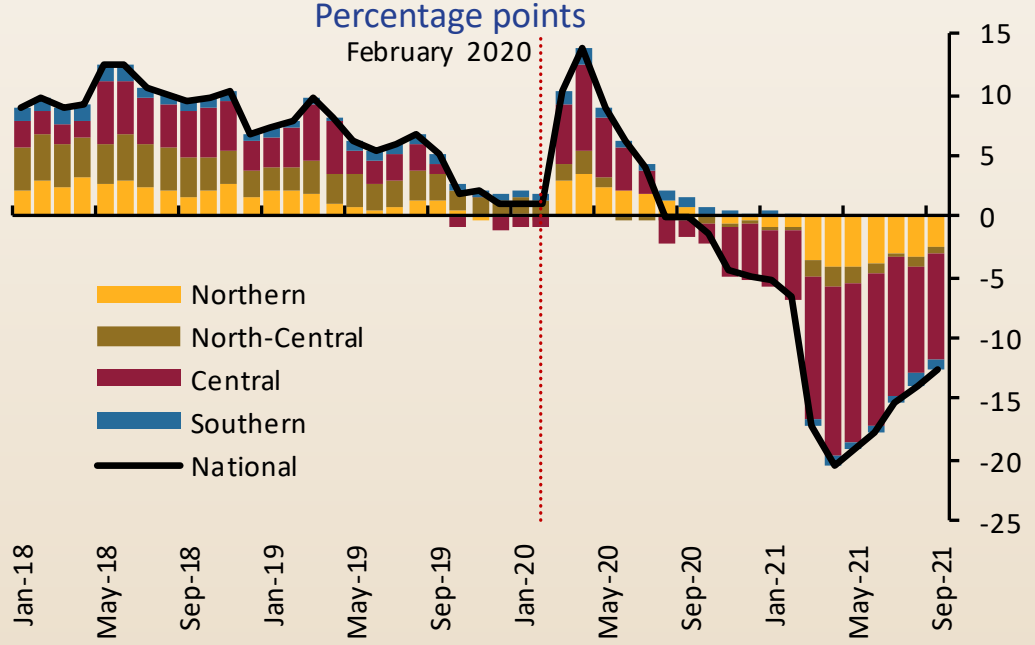
Commercial Banks' Performing Credit to Non-financial Private Firms, by Region 1/

Index February 2020 = 100



Regional Contribution to the Annual Real Change of Bank Lending to Non-financial Private Firms 1/

Percentage points



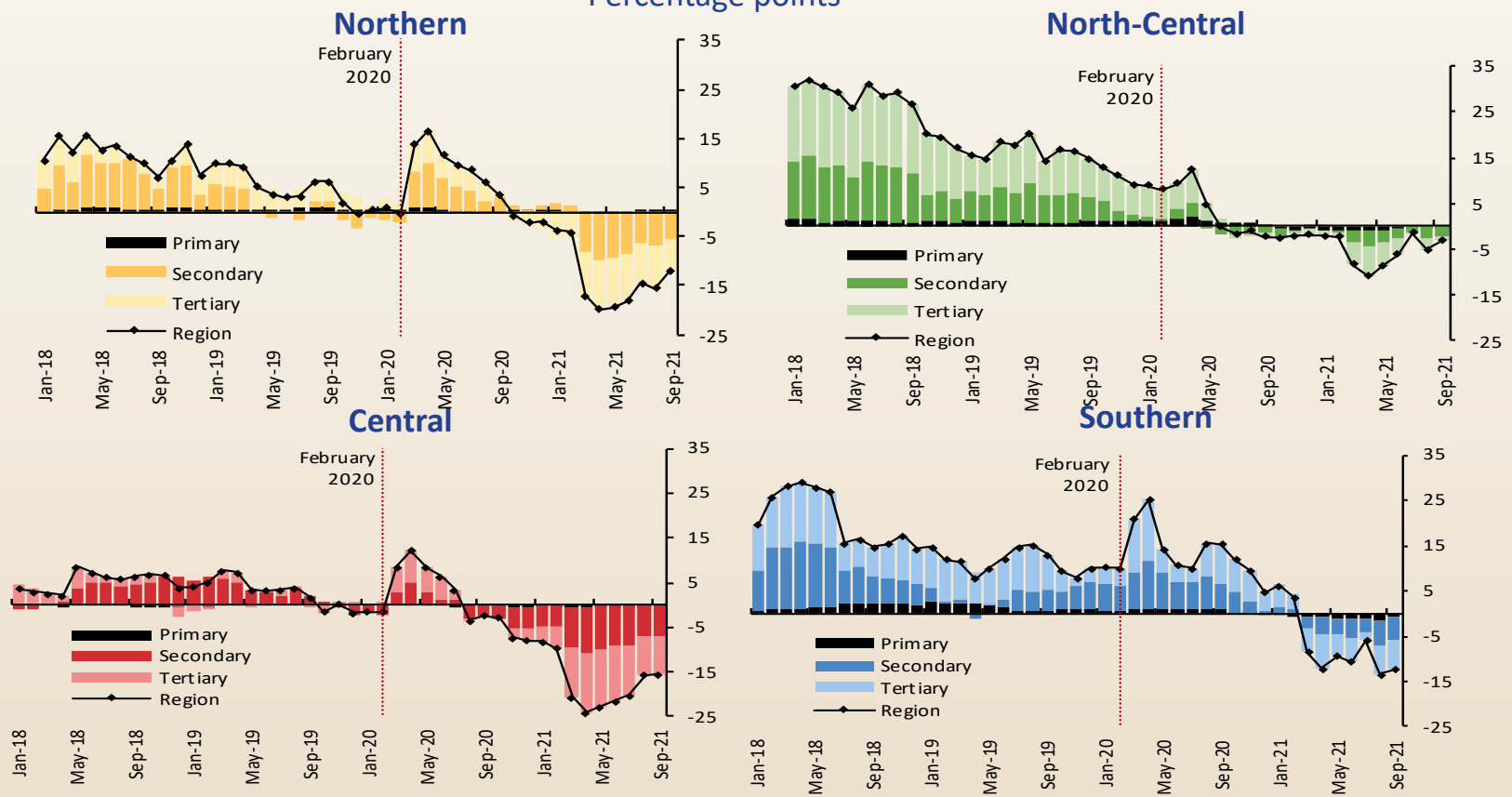
1/ Excludes regulated sofomes subsidiaries of banking entities and financial groups. Data are not corrected by effects of variations in the exchange rate, because the required information to do so is not available at the regional level.

Regional Evolution of Bank Lending to Firms in the Context of the COVID-19 Pandemic

- In the Central and North-Central regions, reductions are accounted for by the negative contribution from both the secondary and tertiary sectors in similar proportions.
- In the Northern and Southern regions, the negative contribution of the tertiary sector has been relatively more important in explaining the decline in credit.

Contribution by Sector to the Real Annual Change of Bank Lending to Non-financial Private Firms 1/

Percentage points



1/ Excludes regulated sofomes subsidiaries of banking entities and financial groups. Data are not corrected by effects of variations in the exchange rate, because the required information to do so is not available at the regional level.

Source: Banco de México.

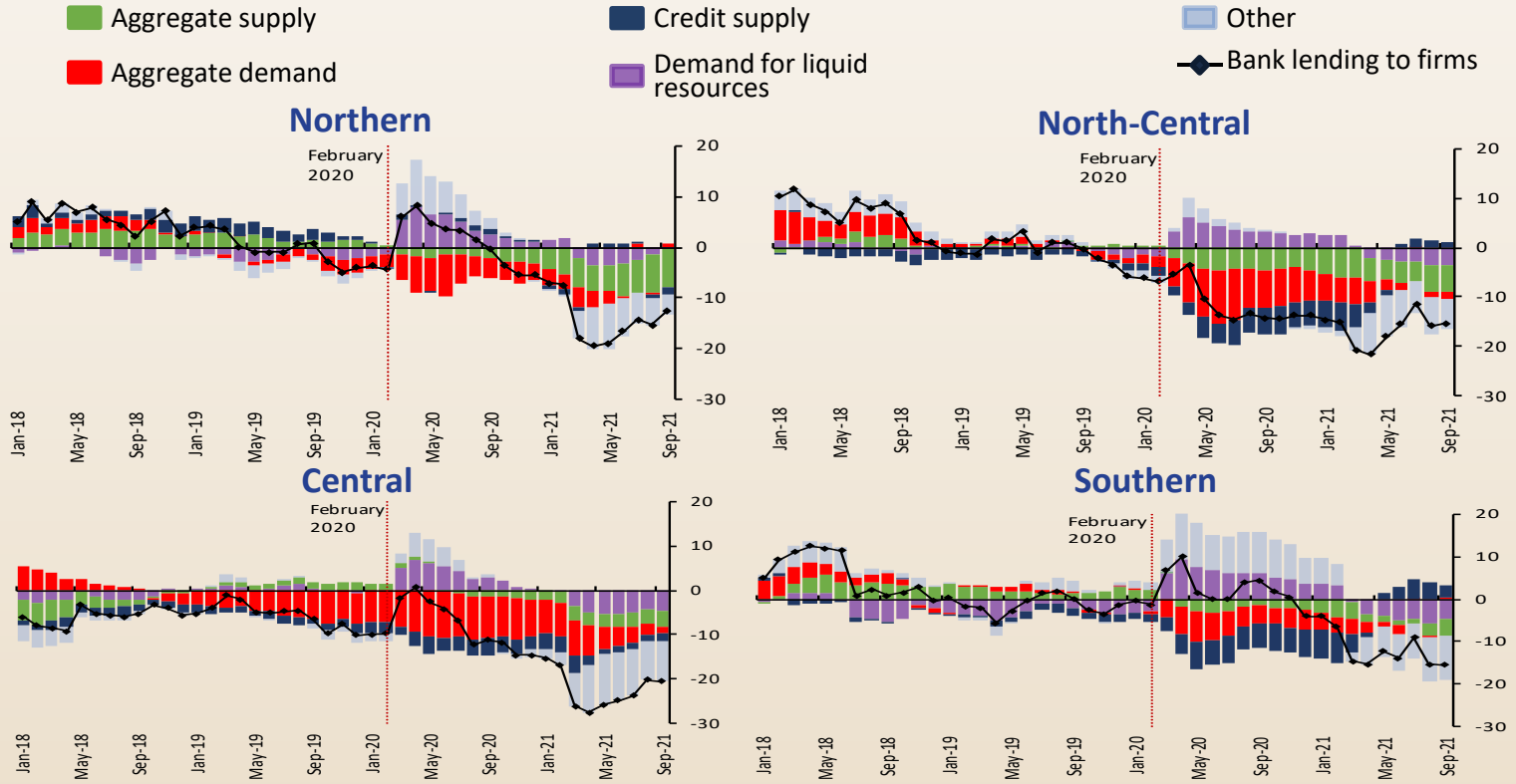
Regional Evolution of Bank Lending to Firms in the Context of the COVID-19 Pandemic

- By estimating an econometric model, the contributions of four shocks on the real annual change of bank lending to firms are identified.
- The results suggest that, during the pandemic, shocks to economic activity affected the evolution of bank lending to firms in all regions:
  - Aggregate demand shocks contributed to a greater degree in the Central region.
  - The contribution of aggregate supply shocks was higher in the Northern region.
- The shock of credit demand from liquidity had an upward impact in all regions.
- Shocks to supply of banking lending contributed negatively in the North-Central, Central, and Southern regions during 2020.

