



Regional Economic Report

July – September 2016



BANCO DE MÉXICO

December 8, 2016

Outline

- I. Regional Economic Report**
- II. Results July – September 2016**
 - A. Economic Activity**
 - B. Inflation**
 - C. Economic Outlook**
- III. Final Remarks**

Regional Economic Report

- The Regional Economic Report is a quarterly publication on the recent trends in economic activity, inflation and business agents' expectations in the Mexican regions.¹
- This information is taken into account by Banco de México's Board of Governors when evaluating the economic situation and the forecast for the Mexican economy.
- The economic performance of the regions in 3Q 2016 and the prospects for regional economic activity and inflation over the following 12 months are analyzed herein.

¹ For the purposes of this Report, the states of Mexico are grouped into the following four regions: Northern: Baja California, Chihuahua, Coahuila, Nuevo León, Sonora and Tamaulipas. North-Central: Aguascalientes, Baja California Sur, Colima, Durango, Jalisco, Michoacán, Nayarit, San Luis Potosí, Sinaloa and Zacatecas. Central: Ciudad de México, Estado de México, Guanajuato, Hidalgo, Morelos, Puebla, Querétaro and Tlaxcala. Southern: Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatán.

Outlook

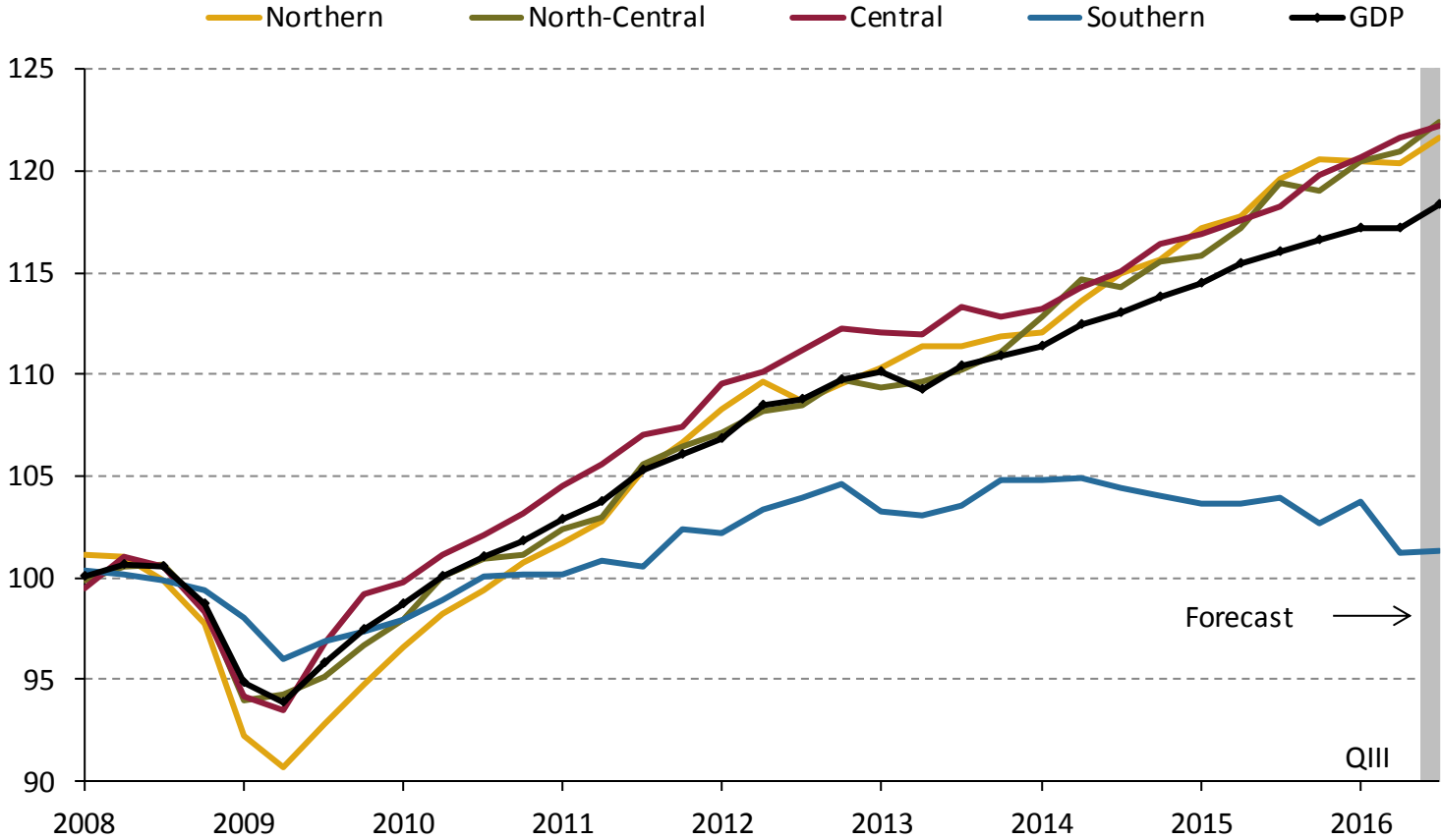
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Economic Activity

- In 3Q 2016, economic activity in Mexico recovered moderately, following a period of stagnation during 2Q 2016.
 - ✓ This evolution is principally attributed to the expansion in the services' sector, while industrial production, as a whole, remained stagnant.
 - There was a recovery in tertiary activities, after they strongly contracted in April, fundamentally due to the dynamism of the trade sector and transport services, mass media information, financial and real estate services, among others.
- The recovery of the national productive activity in the analyzed quarter was perceived across most regional economies. Indeed, the Northern and the North-Central regions are estimated to have registered a greater dynamism in their economic activity, as compared to the previous quarter, while the Central region is estimated to have expanded moderately, although less than in 2Q 2016. In the south, a level of economic activity similar to that in the previous quarter was registered, which is in contrast to the contraction in 2Q 2016.

Based on the available timely information, it is estimated that the recovery of Mexican economy was associated with the rebound in the level of economic activity in the Northern region, with the greater dynamism in the North-Central region, as well as with the persisting economic growth in the Central region. In the south a level of economic activity similar to that in 2Q 2016 was registered, which is in contrast to the decline in the previous quarter.

Quarterly Indicator of Regional Economic Activity ^{1/}
Index 2008=100



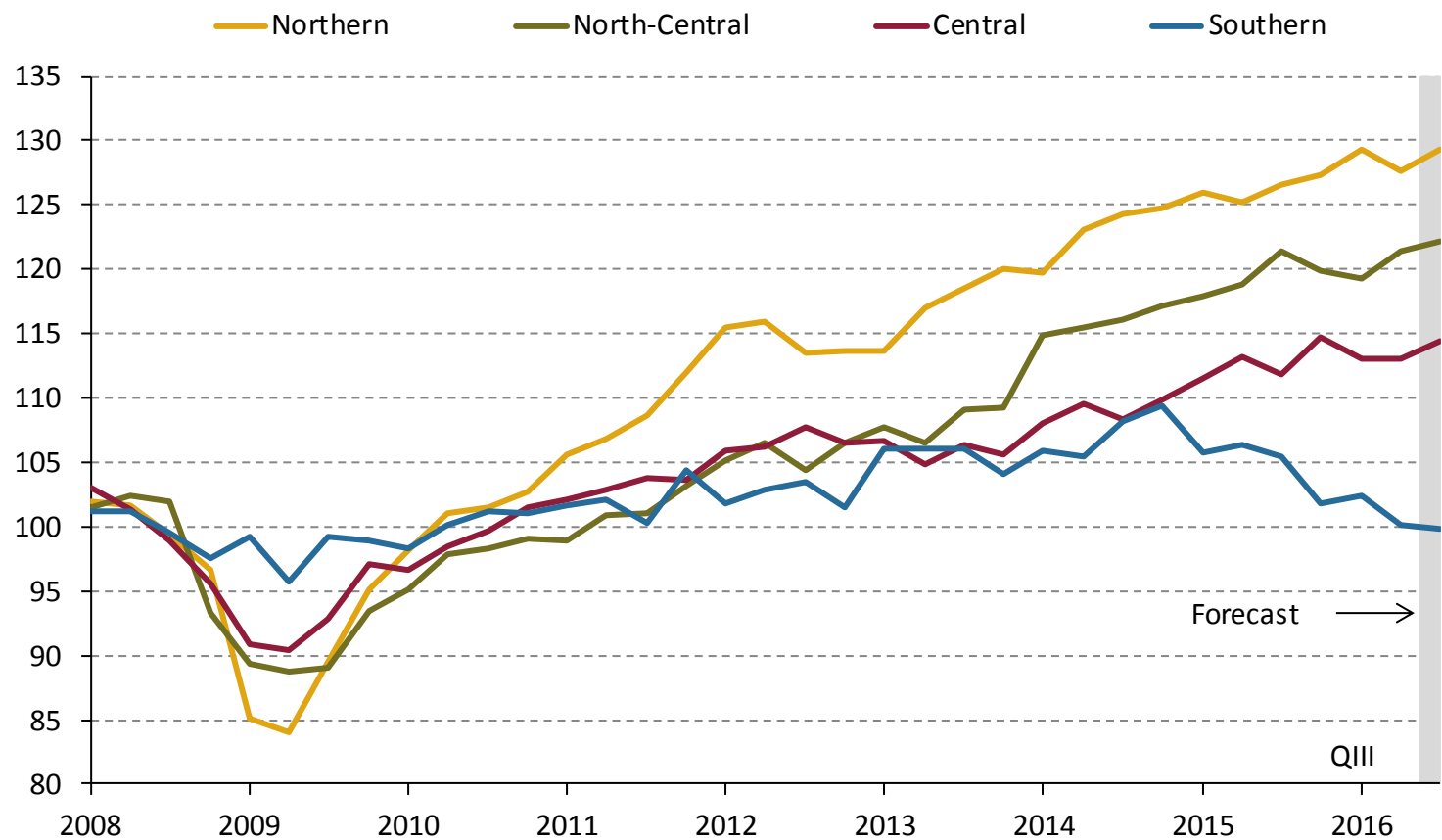
1/ The value of the Gross Domestic Product (GDP) for 3Q 2016 corresponds to the observed data.
Source: Estimated by Banco de México with seasonally adjusted data from INEGI.

Economic Activity

- The positive performance in the Northern and Central regions is largely attributed to a certain recovery of manufactures more related to the external market, of services and trade.
 - ✓ Additionally, there was a slight recovery in the non-oil mining in the North-Central region, and in construction in the Northern one.
- In contrast, the Southern region remained relatively stagnated, as a consequence of the persisting weakness in the oil mining and manufacturing, as well as a certain deceleration in tourism, which was partially offset by the favorable evolution in retail trade, construction and agricultural production in the referred region.

During 3Q 2016, the improvement in manufacturing, which had begun at the end of the previous quarter, persisted. In particular, it is estimated that in the Northern and the Central regions, manufacturing resumed its upward trajectory, while in the North-Central region this sector’s production maintained its dynamism. In contrast, in the south manufacturing kept exhibiting a downside trend.

Regional Manufacturing Indicator
Index 2008=100, quarterly average



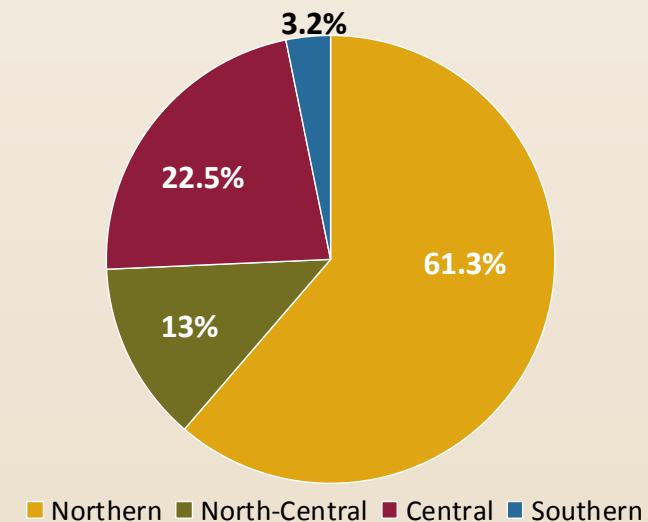
Source: Estimated by Banco de México with seasonally adjusted data from INEGI.

Box:

Regional Impact of a Shock on Mexican Manufacturing Exports

- This Box estimates both direct and indirect effects that an exogenous shock on the manufacturing export sector generates on regional economies in Mexico, using Regional Input-Output Matrices (RIOMs). This exercise considers **a hypothetical shock on total manufacturing exports amounting to USD 10,000 million** (a figure that represents approximately 3.5 percent of Mexican manufacturing exports to the U.S. in 2015).
- Initial regional impacts are derived by weighting the total initial shock by the **share of each region's manufacturing exports**. Thus, the Northern region concentrates the greatest total impact, followed by the Central, the North-Central and the Southern ones.
 - ✓ This regional distribution of manufacturing exports is natural, as, insofar as the distance to the Northern border decreases, transportation costs to the main exports' market also go down.