Historical Decomposition of Bank Lending to Non-financial Private Firms [1/]

Real annual change excluding the historical average [2/]

Percentage points



1/ Excludes regulated sofomes subsidiaries of banking entities and financial groups. Data are not corrected by effects of variations in the exchange rate, because the required information to do so is not available at the regional level.

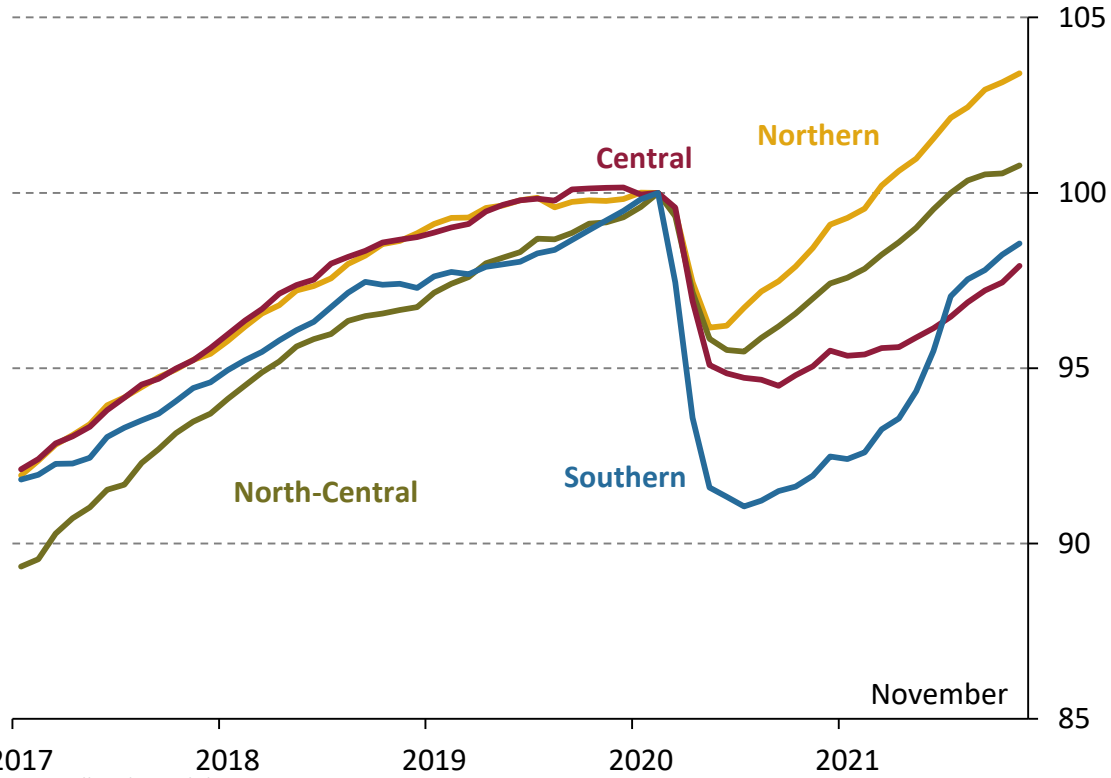
2/ The black line denotes the deviation of the annual change of performing bank credit with respect to its estimated long-term average, in line with the model.

Source: Banco de México.

During Q3-2021, the number of IMSS-insured workers continued to recover, while unemployment rates have continued to decline in all regions.

Number of IMSS-insured Workers

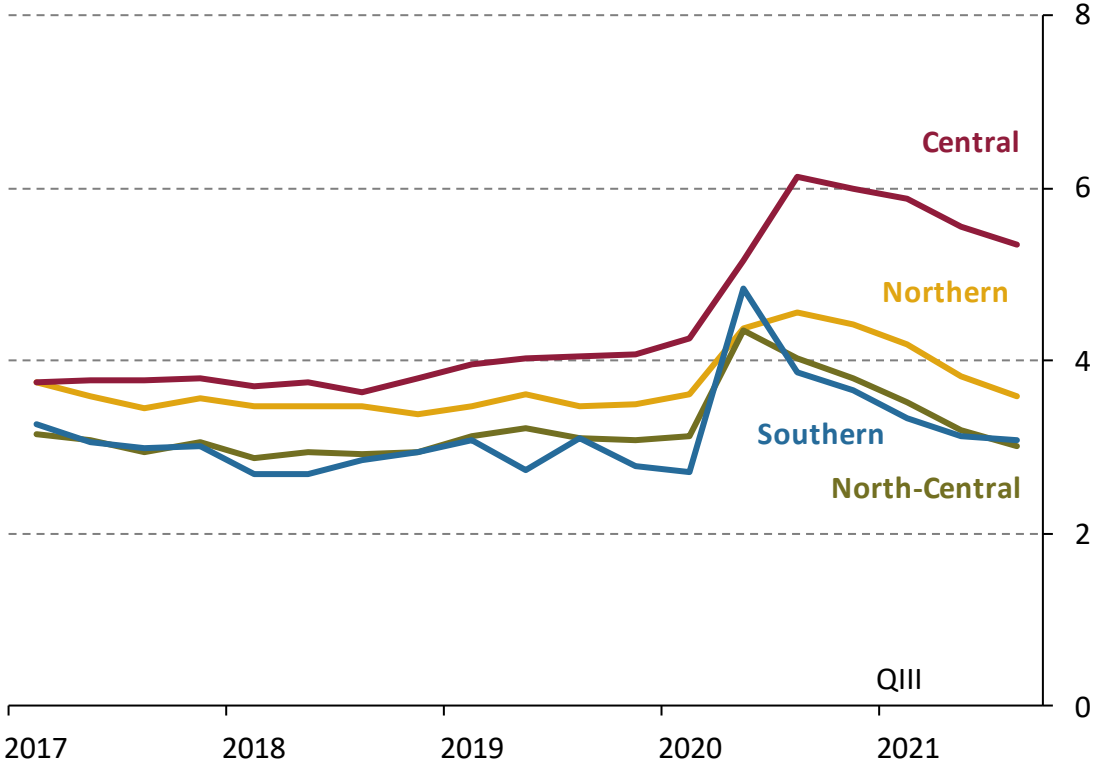
Index Q1 2020=100, s. a. 1/



a. s. / 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. 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). Mexican states' population figures were obtained from INEGI.

Remote Work and Close Proximity Jobs during the COVID-19 Pandemic

- The COVID-19 pandemic has implied a **deep shock** to services that require **physical proximity** between consumers.
- The negative effect of the pandemic on high proximity employment has been larger where a **higher share of the employed personnel** can work **remotely**.

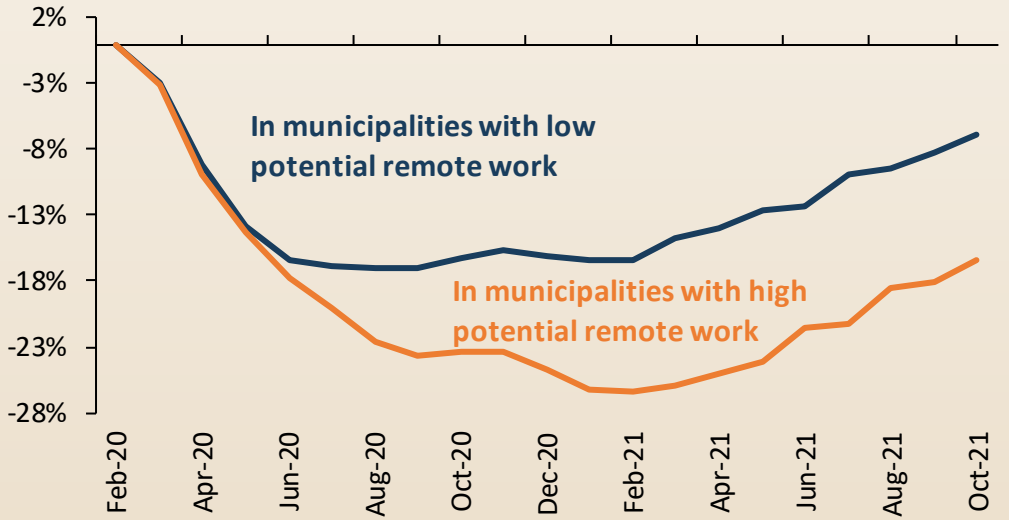
IMSS-Insured Jobs in Sectors of High and Low Proximity

Gaps with respect to February 2020 in percent



High Proximity IMSS-Insured Jobs

Gaps with respect to February 2020 in percent



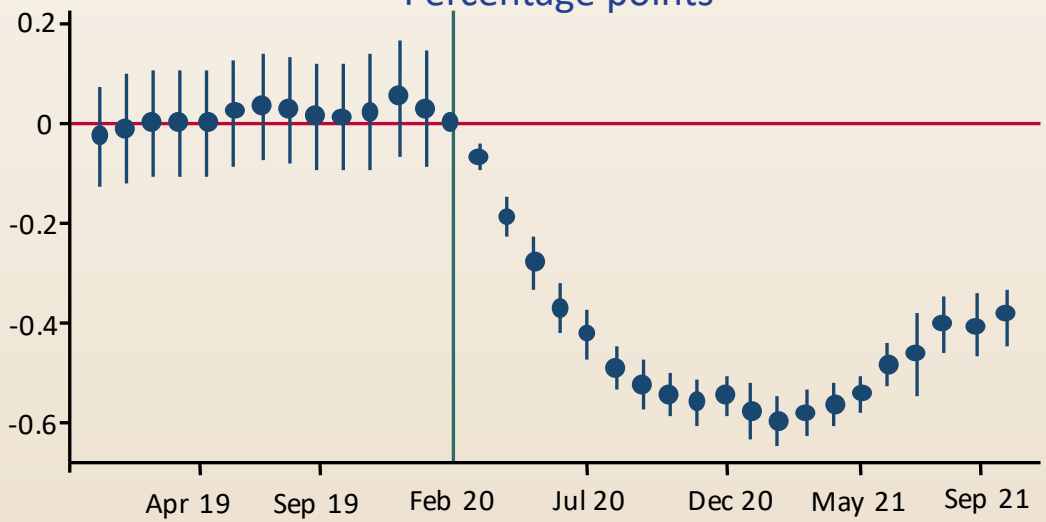
Note: High proximity employment includes the subsectors of IMSS-insured jobs of food and beverage preparation and recreational and leisure services. Low proximity employment includes the rest of the subsectors classified by the IMSS, excluding air transportation services and temporary accommodation services.
Source : Prepared by Banco de México with data from IMSS.