Regional Distribution of an Exogenous Shock on Manufacturing Exports



Source: Estimated by Banco de México with data from INEGI.

Box: Regional Impact of a Shock on Mexican Manufacturing Exports

Total Impact on GDP of the Mexican States
Percent



Total Impact on Regional GDP
Percent

Region	Total impact
Northern	1.04
North-Central	0.32
Central	0.26
Southern	0.09
National	0.41

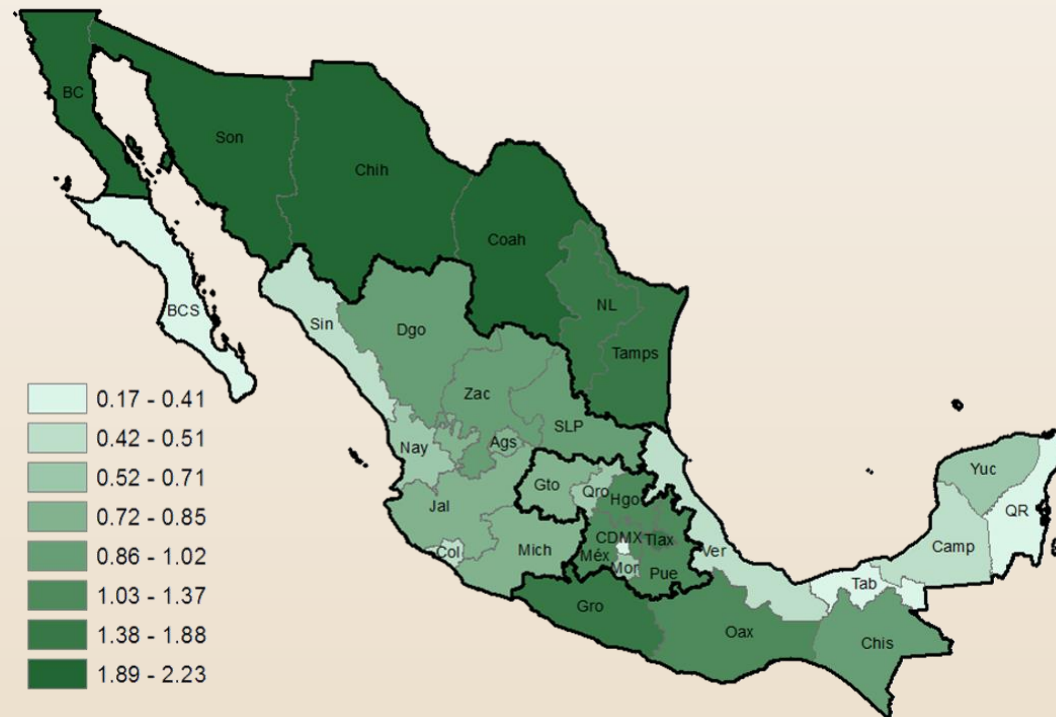
Source: Estimated by Banco de México with data from INEGI.

Box:

Regional Impact of a Shock on Mexican Manufacturing Exports

- As regards employment, relative impacts are greater in Northern states, followed by Central states. It can also be observed that in some states of the Southern region, the effects are more intense as compared to most states of Mexico.

Total Impact as a Percentage of Total State Employment



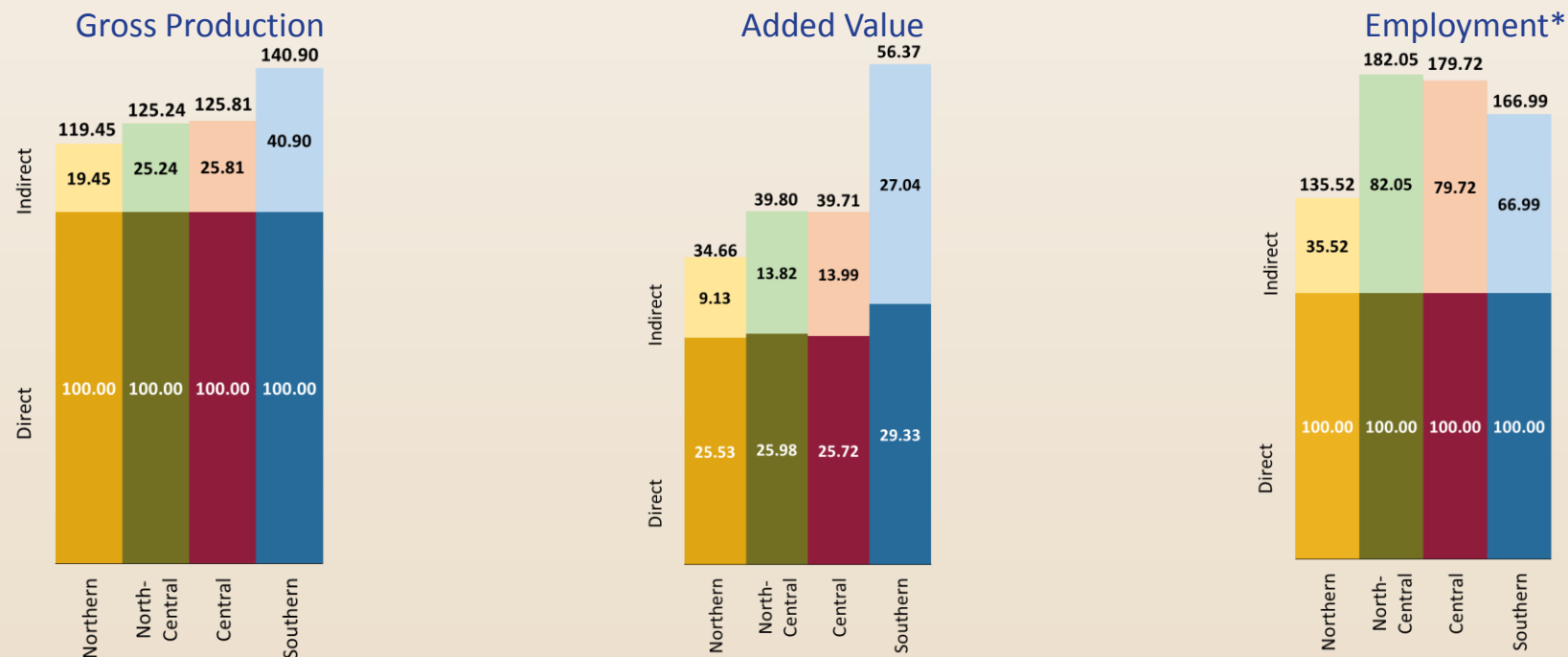
Source: Estimated by Banco de México with data from INEGI.

Box:

Regional Impact of a Shock on Mexican Manufacturing Exports

- The indirect effect, expressed as a percentage of the initial shock, is relatively higher, insofar as we consider regions located further from the U.S. border in gross production and added value. This suggests that, despite the fact that the Northern region concentrates more export activity, exports' multiplier effects tend to be higher in other regions. In employment, it is established that indirect effects as a percentage of direct effects show a greater magnitude in the Southern and Central regions, as compared to the Northern one.

**Regional Impacts of a Shock to Mexican Manufacturing Exports
Standardized by the Initial Regional Shock**



*/ Standardized for the direct impact on regional employment.

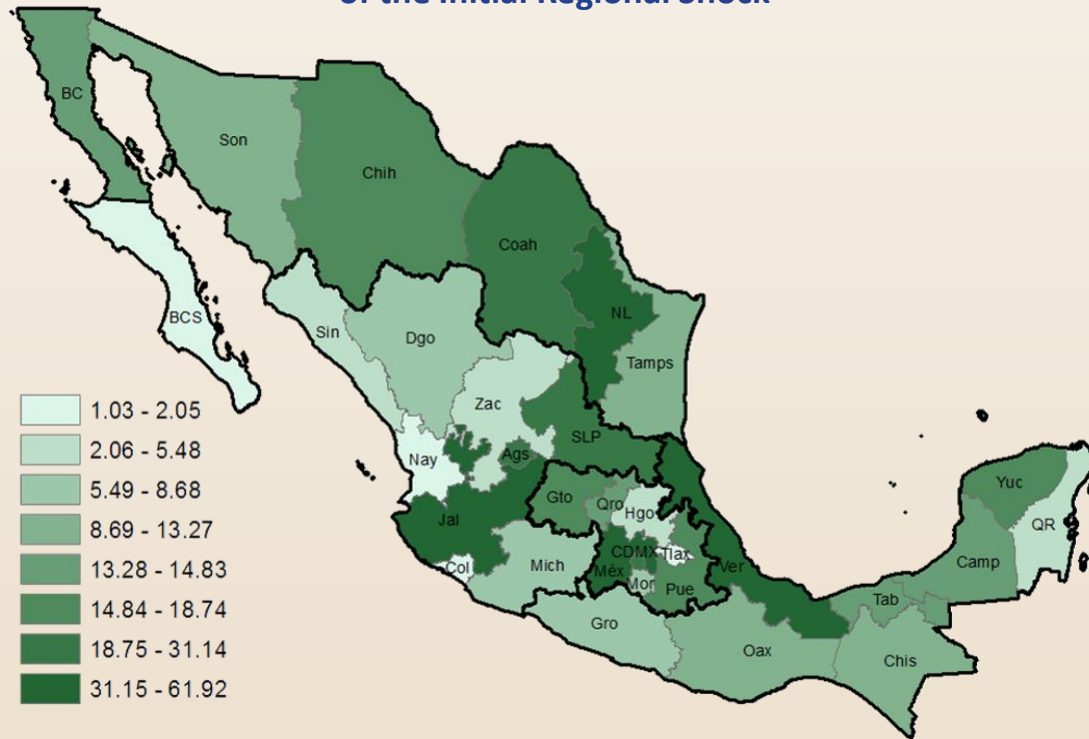
Source: Estimated by Banco de México with data from INEGI.

Box:

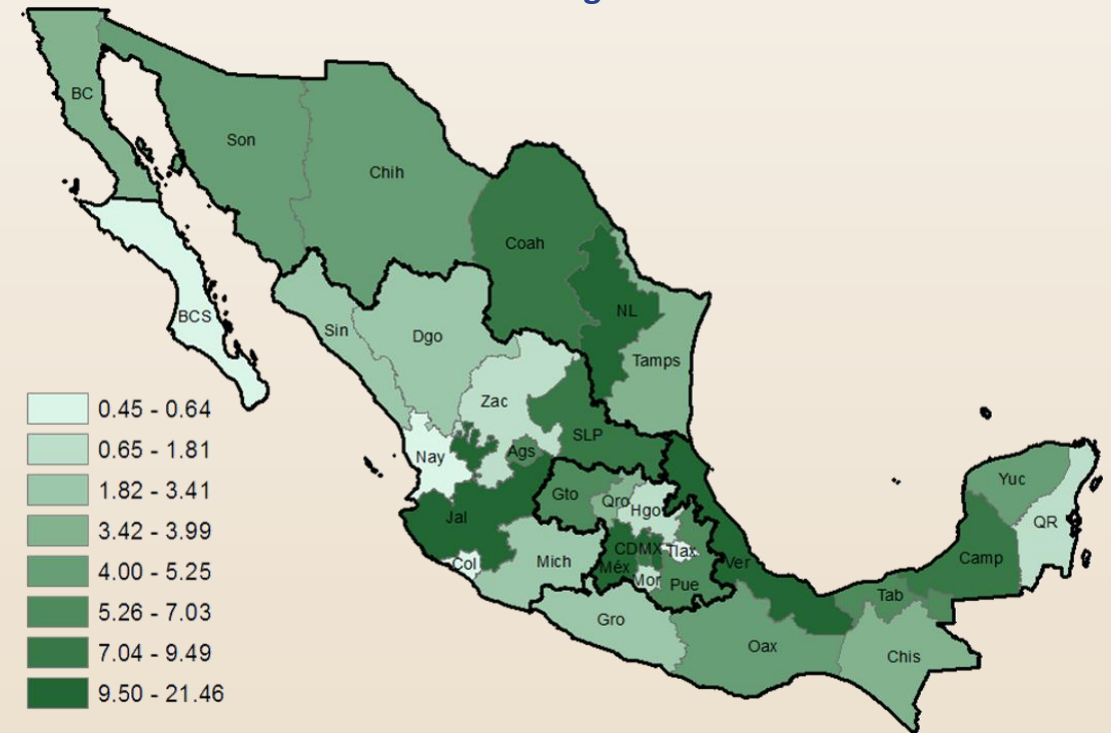
Regional Impact of a Shock on Mexican Manufacturing Exports

- There are significant differences across regions regarding the magnitude of the indirect effect with respect to the initial shock on gross production and added value.

Total Impact on Gross Production as a Percentage of the Initial Regional Shock



Total Impact on Added Value as a Percentage of the Initial Regional Shock



Source: Estimated by Banco de México with data from INEGI.