Remote Work and Close Proximity Jobs during the COVID-19 Pandemic

- The **negative effect of remote work** on **high proximity jobs** during the pandemic is **quantified** using a **triple difference model**.
- The estimation strategy compares the gaps in employment along **three dimensions**:
  - Geographical: Municipalities with a higher or lower share of potential remote work.
  - Sectoral: High proximity vs low proximity work.
  - Temporal: Periods before and after the beginning of the pandemic.

Effect of a 1pp Increase in the Share of Potential Remote Work on the Gap in IMSS-insured Jobs of High Proximity Sectors

Percentage points



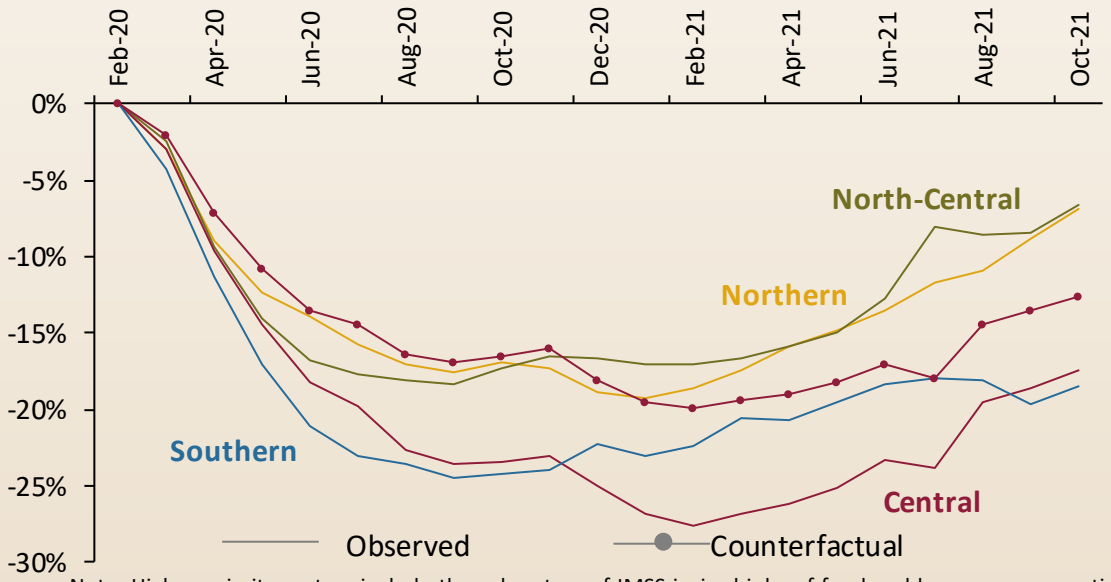
Note: The reported coefficients result from estimating the event study described in the main document. Vertical bars represent 95% confidence intervals, estimated based on clustered standard errors at the municipal level. High proximity employment includes the subsectors of IMSS-insured jobs of food and beverage preparation and recreational and leisure services.
Source: Prepared by Banco de México with data from IMSS, Census of Population and Housing 2020, the Ministry of Health, and Banco de México.

Remote Work and Close Proximity Jobs during the COVID-19 Pandemic

- The additional **reduction** in **demand for high-proximity services** associated to **remote work** seems to explain part of the **greater weakness** in employment in said services in the **Central region**.
- Of all regions, workers in high proximity sectors in the **Central one** were the **most exposed to remote work** .
- In a **counterfactual** in which all municipalities in the Central region had **the same potential for remote work** (equal to the national average), the gap in high-proximity jobs would **narrow significantly.**

Gaps in IMSS-insured Jobs in High Proximity Sectors

Gaps with respect to February 2020 in percent



Note: High proximity sectors include the subsectors of IMSS-insired jobs of food and beverage preparation and recreational and leisure services.
Source: Prepared by Banco de México with data from IMSS and the Census of Population and Housing 2020.

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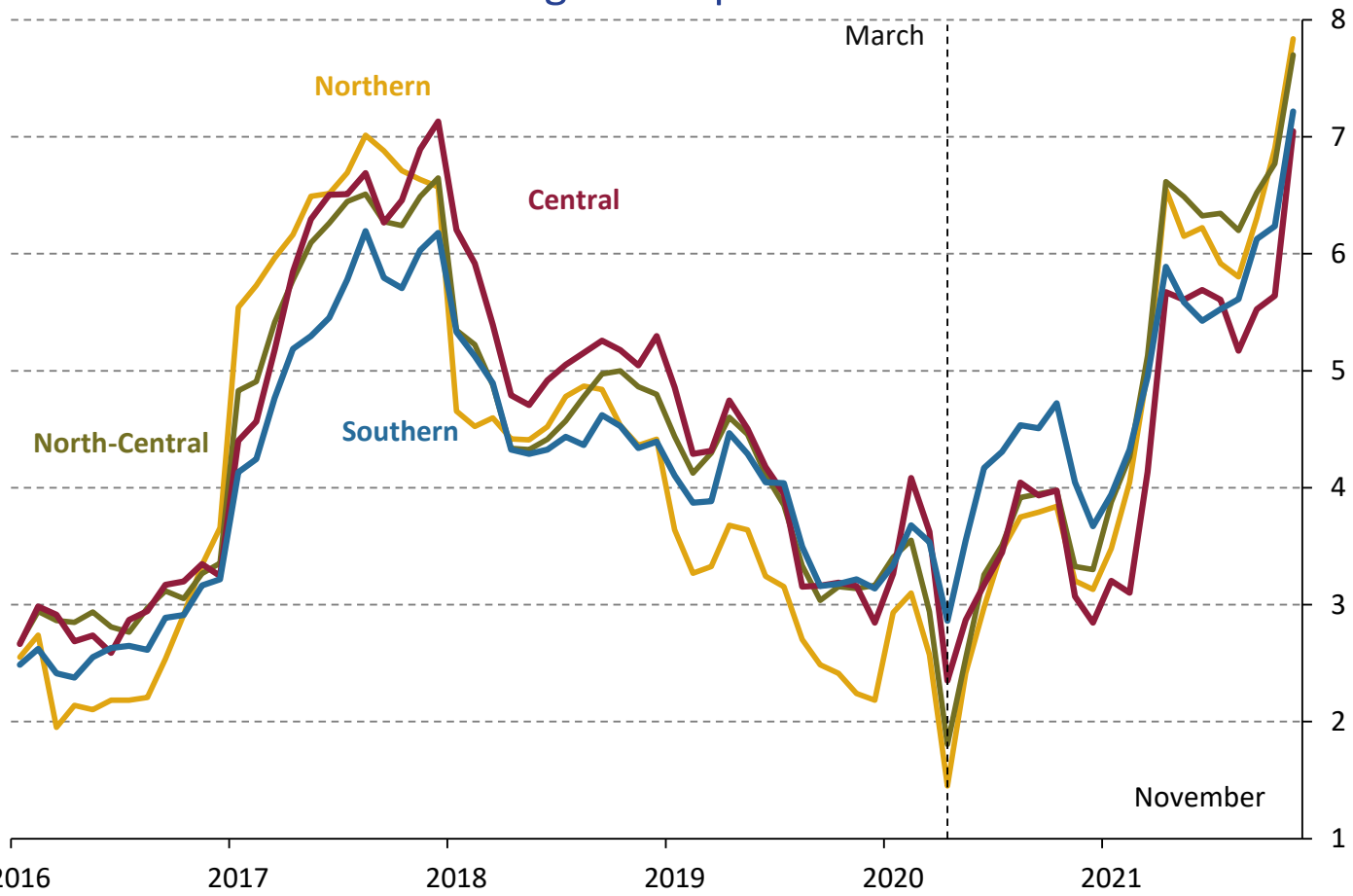
III. Final remarks

Information published by Banco de México

In Q3-2021, annual inflation was high in all regions, as it continued to be affected by the direct and indirect impact associated with the pandemic. Subsequently, it increased further in November, reaching in the Northern, North-Central and Southern regions the highest levels in decades.

Annual Headline Inflation by Region

Figures in percent

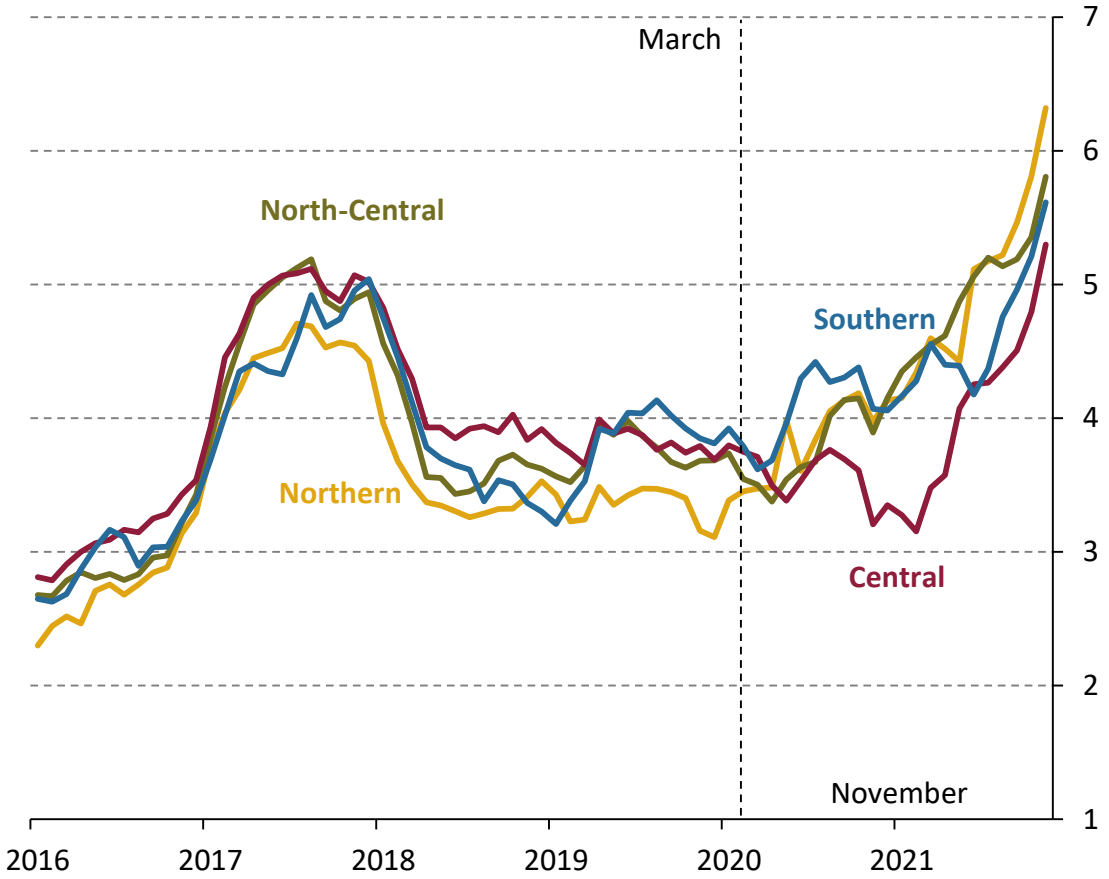


Source: Prepared by Banco de México with INEGI data.

In all regions, core inflation followed an upward trend in Q3-2021 and at the beginning of Q4-2021. This reflected cost-related pressures, bottlenecks in supply chains, a reallocation of household spending towards merchandise, as well as a gradual reopening of services.

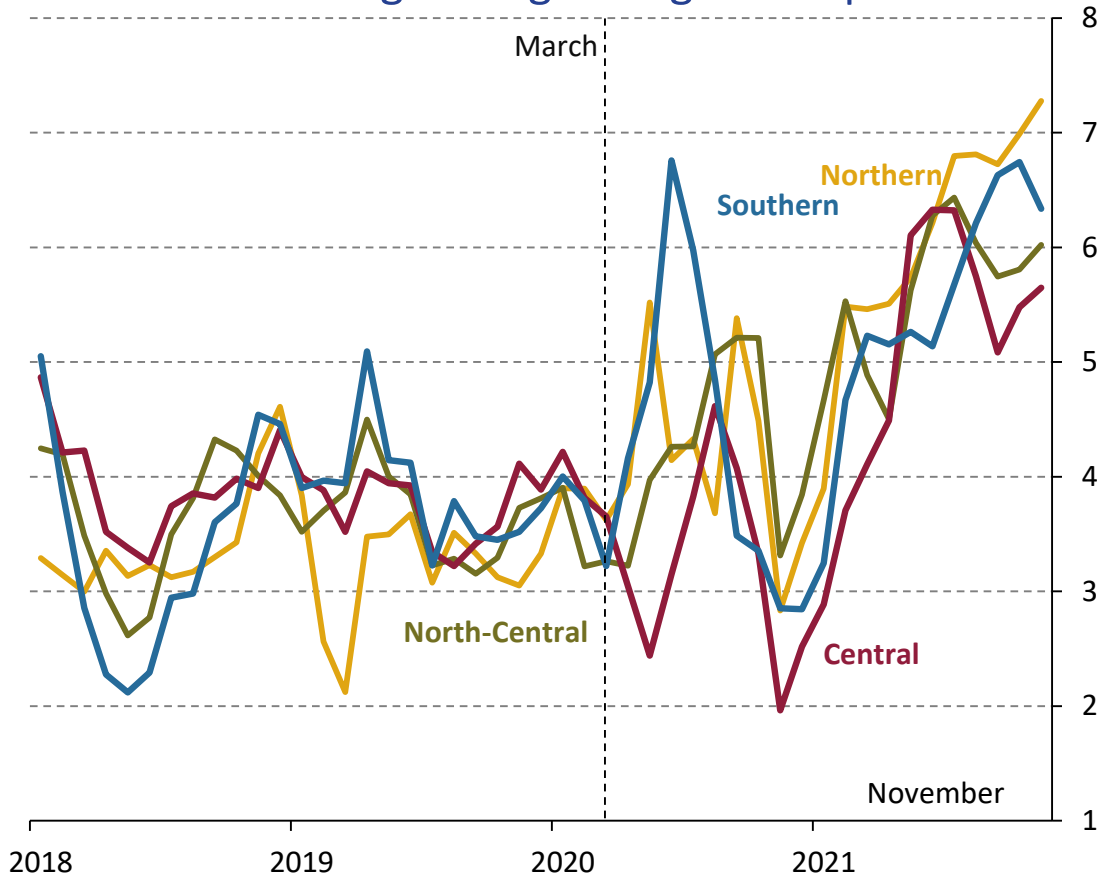
Annual Core Inflation by Region

Figures in percent



Annualized Seasonally Adjusted Monthly Variation of the Core Inflation Index

3-month moving average of figures in percent

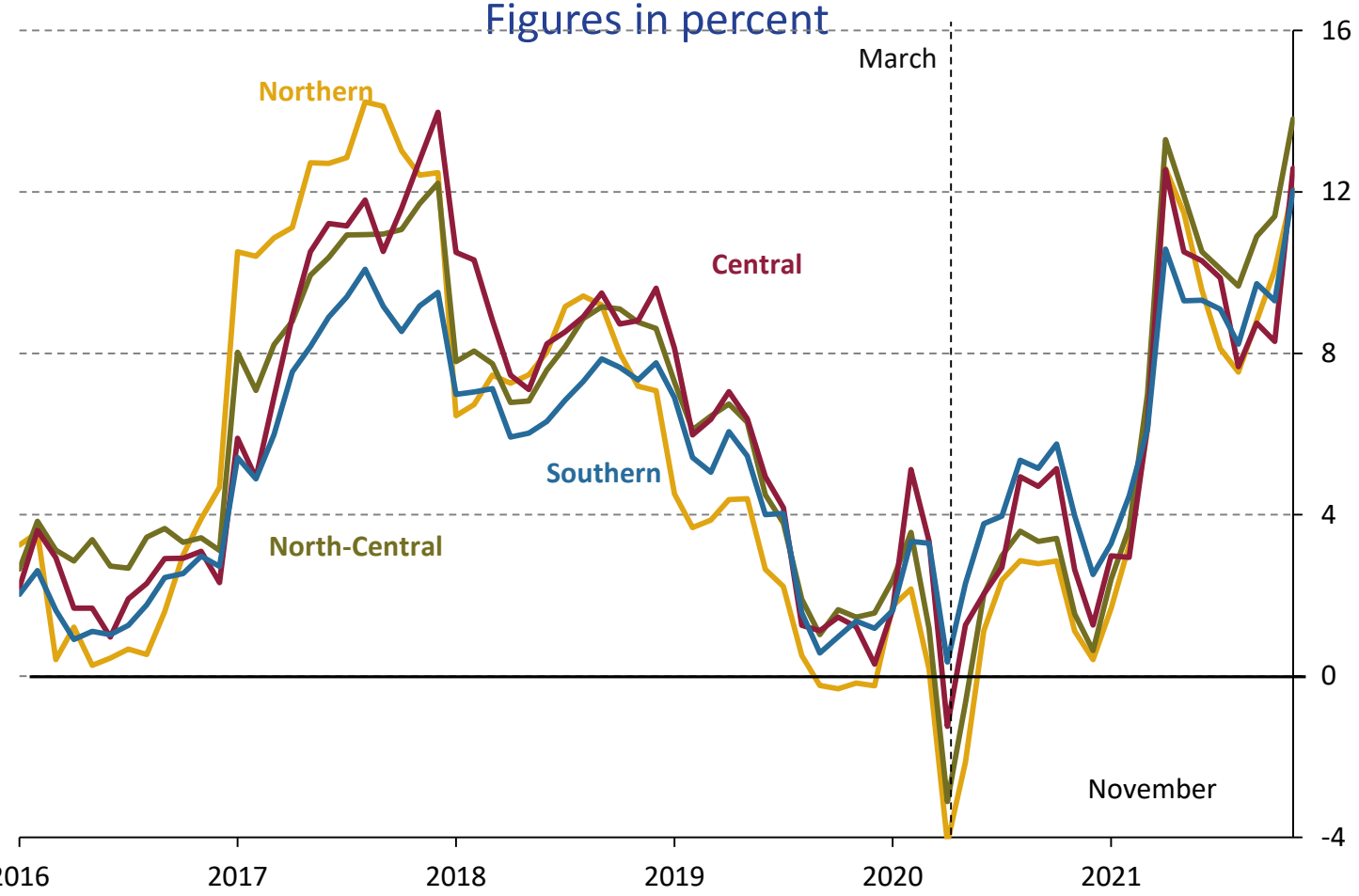


Source: Prepared by Banco de México with INEGI data.

In all regions, non-core inflation decreased between Q2-2021 and Q3-2021, although it remained at high levels in all of them. Subsequently, it has rebounded during Q4-2021 so far.

Annual Non-core Inflation by Region

Figures in percent



Source: Prepared by Banco de México with INEGI data.

Business Inflation Expectations

- The purpose of this box is to present the special module of the Monthly Survey of Regional Economic Activity (EMAER, for its acronym in Spanish) that Banco de México implemented since February 2020, in which business managers are surveyed about the levels of inflation they expect for the next 12 months as measured by the variations of the Consumer Price Index (CPI).

Survey of Business Inflation Expectations

INTERVAL QUESTION

For the next 12 months, indicate what probability you would assign to headline inflation, as measured by the annual variation in the Consumer Price Index (CPI), of being in the indicated ranges.

	Probability
Lower than 0.0 %	%
0.0 to 1.0 %	%
1.1 to 2.0 %	%
2.1 to 3.0 %	%
3.1 to 4.0 %	%
4.1 to 5.0 %	%
5.1 to 6.0 %	%
Higher than 6.0 %	%

For the next 12 months, what is your expectation for headline inflation as measured by the annual variation in the Consumer Price Index (CPI)?

Headline inflation for the next 12 months: %

3-SCENARIO QUESTION

For the next 12 months, what is the headline inflation, as measured by the annual variations in the Consumer Price Index (CPI), that you would expect in each of the following scenarios and the probability of them occur?