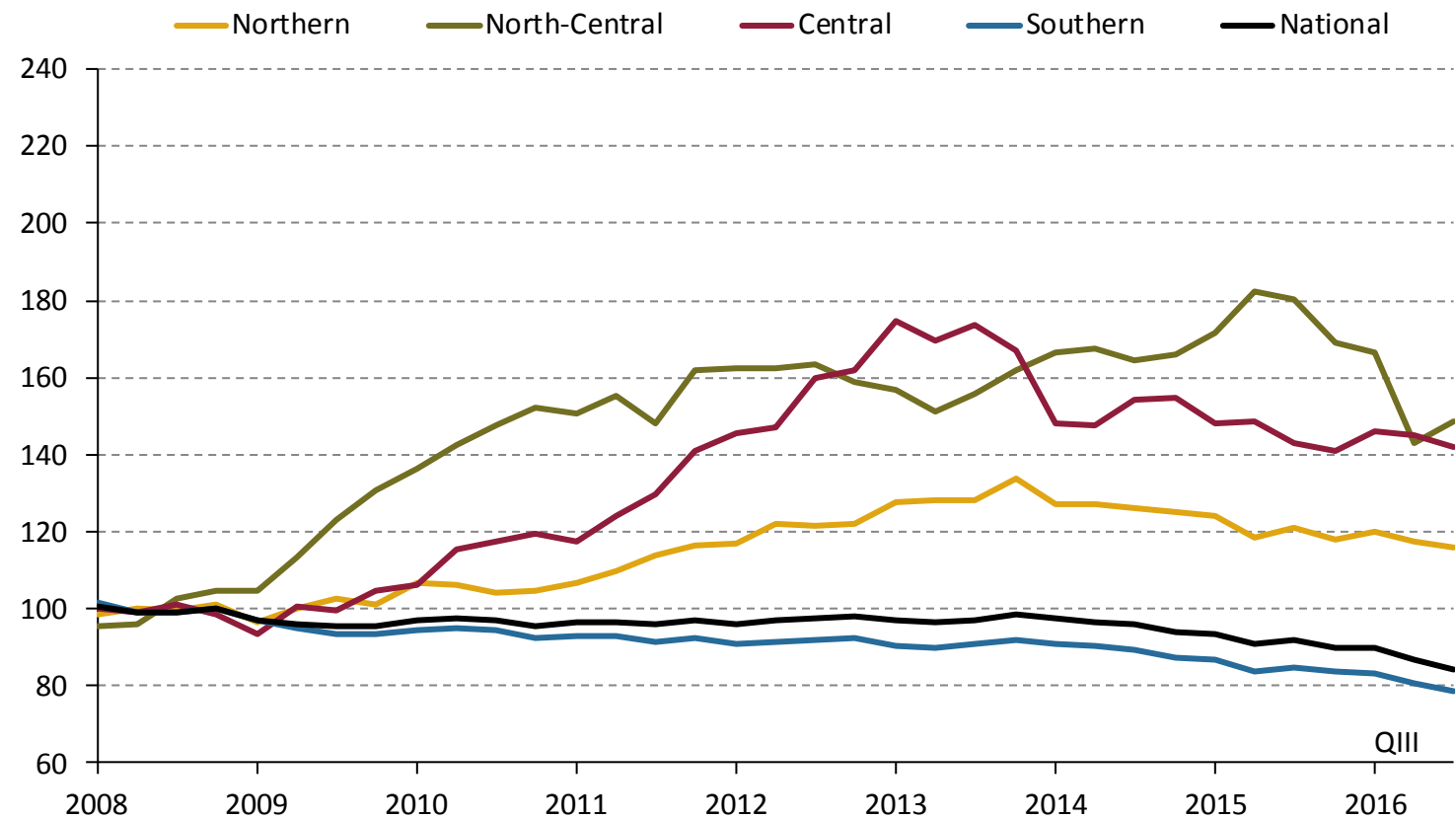
Box:

Regional Impact of a Shock on Mexican Manufacturing Exports

- The analysis in this Box points to the existence of **heterogeneous impacts at the regional level derived from an exogenous shock on manufacturing exports.**
 - ✓ The referred external shock shows a greater effect, in absolute terms, in the Northern region, followed by the Central and the Southern regions.
- Once the indirect impact of the initial shock on exports is standardized, it is shown that the **multiplier effect tends to be greater in states that are not located in the north.**
 - ✓ In particular, the Southern region exhibits the greatest indirect effects in terms of added value and gross production, while the Central regions present the greatest indirect effects on employment.
- These results indicate that, insofar as competitiveness is boosted in regions other than the Northern one, by means of building a better transport infrastructure and clusters that benefit from regional comparative advantages, not only a greater diversification of the Mexican exports' destinations can be achieved, but also a relatively greater impact on the domestic market, GDP and employment can be attained.

Mining maintained a decreasing trend that had been registered since early 2014, in a context in which the oil production platform kept declining. In particular, in the Northern, Central and Southern regions, the mining sector contracted in the reported quarter, thus maintaining its downward trend. In contrast, in the North-Central region the mining activity rebounded, following a plunge in mid-2015.

Regional Indicator of Mining Industry ^{1/}
Index 2008=100, quarterly average

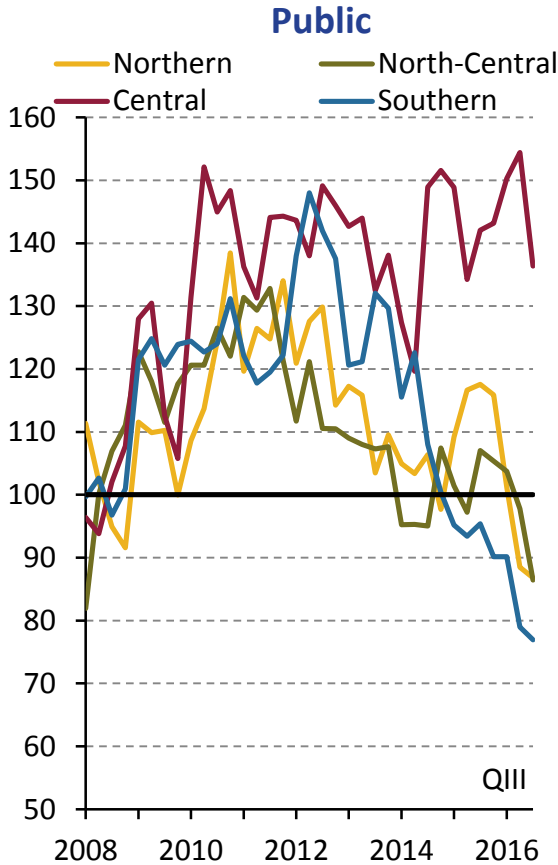
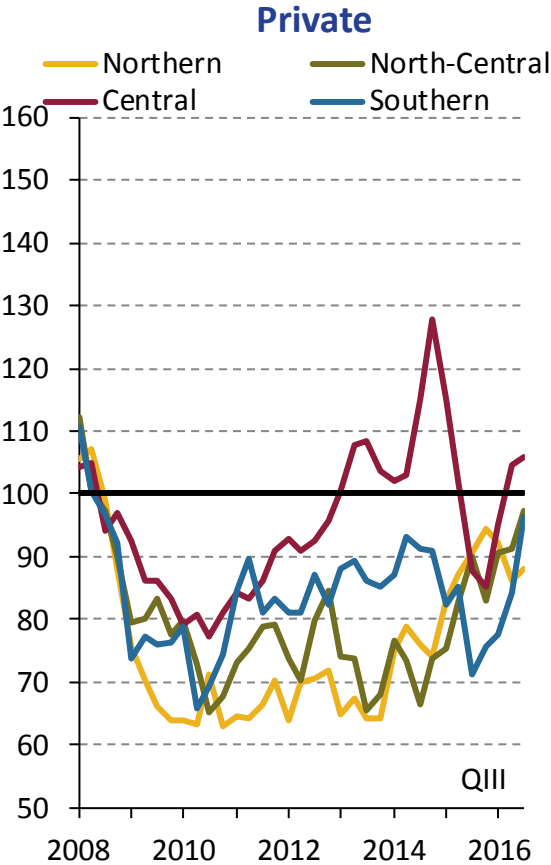
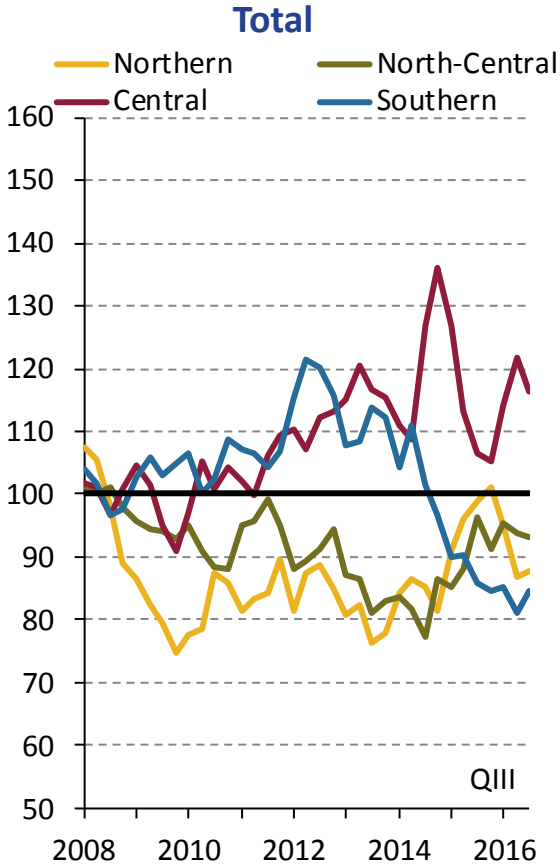


1/ The values in 3Q 2016 are preliminary.
Source: Estimated by Banco de México with seasonally adjusted data from INEGI.

In 3Q 2016, the construction sector stagnated, which was fundamentally associated to a lower volume of work contracted by the public sector. In this regard, it is notable that across all regions public construction dropped, while private construction expanded. As a consequence, construction somewhat reactivated in the north and the south, although starting from low levels. Conversely, in central regions the activity level went down, in view of the evolution of its public component.

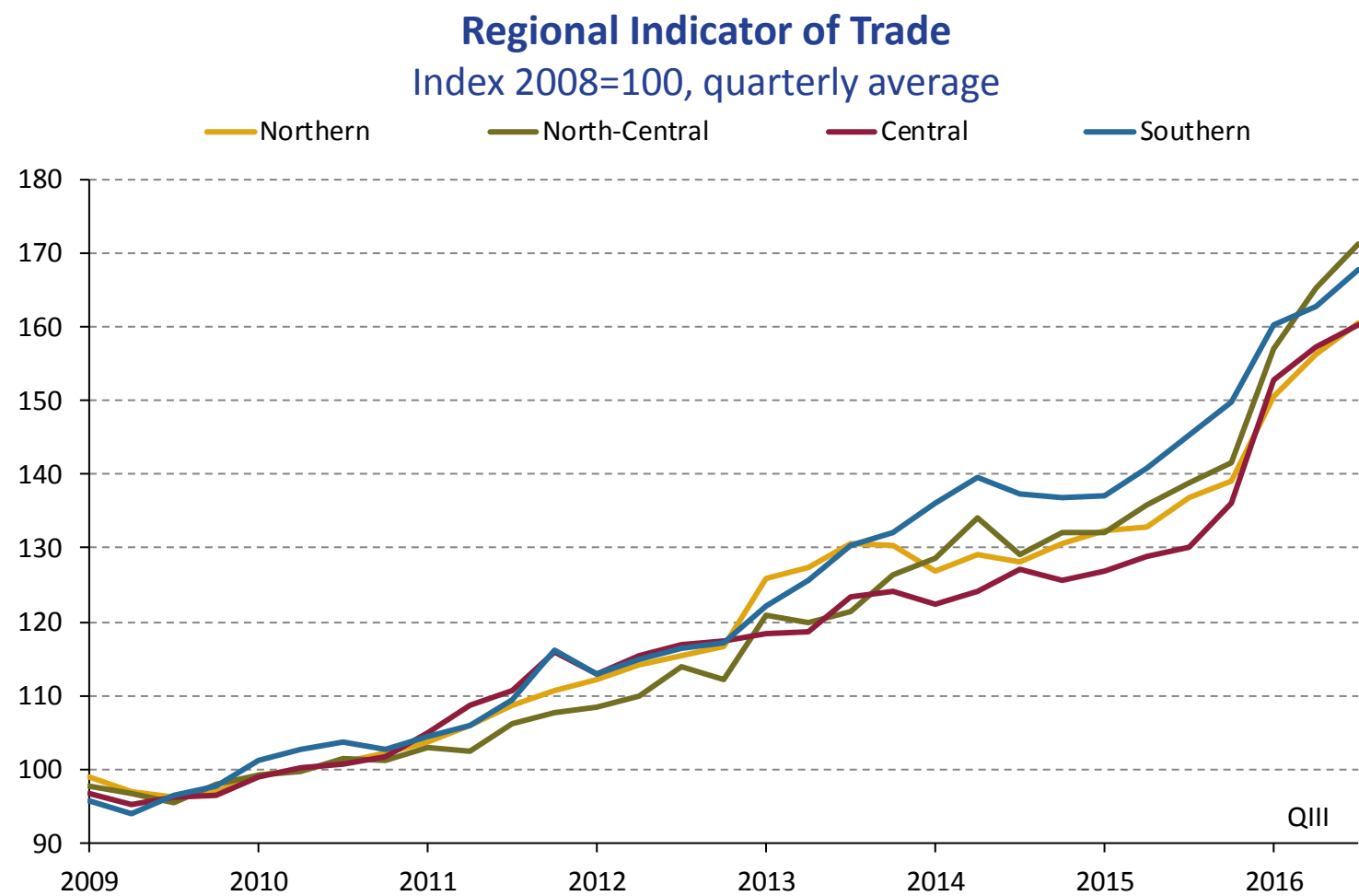
Real Value of Production in the Construction Industry by Region

Index 2008=100, quarterly average



Source: Estimated by Banco de México with seasonally adjusted data from INEGI.