	Headline inflation rate	Probability of occurrence
- LOWEST POSSIBLE:	%	%
- MEDIUM:	%	%
- HIGHEST POSSIBLE:	%	%

5-SCENARIO QUESTION

For the next 12 months, what is the headline inflation, as measured by the annual variations in the Consumer Price Index (CPI), that you would expect in each of the following scenarios and the probability of them occur?

	Headline inflation rate	Probability of occurrence
- LOWEST POSSIBLE:	%	%
- LOW	%	%
- MEDIUM:	%	%
- HIGH	%	%
- HIGHEST POSSIBLE:	%	%

*/ This question has been included in the survey since February 2021.

Note: The sum of the probabilities in each question should be 100. Three independent groups of firms were randomly selected from the EMAER directory and one of these 3 questions was assigned solely and permanently to one of these groups.

Business Inflation Expectations

- In the answers to the interval question, in more recent months, a shift in the allocation of probabilities toward intervals with higher inflation expectations was observed. Specifically, for October 2021, the highest probability averages were located in the 4.1 and 5.0% range for the Northern and North-Central regions, and in the 5.1 and 6.0% range for the Central and Southern regions.

Inflation Expectations for the Next 12-Months

Heat map of the average probability of being located in different intervals*

Lower probability — Higher probability

Interval	National Feb-20	National Oct-21	Northern Feb-20	Northern Oct-21	North-Central Feb-20	North-Central Oct-21	Central Feb-20	Central Oct-21	Southern Feb-20	Southern Oct-21
Above 6.0 %	18.4		15.9		17.4		21.1		17.0	
5.1 to 6.0 %	23.1		18.9		20.7		26.6		24.6	
4.1 to 5.0 %	25.4		26.6		30.7		22.8		23.0	
3.1 to 4.0 %	18.9		19.5		19.6		19.2		15.4	
2.1 to 3.0 %	7.3		11.3		6.3		4.6		8.2	
1.1 to 2.0 %	3.2		4.1		2.7		2.1		5.6	
0.0 to 1.0 %	2.0		2.0		2.0		1.6		3.3	
Below 0.0 %	1.8		1.7		0.7		2.0		2.8	

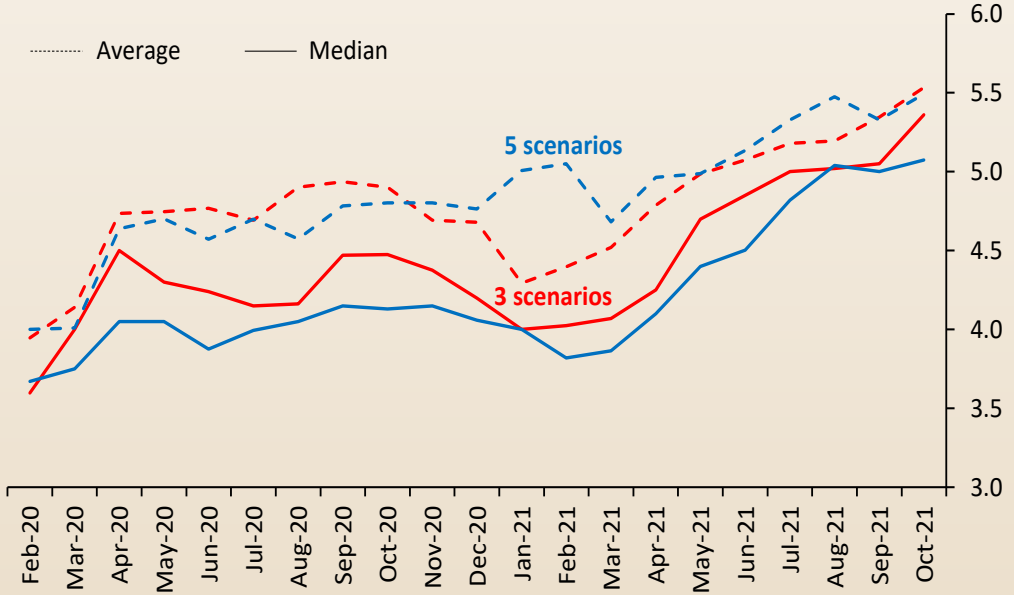
*/ The intensity of the color is proportional to the average of the probability that firms assign to inflation being located in different intervals.
Source: Prepared by Banco de México with information from EMAER manufacturing and non-manufacturing sector.

Business Inflation Expectations

- The responses to the scenarios questions show that average and median inflation expectations, at the national and regional levels, have followed an upward trend during 2021.

12-Month Business Inflation Expectations, Average and Median at the National Level

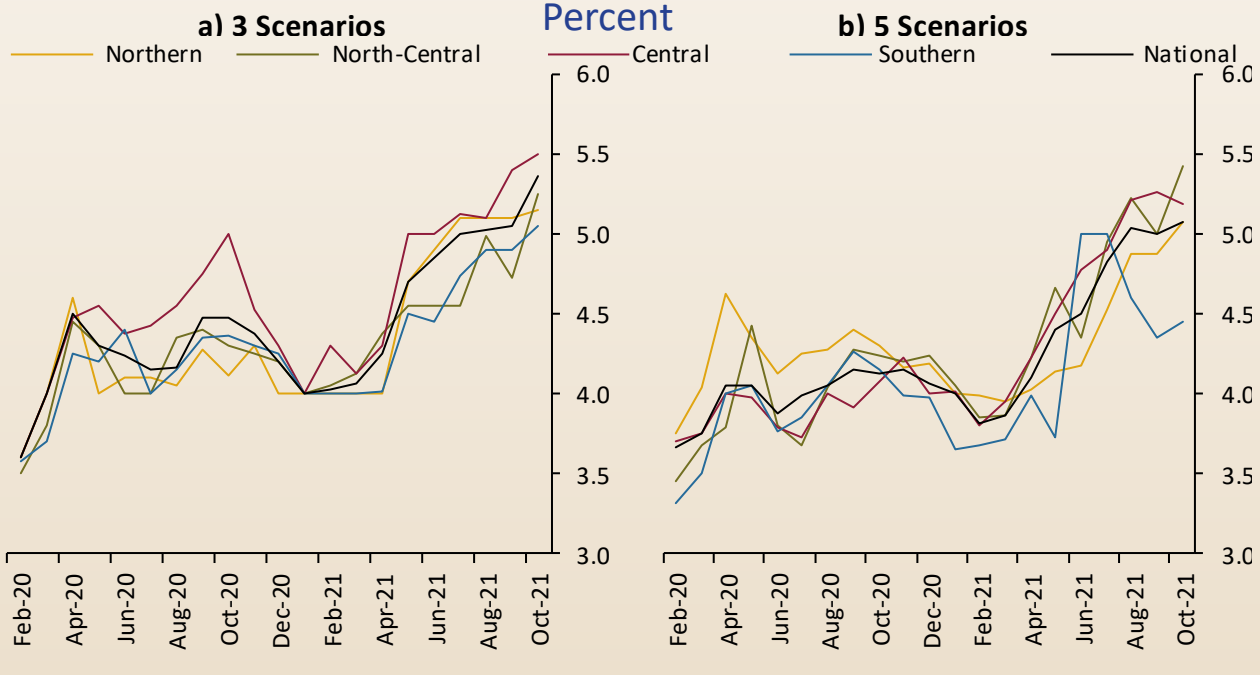
Percent



Source: Prepared by Banco de México with information from EMAER manufacturing and non-manufacturing sector.

12-Month Business Inflation Expectations, Medians by Region

Percent



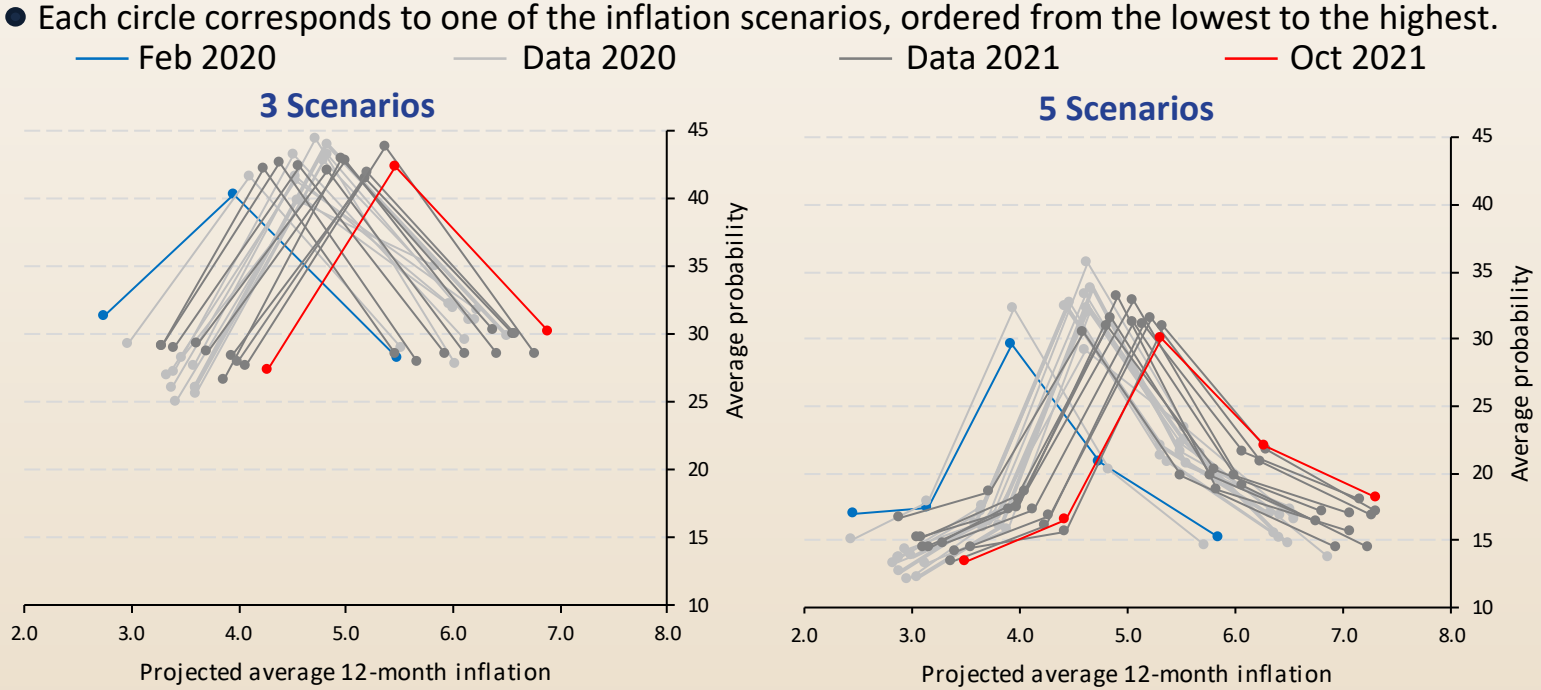
Source: Prepared by Banco de México with information from EMAER manufacturing and non-manufacturing sector.

Business Inflation Expectations

- The average distribution of business inflation expectations has shifted to the right indicating that firms anticipate higher inflation rates. It is also observed that inflation-related uncertainty has remained relatively stable.

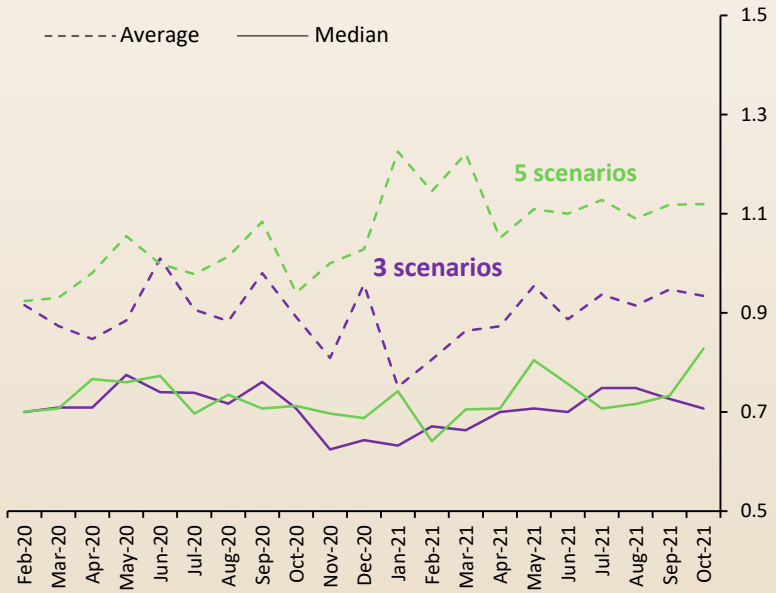
12-Month Probability and Expected Inflation

● Each circle corresponds to one of the inflation scenarios, ordered from the lowest to the highest.



Note: The light gray lines represent the distributions for the months from March to December 2020 and the dark gray lines represent the distributions for the months from January to September 2021.
Source: Prepared by Banco de México with information from EMAER manufacturing and non-manufacturing sector.

Standard Deviation of 12-Month Inflation Expectation by Firm

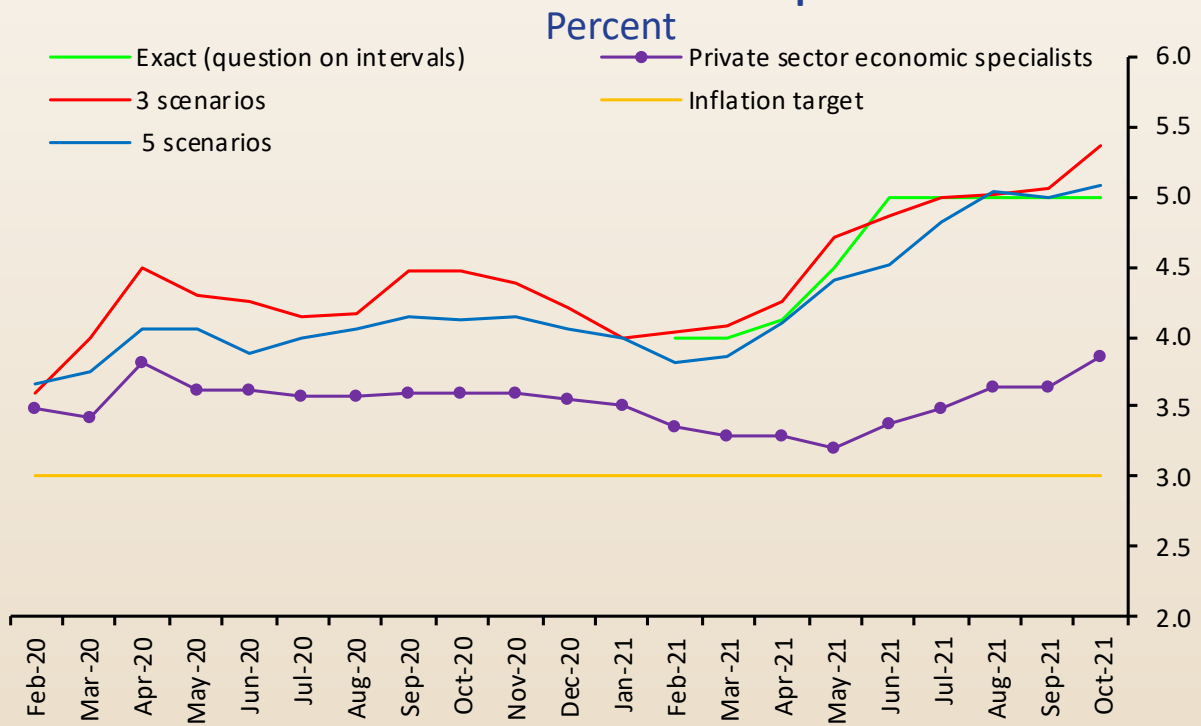


Source: Prepared by Banco de México with information from EMAER manufacturing and non-manufacturing sector.

Business Inflation Expectations

- During the period for which information is available, firms' 12-month headline inflation expectations have been above those of private sector economic specialists.

Median of 12-Month Inflation Expectations of Firms and Private Sector Economic Specialists



Source: Prepared by Banco de México with information from the Monthly Survey of Regional Economic Activity and the Survey on the Expectations of Private Sector Economic Specialists.

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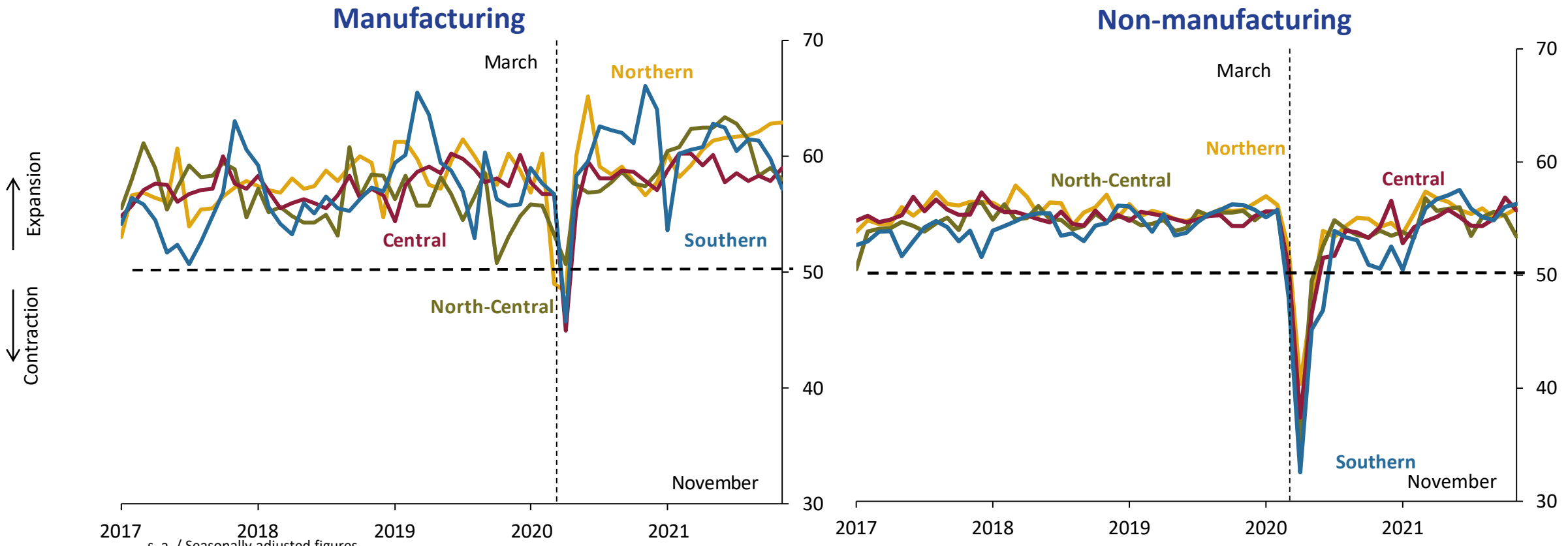
III. Final remarks

Information published by Banco de México

Regional Manufacturing and Non-Manufacturing Orders Indices remain in expansionary territory.

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

Diffusion indexes, s. a.

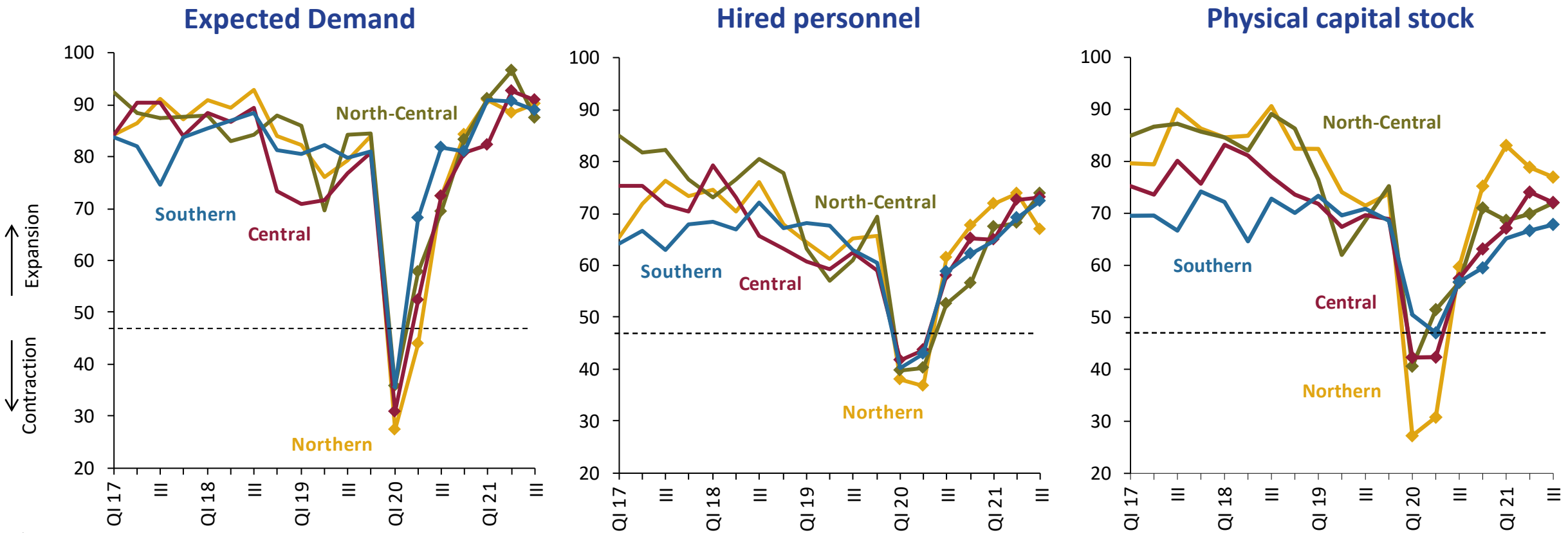


s. a. / Seasonally adjusted figures.
Source: Banco de México.