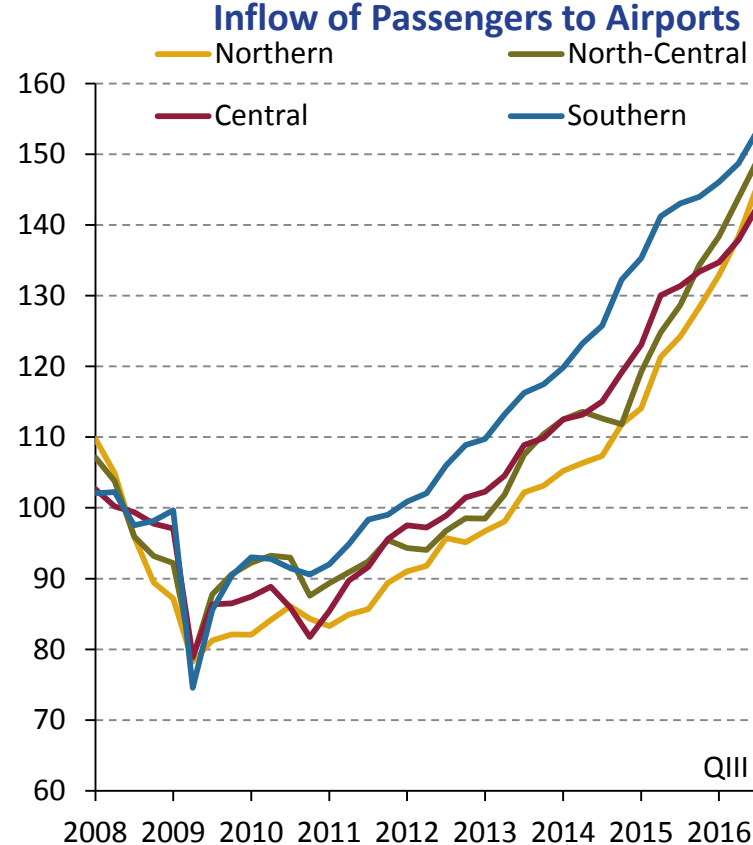
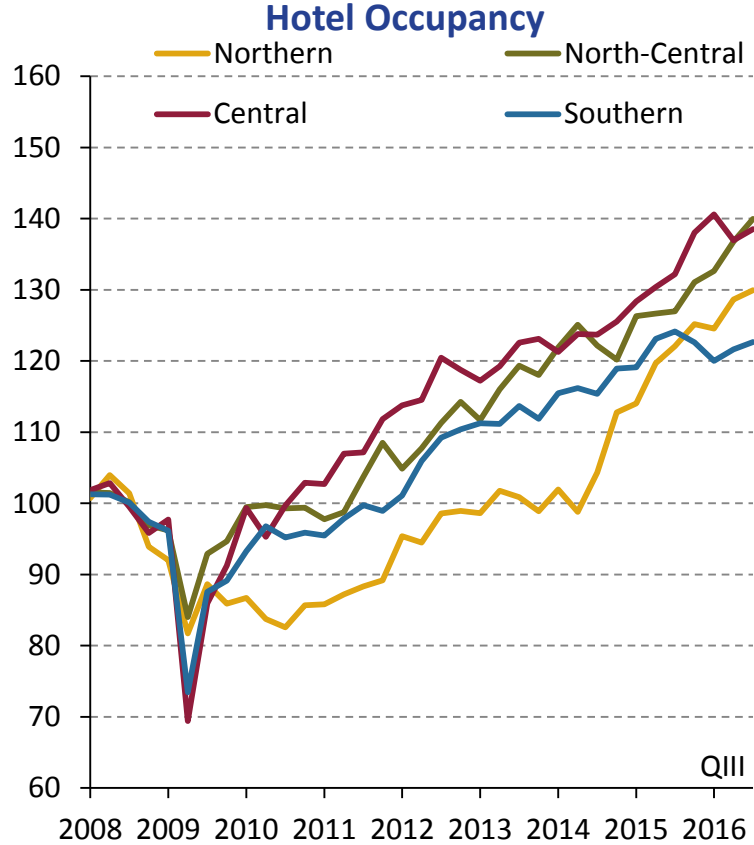
In 3Q 2016, the upward trend in retail trend persisted in all regional economies, even though its growth moderated with respect to the previous quarter. This was observed across all regions with the exception of the Southern one, where the growth rate of this indicator accelerated.



Source: Estimated by Banco de México with seasonally adjusted data from INEGI.

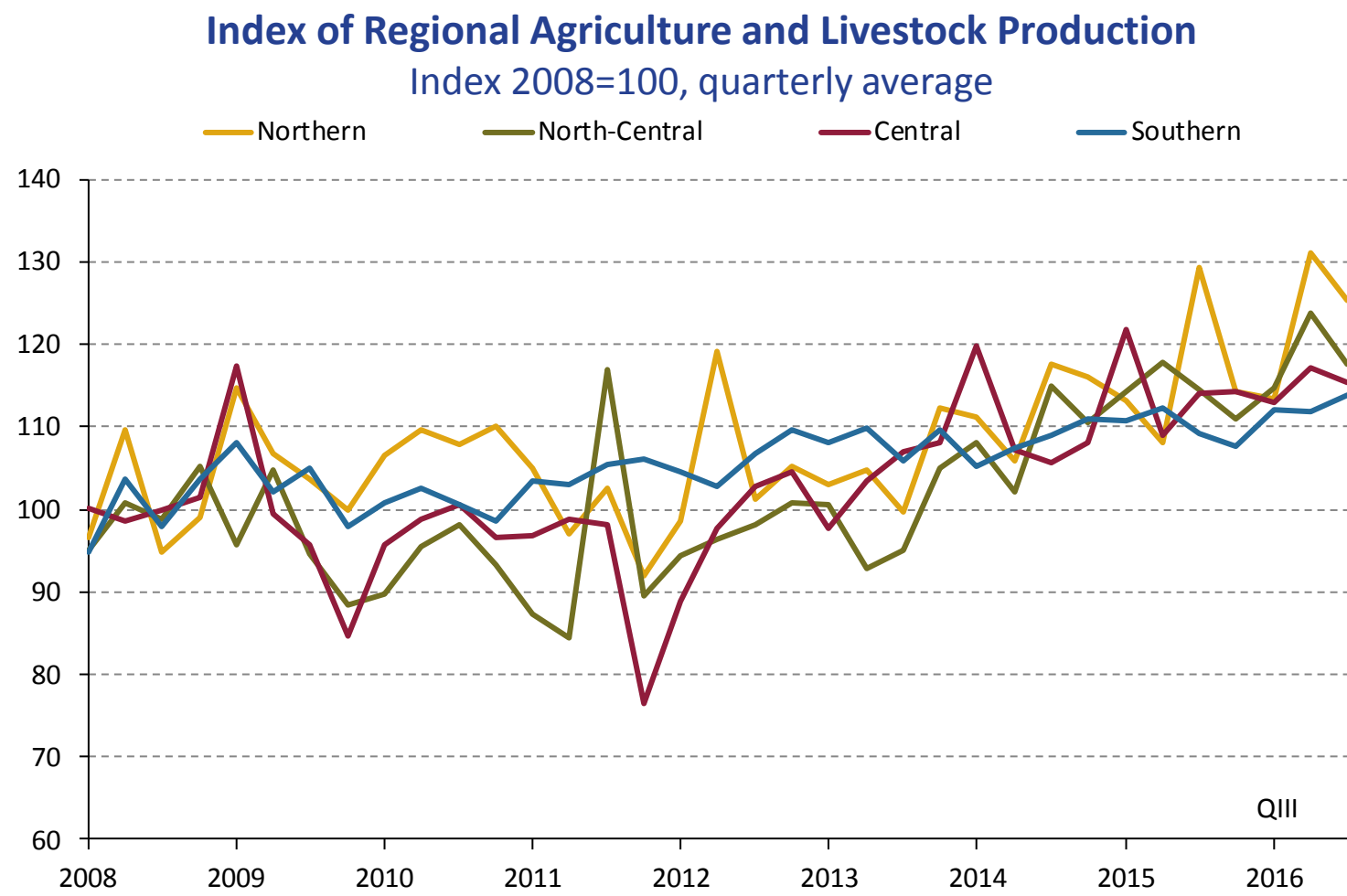
Tourism kept expanding in 3Q 2016. In particular, hotel occupancy remained favorable in the Northern, North-Central and Southern regions, although it was at a lower growth rate relative to 2Q 2016, while the Central region exhibited a rebound, after a drop in the previous quarter. Across all regions, the inflow of passengers kept increasing, thus maintaining an upward trend.

Regional Indicators of Activity in Tourism
Index 2008=100, quarterly average



Source: Estimated and seasonally adjusted by Banco de México based on data from the Mexican Secretariat of Tourism and from Airport and Auxiliary Services (ASA).

In 3Q 2016, the agriculture and livestock production generally exhibited a lower dynamism, even though the performance of the sector was not homogeneous across different regions. In particular, in the north and central regions it contracted with respect to 2Q 2016. In contrast, in the south the agricultural and livestock output expanded during the reported quarter.

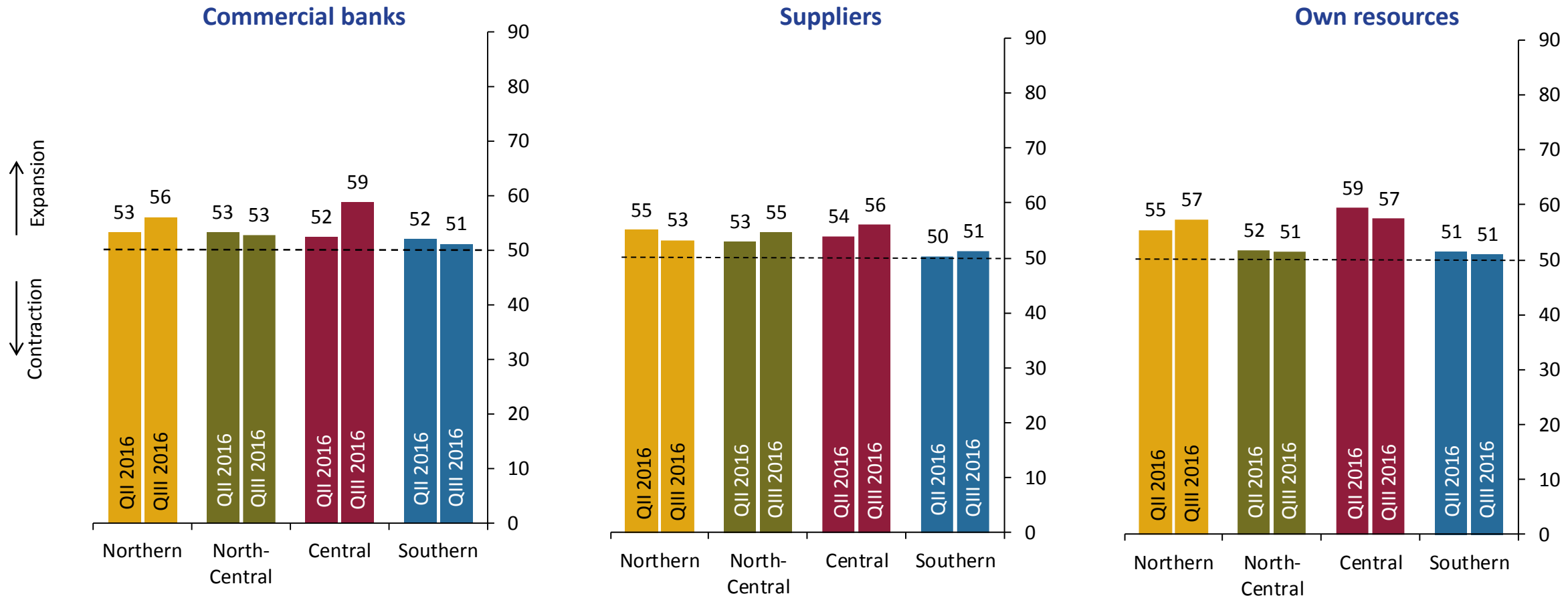


Source: Estimated and seasonally adjusted by Banco de México with data from SAGARPA. It should be noted that, unlike the GDP estimate, this indicator excludes the information relative to the value generated by land cultivation and approximates a measurement of the gross production value, rather than that of added value generated in the sector.