The diffusion indices for expectations on demand, number of workers, and firms' fixed asset investment continued in expansionary zone in all regions during Q3-2021.

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

Percentage of responses



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 employed in your company to change over the next 12 months," and "With respect to the investment in fixed assets made by your company over the previous 12 months, how do you expect the level of investment to change over the next 12 months," conducted in the interviews carried out by Banco de México. Expectations corresponding to the Report for the first quarter of 2020 and the third quarter of 2021 were collected between March 23 and April 23, 2020 and September 27 and October 21, 2021, respectively.

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

Based on information collected between September 1 and September 29, 2021 [1/]

	Northern		North-Central		Central		Southern	
	Factor	Percentage of responses	Factor	Percentage of responses	Factor	Percentage of responses	Factor	Percentage of responses
1	Inflation	**24.9%**	Governance	**24.9%**	Domestic economic conditions	**24.7%**	Inflation	**27.9%**
2	Domestic economic conditions	**20.8%**	Domestic economic conditions	**23.7%**	Inflation	**24.5%**	Domestic economic conditions	**25.7%**
3	Governance	**19.8%**	Inflation	**20.7%**	Governance	**21.5%**	Governance	**20.6%**

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 the Expectations of Private Sector Economic Specialists. Figures for September 2021 were obtained based on information collected between September 1 and September 29, 2021.
Source: Banco de México.

Business Agents' Opinion on Risks to Regional Economic Activity (based on data collected between September 27 and October, 2021) 1/

Upward risks

- That the number of infections remains low due to increased vaccination coverage.
- That the flow of private investment increases due to the possibility that the US economy continues growing.
- That public spending increases at the federal and local levels.

Downward risks

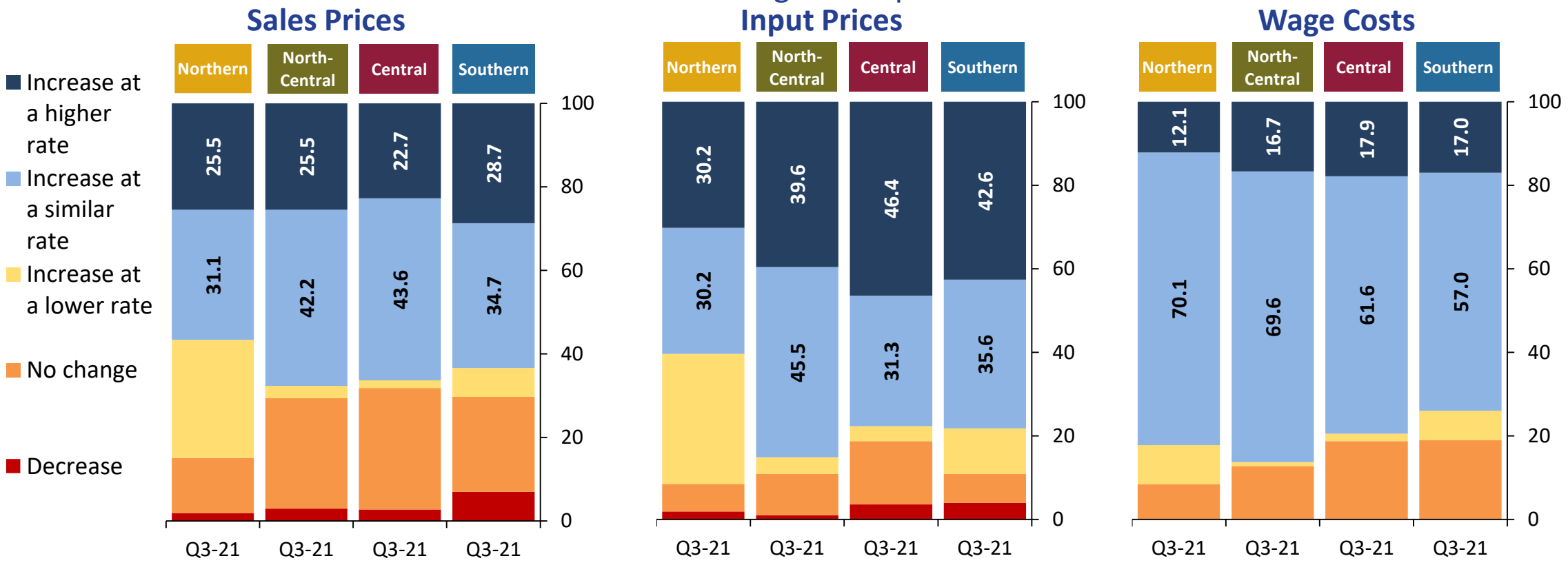
- That public safety indicators continue to deteriorate.
- That domestic uncertainty persists and affects investment.
- That the intensification of the pandemic leads to a reversal of the economic reopening that has been observed.

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 September 27 and October 21, 2021.

In all regions, most interviewed business agents anticipate that the sale 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

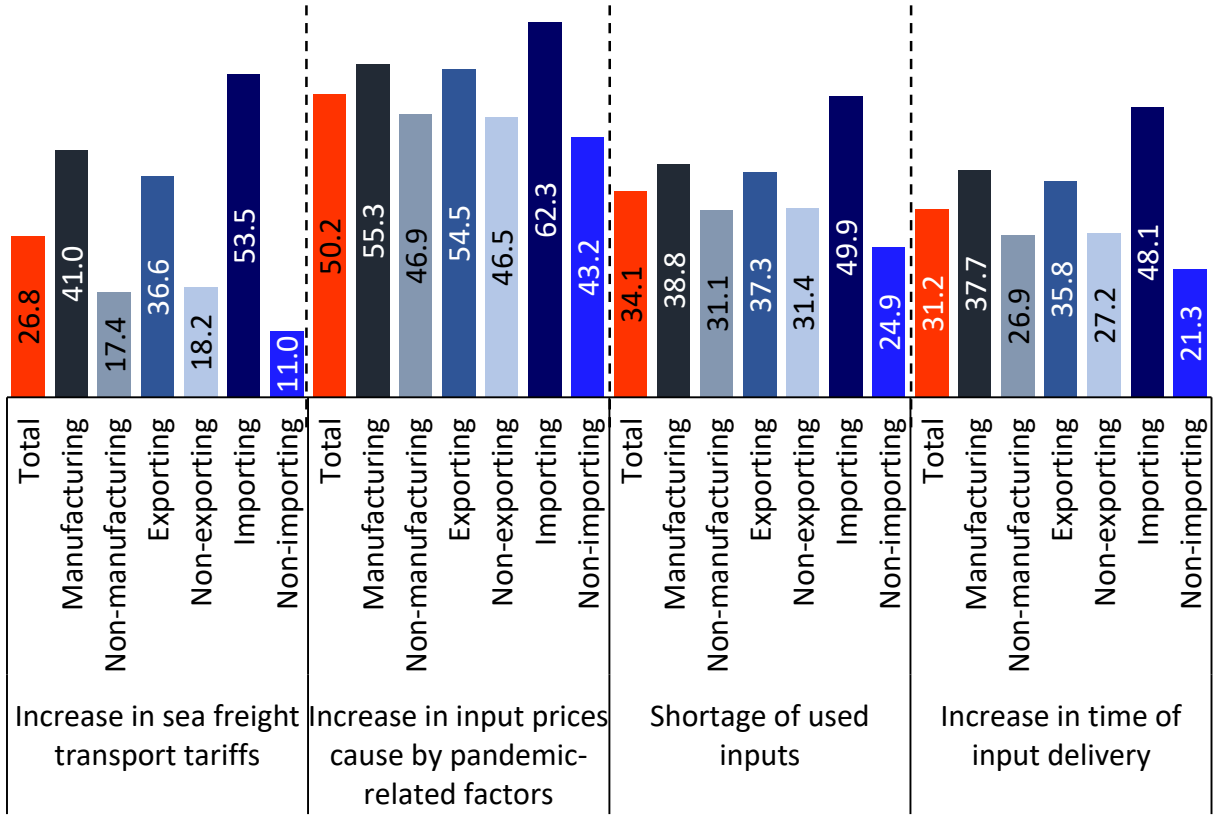


1/Results obtained from the question: "With respect to the previous 12 months, how do you anticipate the change in sales prices in your sector for the next 12 months, how do you anticipate the change in the prices of inputs (goods and services) used in your sector for the next 12 months, and how do you anticipate the change in wages and salaries of workers in your sector for the next 12 months?" conducted in the interviews carried out by Banco de México. Expectations for the Third Quarter 2021 Report were collected between September 27 and October 21, 2021.

Manufacturing, exporting and, above all, importing firms, have been affected to a greater extent by factors associated with the pandemic. There is a high level of uncertainty regarding the horizon in which these shocks may fade.