Generally, the use of financing by firms was more intensive in 3Q 2016, which reflected the fact that diffusion indices lied above the 50-basis-point threshold in all regions regarding the use of different considered sources of financing. It should be pointed out that this tendency strengthened in the north and the center for bank credit, while the same occurred in central and northern regions for financing with suppliers and own resources, respectively. In contrast, in the south the intensity of the use of financing remained practically unchanged.

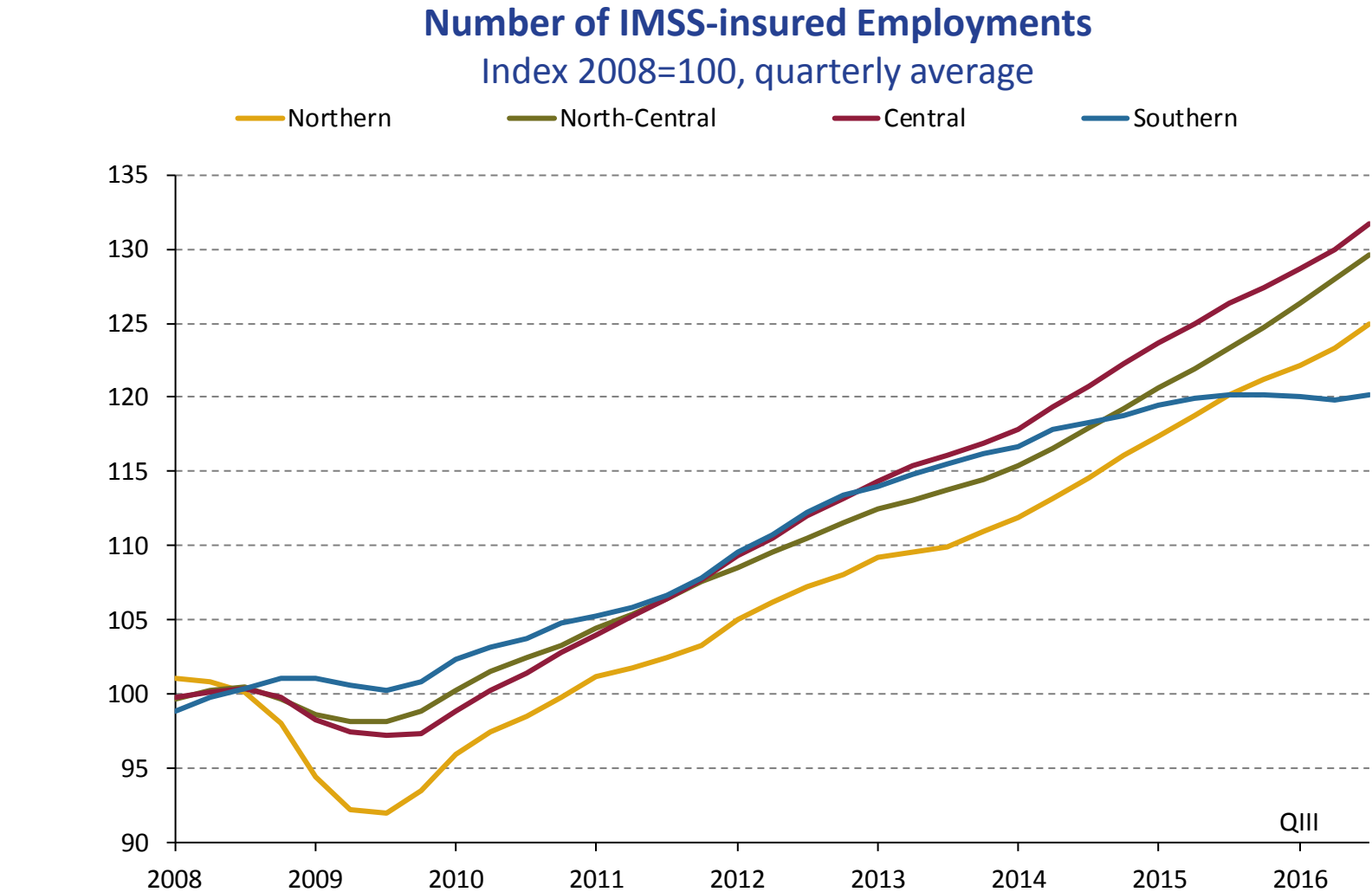
Change in the Use of the Main Sources of Financing

Diffusion indices



Source: Banco de México.

During 3Q 2016, the number of IMSS-insured jobs maintained its positive trend in the Northern and Central regions, while in the south it rebounded incipiently, following a relative stagnation over the previous quarters.



Source: Estimated and seasonally adjusted by Banco de México with data from IMSS.

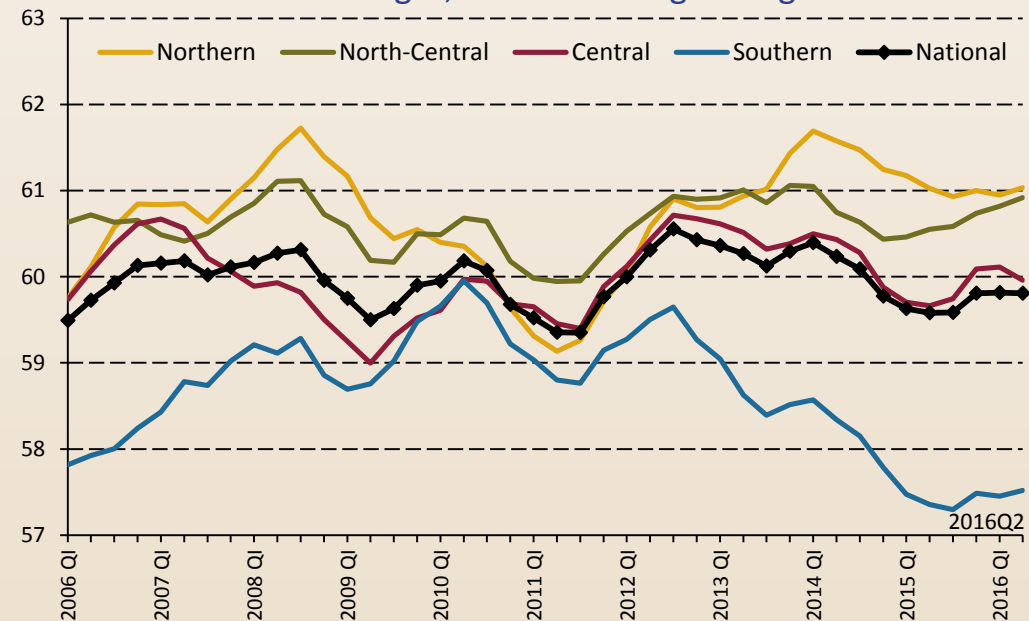
Box:

Empirical Analysis of the Labor Force Participation Rate at the Regional Level

- This Box studies the performance of labor participation between 2005 and 2016, in view of the demographic modifications among the working age population, as well as of other factors extensively studied in economic literature.
- The Labor Force Participation Rate (LPR) in Mexico remained relatively stable.
- However, the evolution of LPR is far from homogeneous across different regional economies.
 - ✓ In the Central and North-Central regions, the LPR, just like at the national level, persisted stable.
 - ✓ In the Northern region, it observed a growing trend.
 - ✓ In the Southern region, the performance was mixed, and the lowest level of all regional economies was registered.

National and Regional Labor Force Participation Rate, 2006 Q1 – 2016 Q2

Percentages, annual moving average



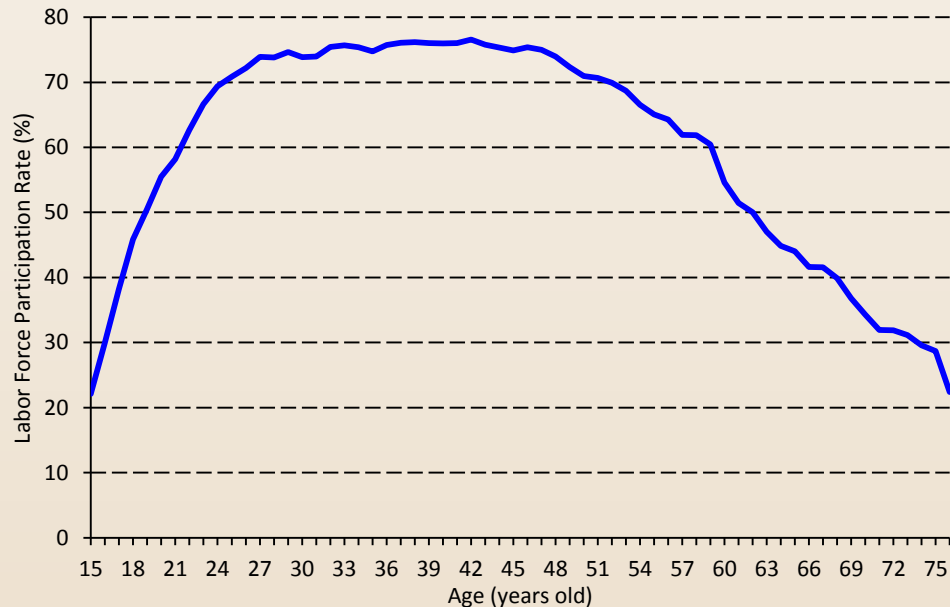
Source: Prepared by Banco de México with data from INEGI.

Box:

Empirical Analysis of the Labor Force Participation Rate at the Regional Level

- The Labor Force Participation Rate varies significantly, depending on the age.
- A certain degree of ageing was observed, on average, in all regional economies.

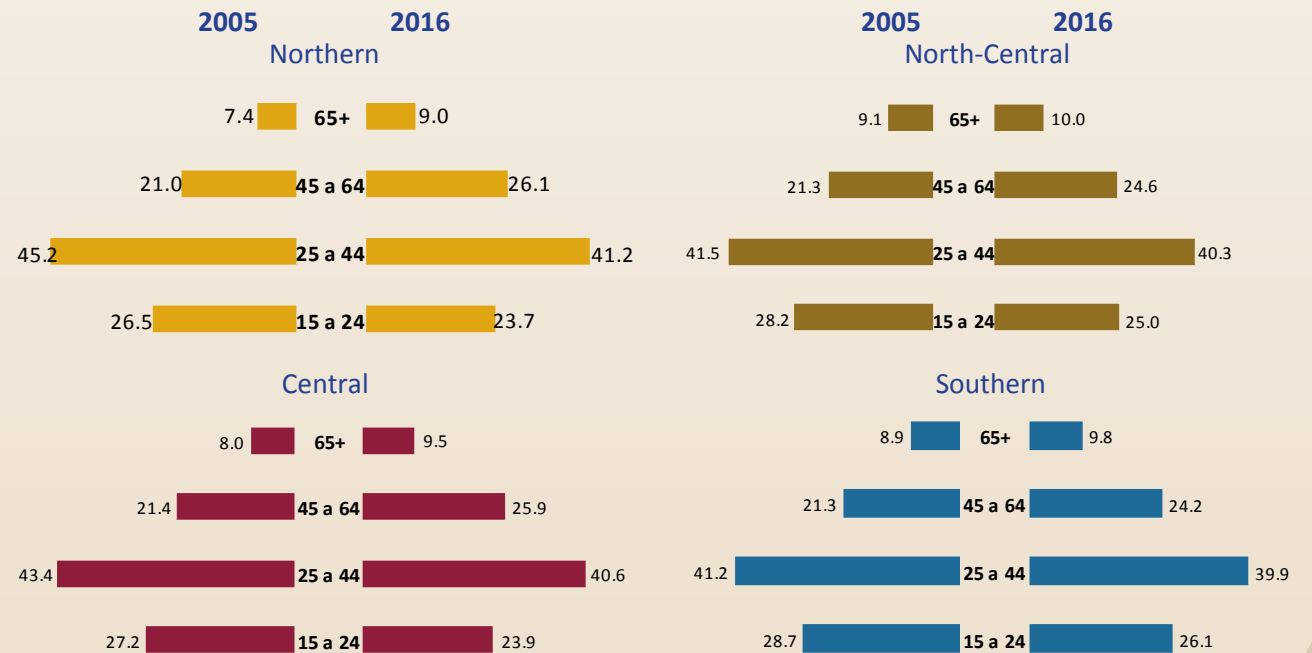
Labor Force Participation Rate by Age
Percentage, average 2005 Q1- 2016 Q2



Note: Average of the labor force participation rate of the cohorts born between 1940 and 1990 with 5-year intervals between each cohort.

Source: Estimated by Banco de México with data from INEGI.

Share of Working Age Population by Segment of Age
Percentage, 2005 vs 2016



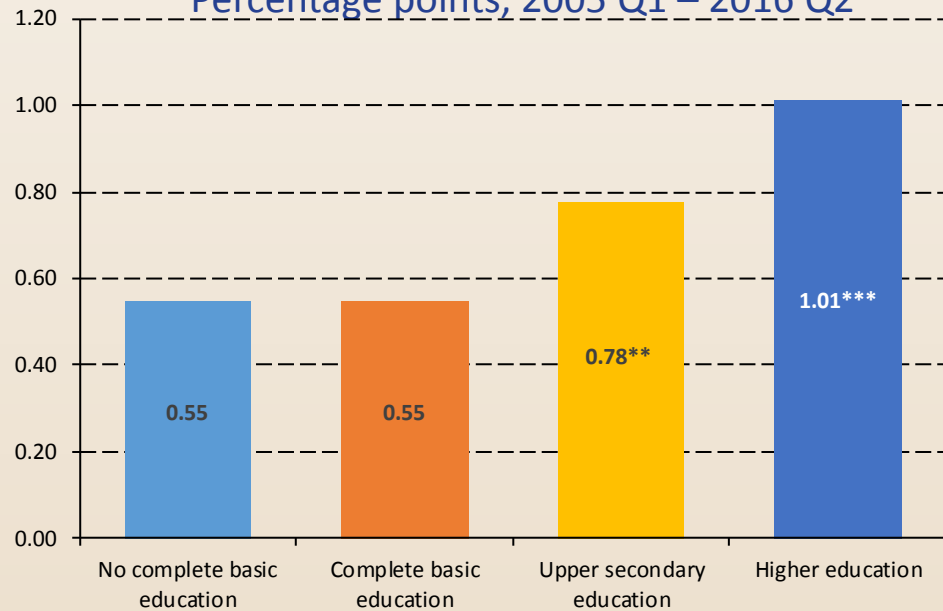
Source: Estimated by Banco de México with data from the National Population Council.

Box:

Empirical Analysis of the Labor Force Participation Rate at the Regional Level

- However, factors such as education positively affected the LPR.
- This led to an increment in the LPR among the population from 25 to 64 years old, thus offsetting the effect of the demographic transition.

Estimated Effects in the LPR Generated by a 1% Increase in the Share of Population, according to the Educational Level
Percentage points, 2005 Q1 – 2016 Q2



Note: ***, ** and * denote significance at 1, 5 and 10 percent, respectively.

Source: Estimated by Banco de México with data from INEGI.

LPR of Population from 25 to 64 years old, 2006 Q1 – 2016 Q2
Annual moving average, percentage points



Source: Estimated by Banco de México with data from INEGI.

Box:

Empirical Analysis of the Labor Force Participation Rate at the Regional Level

- The demographic transition negatively affected the LPR at the national level, although this effect is far from homogeneous across regions and, in general, has been offset by the favorable effect on labor participation derived from a higher educational level.
 - ✓ This has been manifested in higher labor force participation rates among the population between 25 and 64 years old, that is the age segment characterized by the highest levels of labor participation, which has allowed the LPR to keep growing.
- In the future, the demographic transition is expected to gain more importance as the population keeps ageing, thus negatively affecting labor participation. However, additional increments in the educational level of the population could counteract this effect.

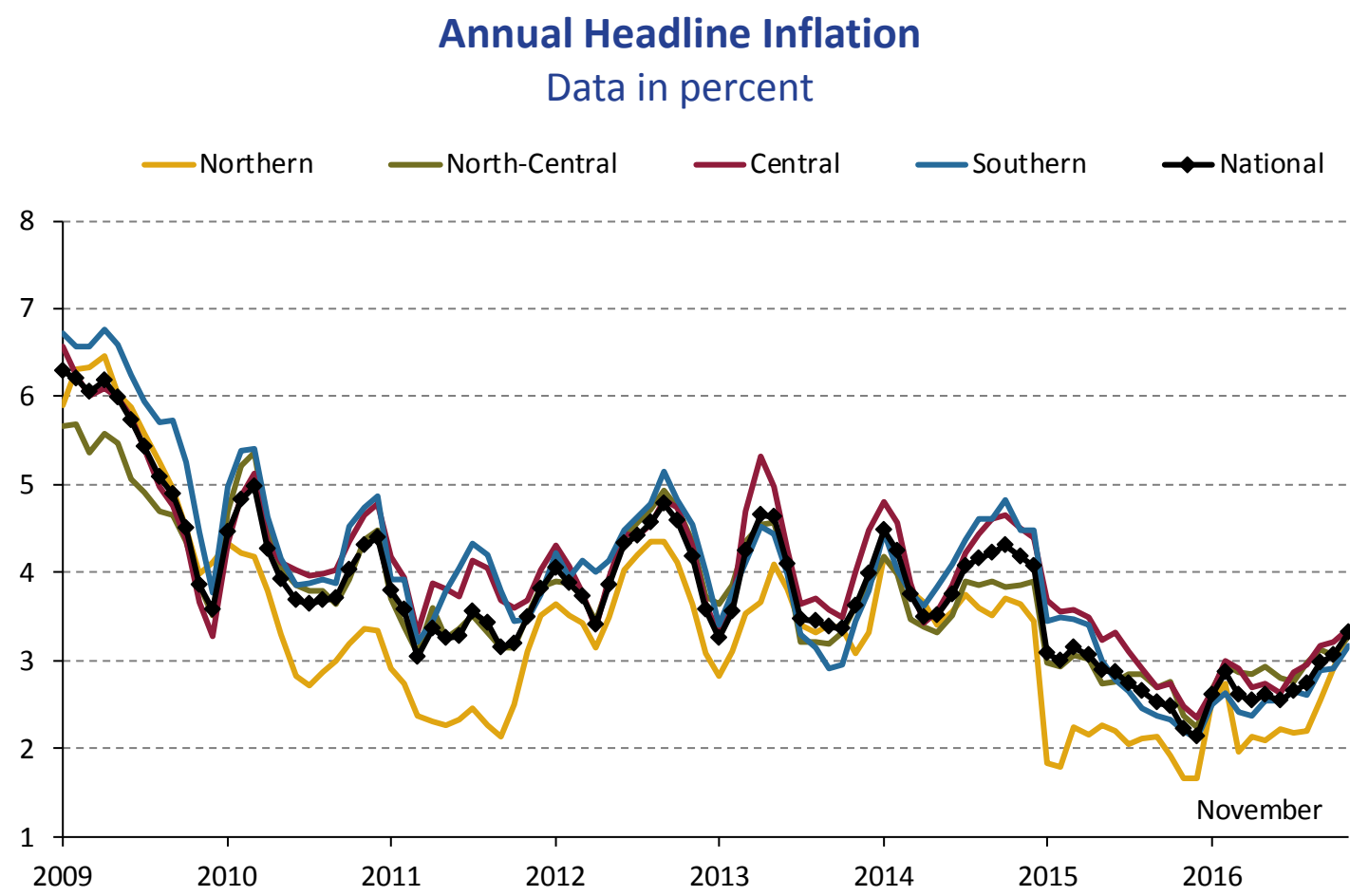
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Inflation

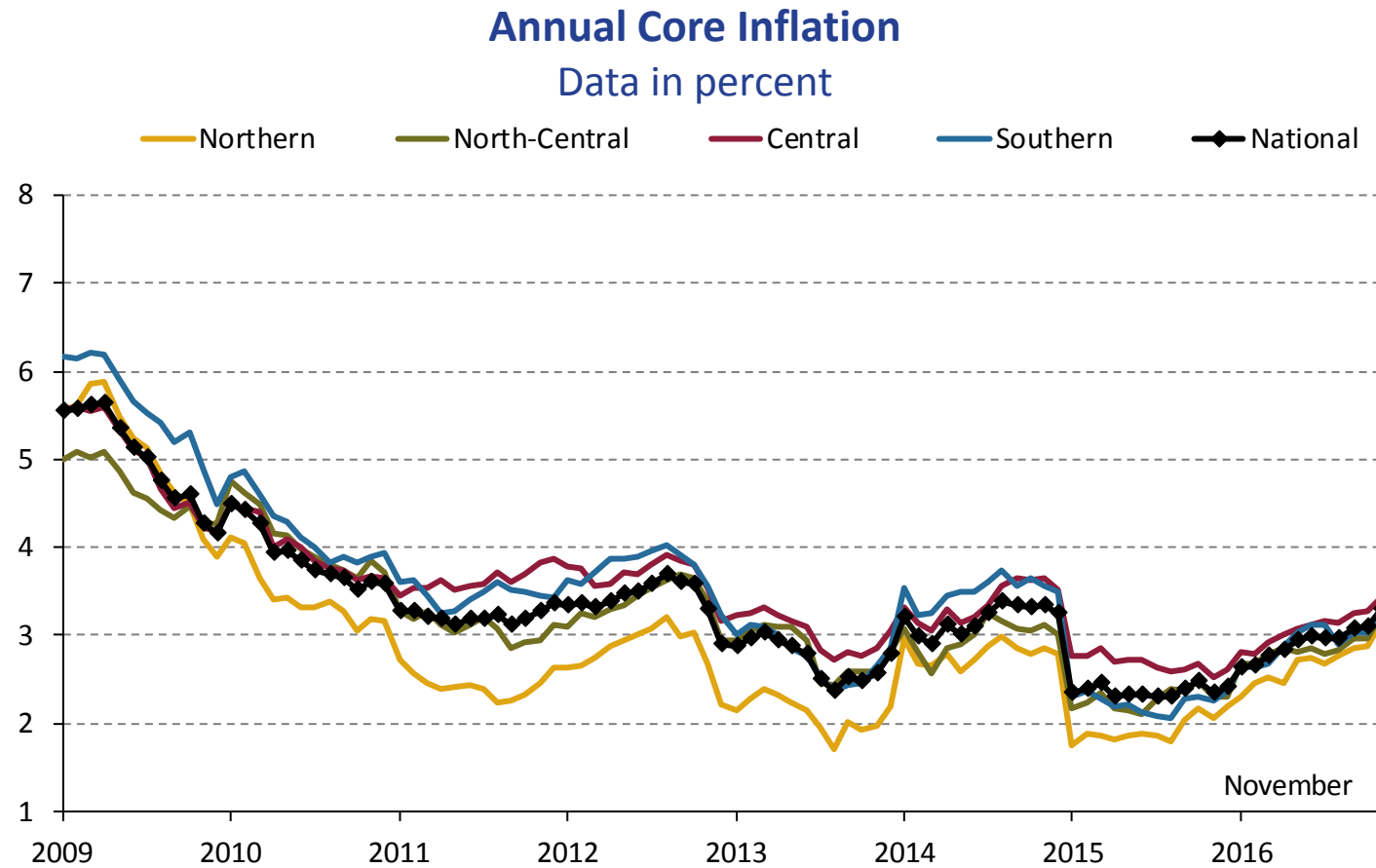
- As of September 2016, annual headline inflation accumulated 17 consecutive months below the permanent 3 percent target, despite the complex environment faced by the economy, which manifested itself, among other things, in a considerable exchange rate depreciation.
 - ✓ The favorable evolution of inflation was possible due to a number of factors, such as the conduct of monetary policy, an environment of absence of aggregate demand-related pressures, low international prices of most commodities and lower prices of telecom services in Mexico, which derived from the structural reform in the referred sector.
- It should be pointed out that, so far, no second round effects on the price-setting process of the economy were observed.

In the reference quarter, inflation across all regional economies performed in line with the evolution of this indicator at the national level.



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

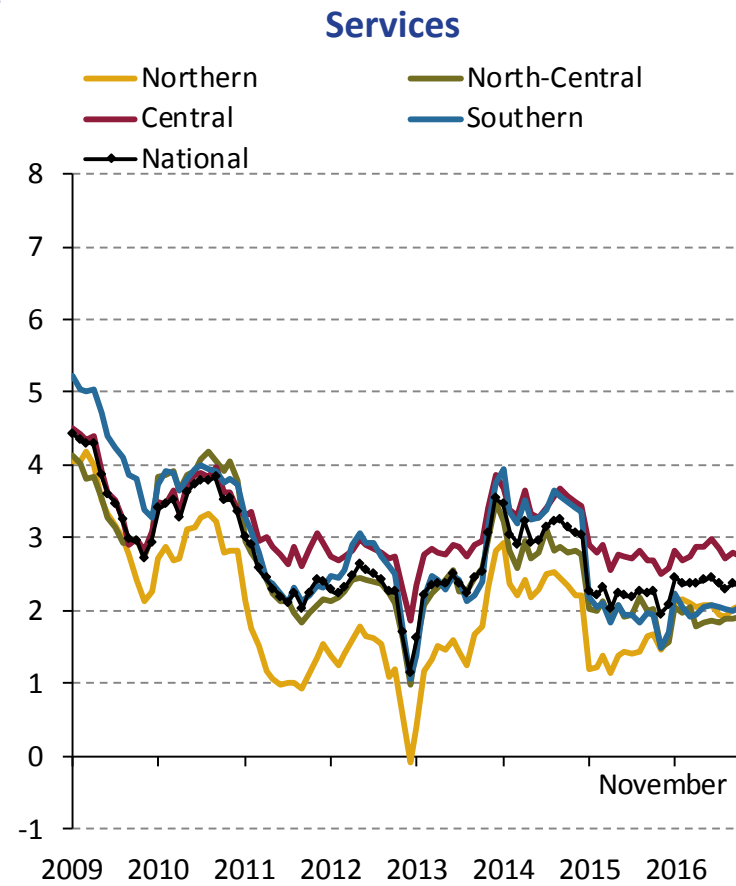
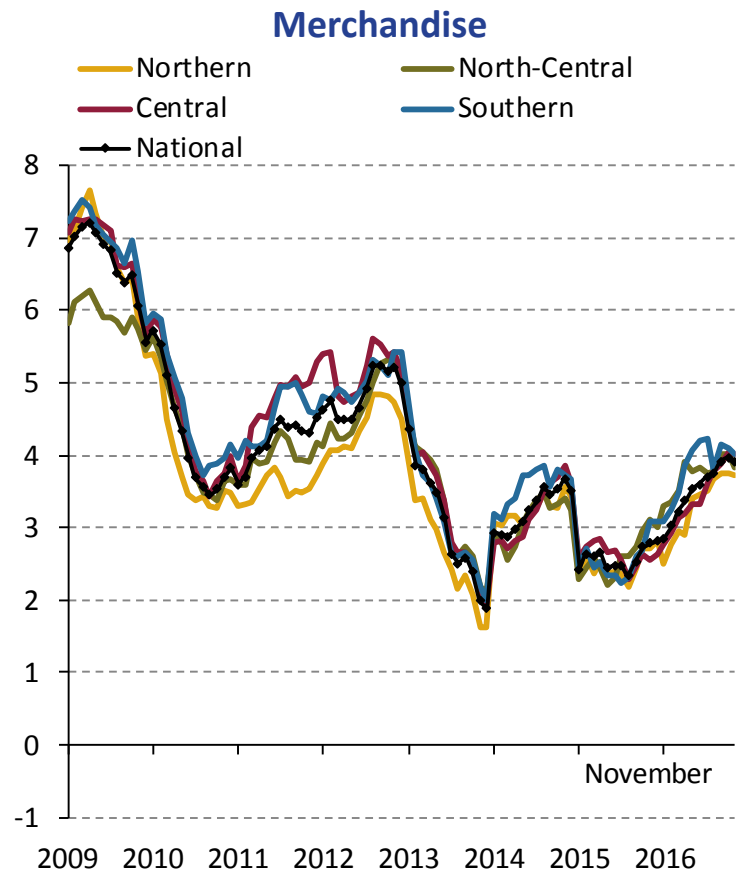
In 3Q 2016, annual core inflation maintained its upward trend in all regions of Mexico, reaching levels of around 3 percent.