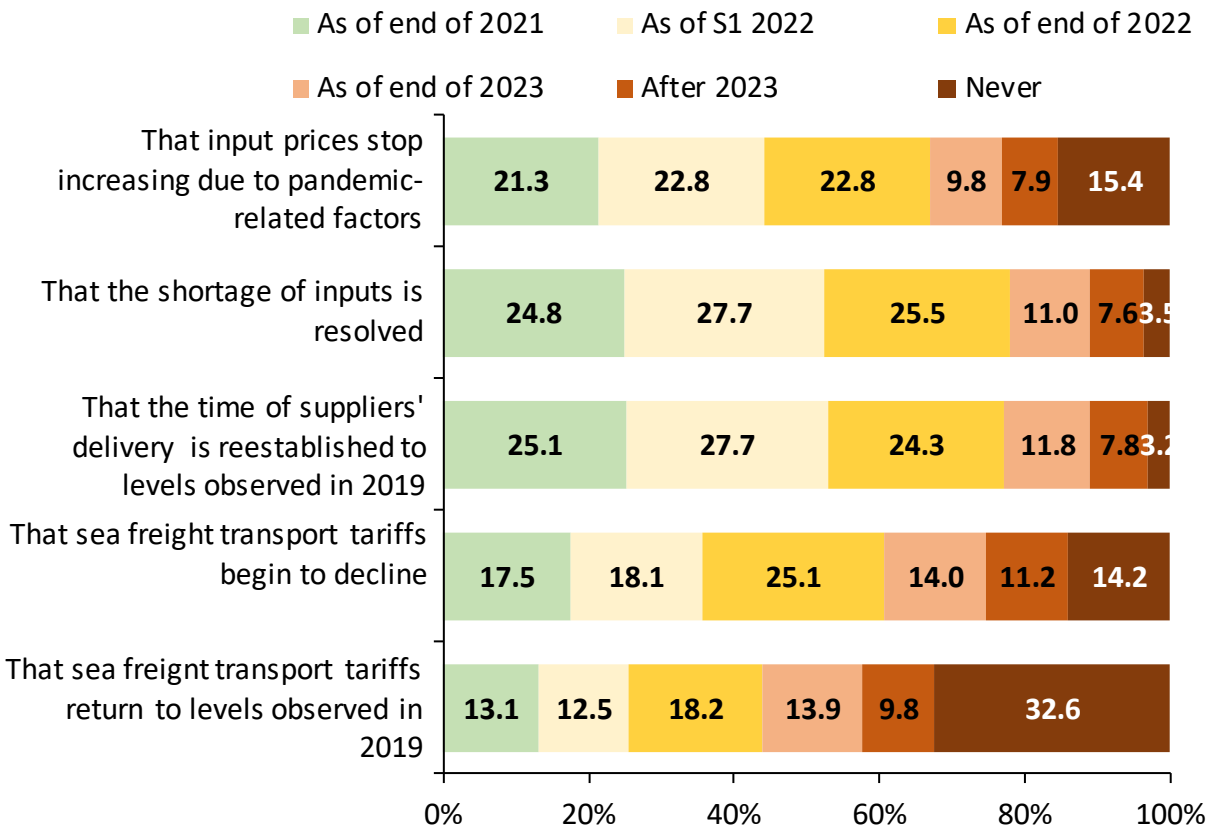
Firms Affected by Factors Associated with the Pandemic

Fraction of firms surveyed in percent



Assigned Probability that the Difficulties Faced will be Resolved in each Indicated Horizon

Average among firms affected by each factor

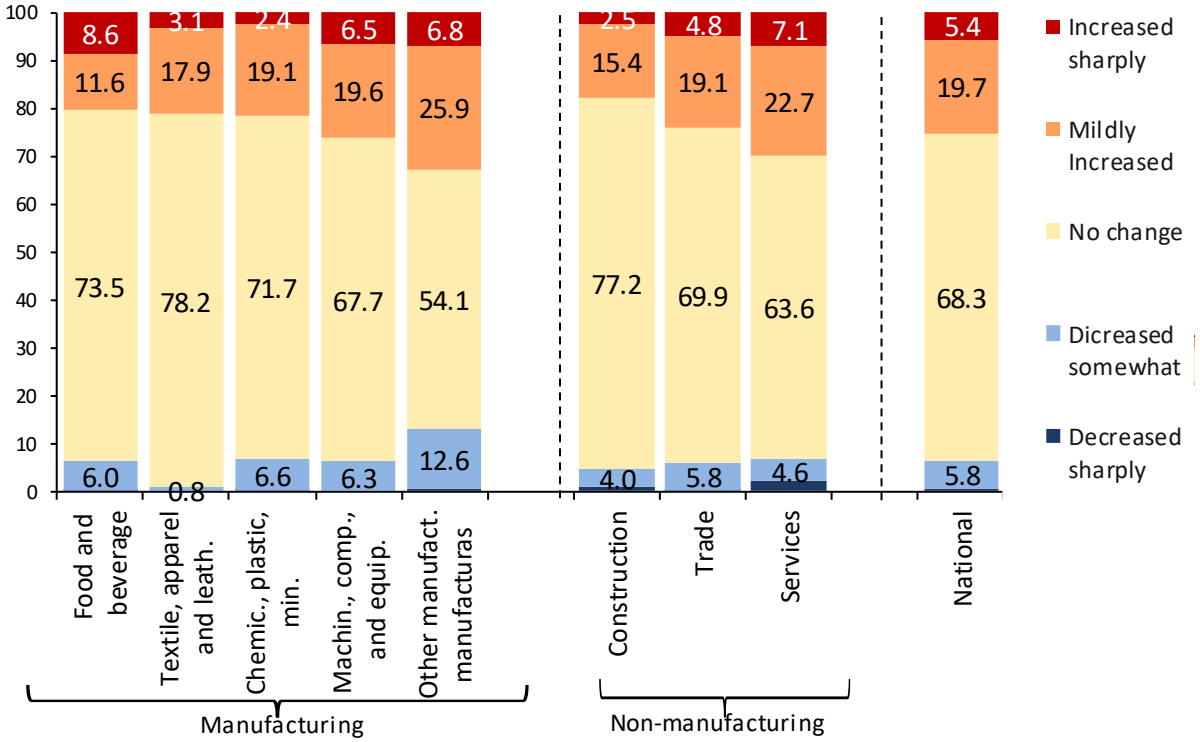


Source: Prepared by Banco de México with information from the Monthly Survey of Regional Economic Activity, corresponding to the survey from October 4 to 28, 2021. Results obtained from responses to the question: "In the context of the effects derived from the COVID-19 pandemic worldwide, indicate if your company has faced the following difficulties in its production process:", and "indicate the probability you would assign to each factor reported to be resolved in each of the horizons."

68% of firms reported that the difficulty in hiring workers in October 2021 was similar to what was observed in the same month of 2019, although with heterogeneity between sectors. For firms that have faced greater difficulty, the factor that has had the greatest influence is that workers are finding better paying jobs.

Changes in the Difficulty of Hiring Workers in the Production Area in October 2021 compared to October 2019

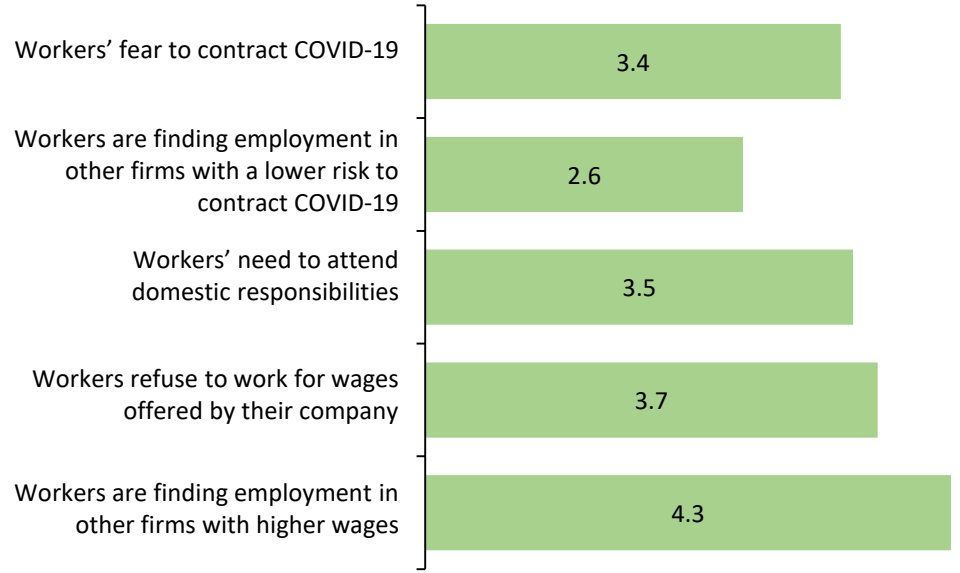
Percentage of firms



Factors that May Have Increased the Difficulty in Hiring or Retaining Workers

Average value among companies reporting increases in difficulty in hiring or retaining production workers

Scale from 1 to 7. 1: no influence; 7: very important influence.



Source: Prepared by Banco de México with information from the November EMAER survey. Results obtained from the questions: "Indicate how the difficulty in hiring workers [in the production area] has changed in the month of October 2021 with respect to what was observed in October 2019, before the beginning of the contingency given the spread of COVID-19." and "Rate the importance of the following factors that influenced the possible [increases] in the difficulty of hiring or retaining workers during the month of October 2021 with respect to what was observed in October 2019. For your response use a scale of 1 to 7, where 1 means the factor had no influence and 7 means it had a very important influence." The EMAER is representative of establishments with more than 100 workers in the manufacturing and non-manufacturing sectors. Results with greater disaggregation are reported to show heterogeneity, but are not statistically representative.

Outline

I. Regional Economic Report

II. Results July – September 2021

A. Economic activity

B. Inflation

C. Economic outlook

(based on data collected between September 27 and October 21, 2021)

III. Final remarks

Final Remarks

1. In **Q3-2021, economic activity in the regions was affected by the worsening of the pandemic** in all of them, the **continued disruptions in global supply chains**, which have particularly affected the automotive industry in the Northern and Central regions, and the reduction in business support services, which is expected to particularly have adversely affected the performance of the Central region**.**

2. **Annual inflation in all regions registered high levels in Q3-2021**, as it remained affected by the direct and indirect impact associated with the pandemic. Later on, it increased further in November.

3. **Looking ahead, regional economies are expected to continue recovering.**

- ✓ **Progress in the vaccination process** will continue to be key to promote the recovery of activity, especially in **regions that specialize in trade and services.** This, particularly in view of the risk of the new variant of the virus or others that may emerge.
- ✓ **The boost from the external market** is likely to continue supporting growth in more export-oriented regions, **particularly the Northern and Central ones**, although **shortages and rising input prices could remain a challenge**.
- ✓ **Construction of large public infrastructure projects in Central and Southern Regions** is expected to continue generating a significant economic spillover in these regions. However, it is necessary to foster adequate conditions for the recovery of private investment, such as strengthening of the rule of law and improving public safety conditions.

Regional Economic Report

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