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

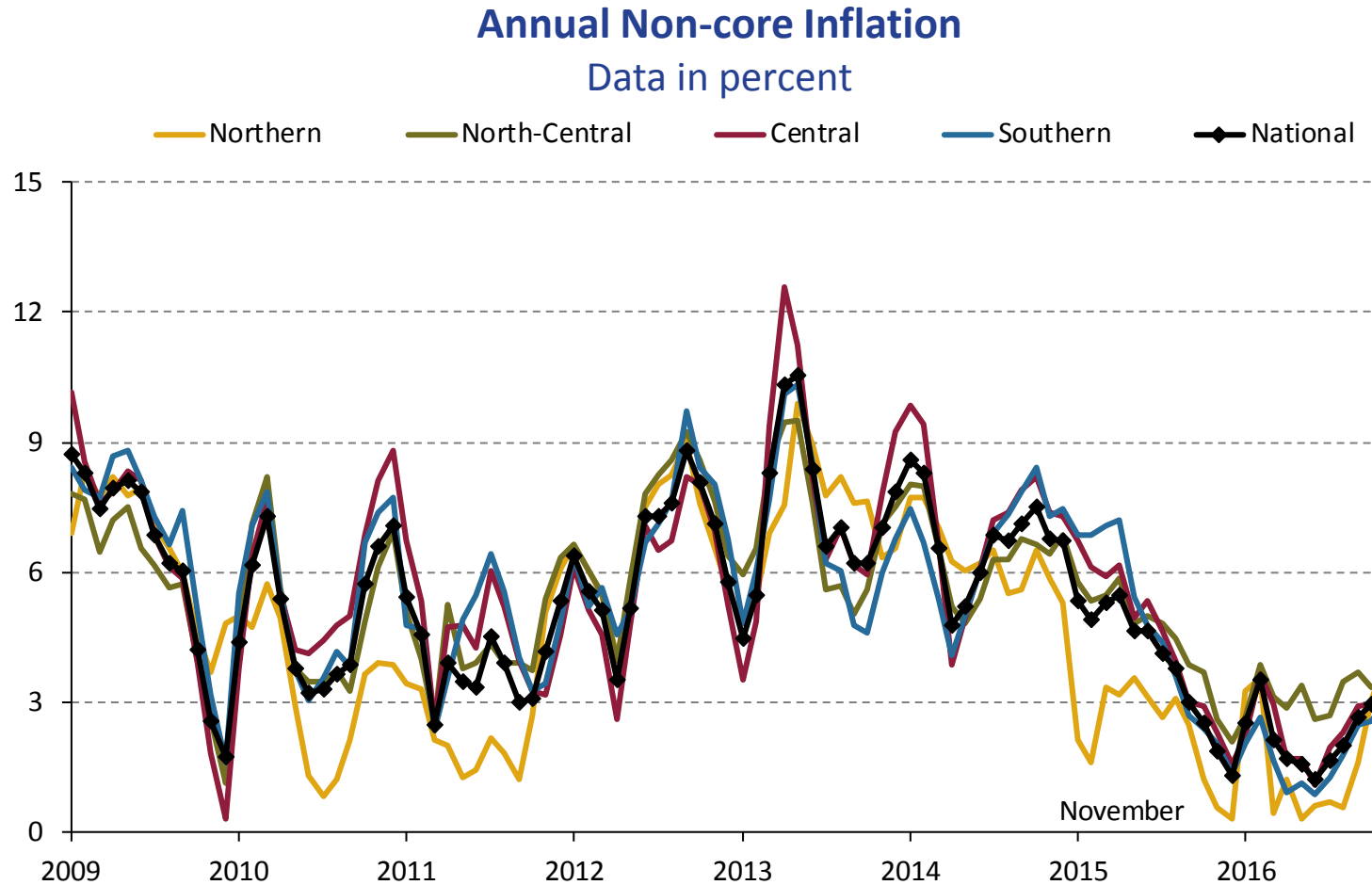
Indeed, the subindices of merchandise and services performed in a differentiated manner across regional economies. On the one hand, the annual growth rate of merchandise prices was accelerating. On the other hand, the annual growth rate of services' prices remained stable at low levels, although in November it rebounded in all regions due to the arithmetic effect related to mobile phone prices.

Components of Annual Core Inflation
Data in percent



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

In the reference quarter, the non-core component in all regions of Mexico presented an acceleration in its annual growth rate. Mostly, this derived from higher gasoline prices, especially in the Northern region, where they were more abrupt due to this fuel price increments in the border region. More recently, the performance of non-core inflation also resulted from higher prices of some agricultural products.



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

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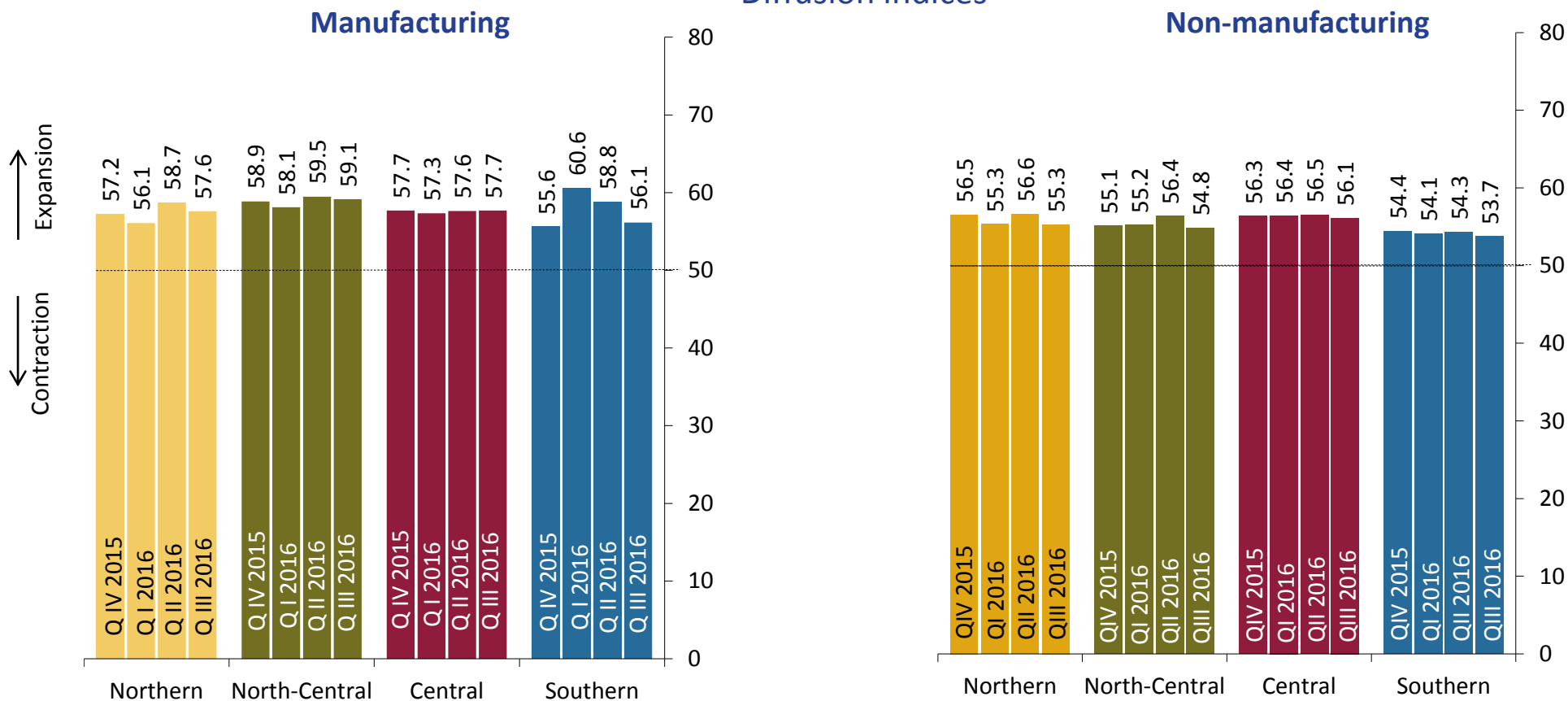
Economic Outlook

- Most business contacts interviewed by Banco de México anticipate an expansion of demand for own goods and services over the next 12 months in the four regions considered in this Report.
- Business agents' expectations are based on the following:
 - ✓ Domestic context: i) expansion of consumption, business support services, national tourism, non-residential private construction and agriculture and livestock activities; and ii) the momentum in some manufacturing subsectors focused on the domestic market, in particular food industry.
 - ✓ External context: i) the expectation of a renewed dynamism in manufacturing exports, especially automotive, car parts, aerospace, electronic and electric manufacturing; and ii) strengthening of tourism from abroad. Both of these factors are based on a better performance of the U.S. economy and the effects of the real exchange rate depreciation.

Indices of manufacturing and non-manufacturing orders indicate that activity will continue expanding over the following months in each regional economy. In the manufacturing sector, the sign of expansion slightly weakened in the Northern, North-Central and Southern regions. In the non-manufacturing sector, the indicator observed a lower level in all regions with respect to 2Q 2016, but it still points to expansion.

Regional Index of Manufacturing and Non-manufacturing Orders: Activity Outlook, Next 3 Months ^{1/}

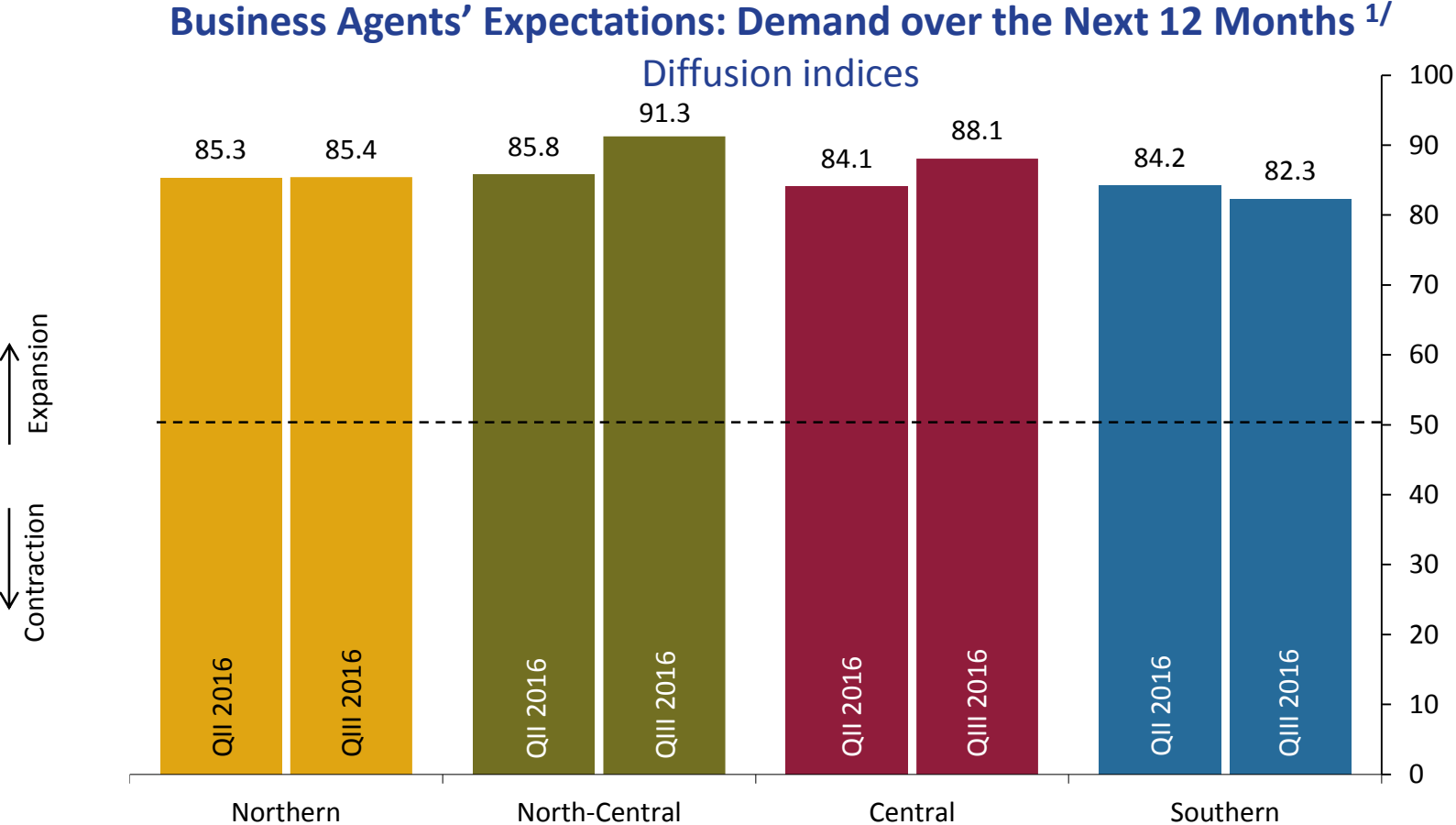
Diffusion indices



^{1/} Seasonally adjusted data.

Source: Banco de México.

Most business agents interviewed by Banco de México anticipate an expansion of demand for own goods and services in all regions of Mexico over the next 12 months. This estimation is more optimistic in all regional economies as compared to 2Q 2016, with the exception of the Southern region, where the expansion signal slightly weakened, and the Northern region, where it remained at the same level as in 2Q 2016.

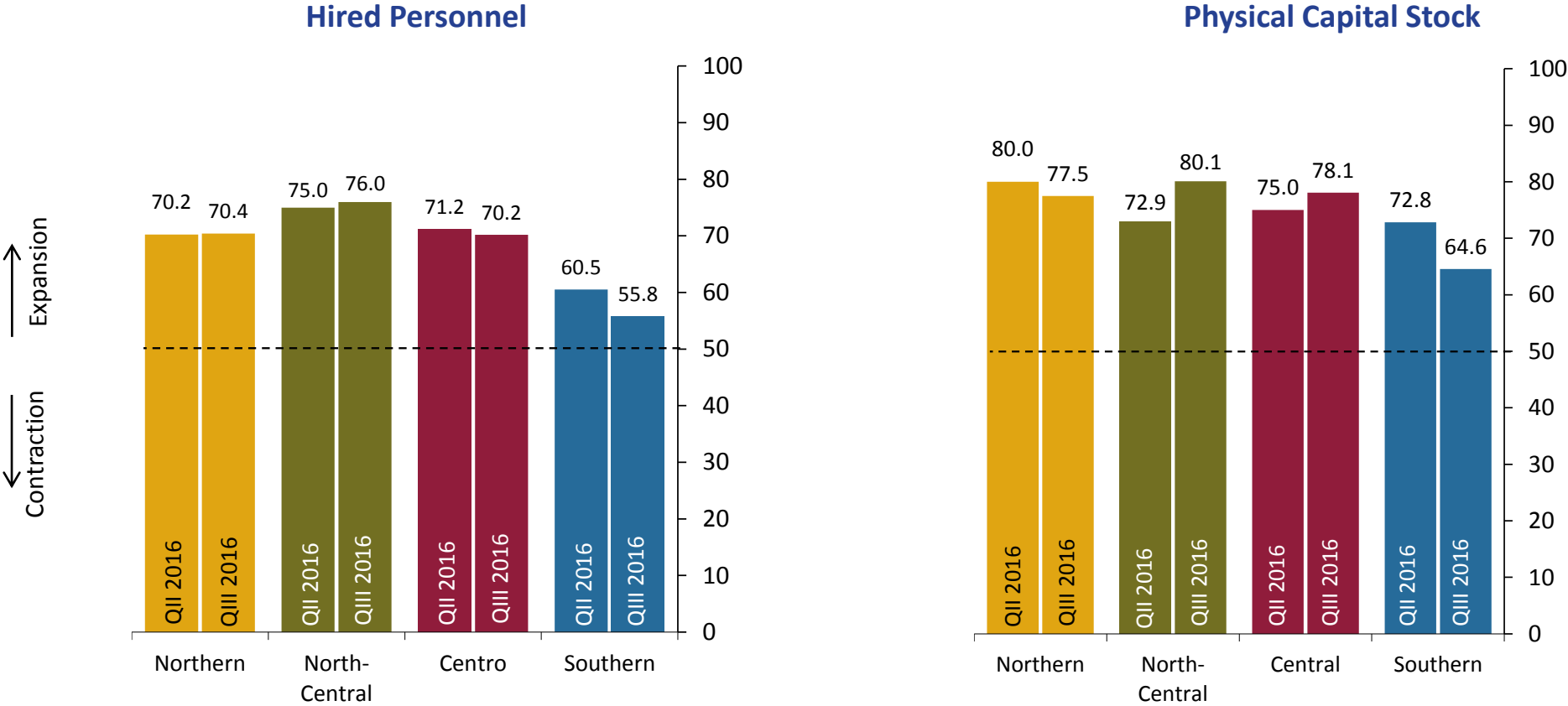


^{1/} Results obtained from responses to the question: “With respect to the situation in the current quarter, how do you expect demand for own goods and services to modify over the next 12 months?”, from interviews conducted by Banco de México.

Consistent with the estimated growth in demand for own goods and services, business agents generally anticipate an increment in the number of hired personnel and the volume of physical capital stock across different regions of Mexico.

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

Diffusion indices



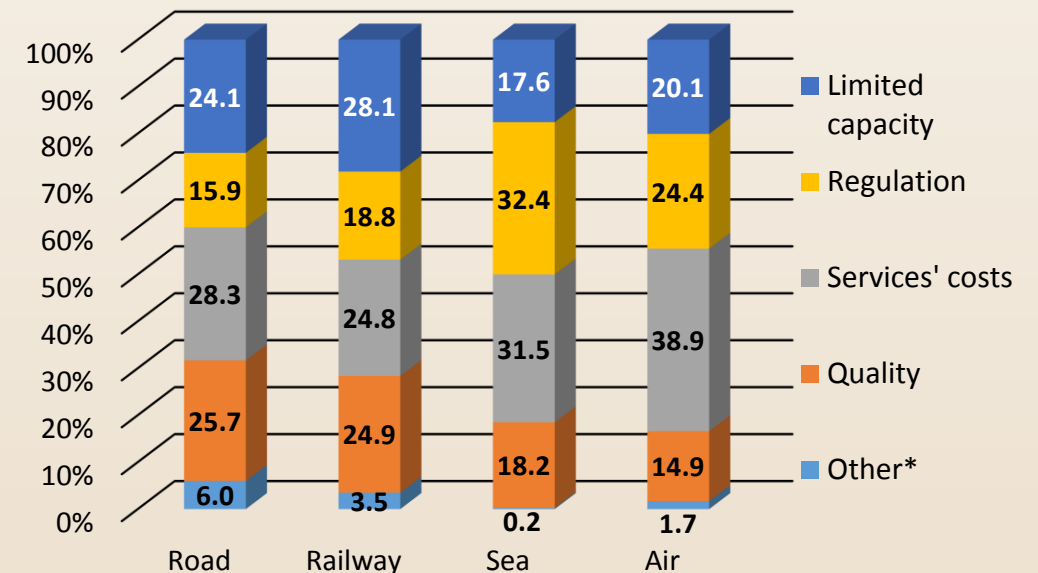
1/ Results obtained from responses to the question: “With respect to the situation in the current quarter, how do you anticipate the personnel hired in your firm to change over the next 12 months?”, and “How do you expect the physical capital stock to modify in your firm over the next 12 months?”, from interviews conducted by Banco de México.

Box:

Transport Infrastructure in Mexico: Challenges and Opportunities

- This Box analyzes Mexico's **transport infrastructure**, based on the opinions of business representatives who participated in the Monthly Survey of Regional Economic Activity, conducted by Banco de México in October 2016.
- In particular, the following were analyzed: i) the main types of transport infrastructure used by businesses; ii) challenges regarding the use of the said infrastructure; and iii) the expected changes regarding these factors.
 - ✓ Consulted business leaders noted that the most used transport infrastructure consists of: road transportation (72 percent), followed by sea transportation (13 percent), air transportation (10 percent) and railway transportation (5 percent).
 - ✓ Business agents indicated that the main aspects that need to be improved in land transportation (road and railway) refer to their quality, capacity and service costs. On the other hand, in the case of sea and air transportation, the main areas of improvement lie in services' costs and their regulation.

Chart 1
Main Challenges for Transport Infrastructure
Percentage



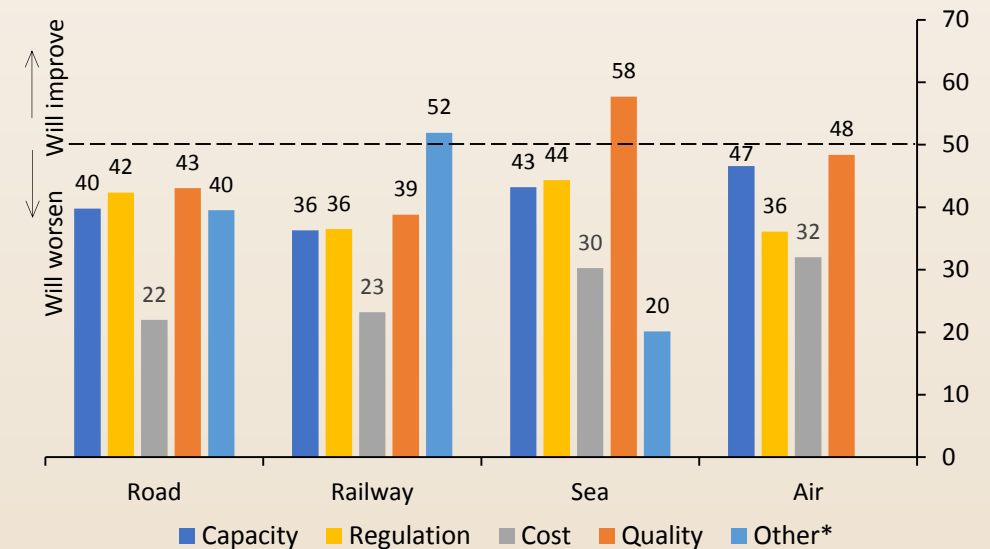
* "Other" principally refers to aspects related to insecurity.

Source: Estimated by Banco de México based on results of the Monthly Survey of Economic Activity.

Box: Transport Infrastructure in Mexico: Challenges and Opportunities

- Consulted agents identified areas for improvement in different types of infrastructure for the next years.
 - ✓ **Costs** represented an aspect emphasized across all types of transport infrastructure.
- An efficient transport infrastructure is essential to boost competitiveness across those regions of Mexico that face high costs to ship produced goods and required inputs, thus facilitating access to new markets and the diversification of exports' destinations.
- Finally, business contacts highlighted the use of Public-Private Partnerships, strengthening and modernizing the legal and regulatory framework, and the adoption of better evaluation processes, as well as allocating projects.

Chart 2
Expected Changes regarding the Main Challenges in Transport Infrastructure for the Next 3 Years
Diffusion indices



* "Other" mainly refers to aspects related to insecurity.

Source: Estimated by Banco de México based on results from the Monthly Survey of Economic Activity.

Risks to Economic Activity

Upward risks

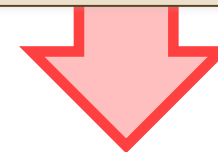


- ✓ A greater than estimated increase in private investment levels in Mexico, especially from abroad.
- ✓ Strengthening of external demand, associated to a higher dynamism of the U.S. economy and to a depreciated real exchange rate.
- ✓ Some business contacts in the Northern region mentioned a possibility of an additional increment in trade in the border area, which is related to the depreciation of the real exchange rate; in central regions a better performance of the automotive industry was noted; and in the south a greater than expected growth in tourism and the energy sector were emphasized.

Downward risks



- ✓ The consequences that can derive from the outcome of the U.S. elections.
- ✓ Higher volatility in international financial markets, and in particular in the exchange rate.
- ✓ A possible deterioration in the perception of public safety.
- ✓ Some business agents interviewed in the Southern region specified greater intensity of social conflicts and a lower level of public spending.

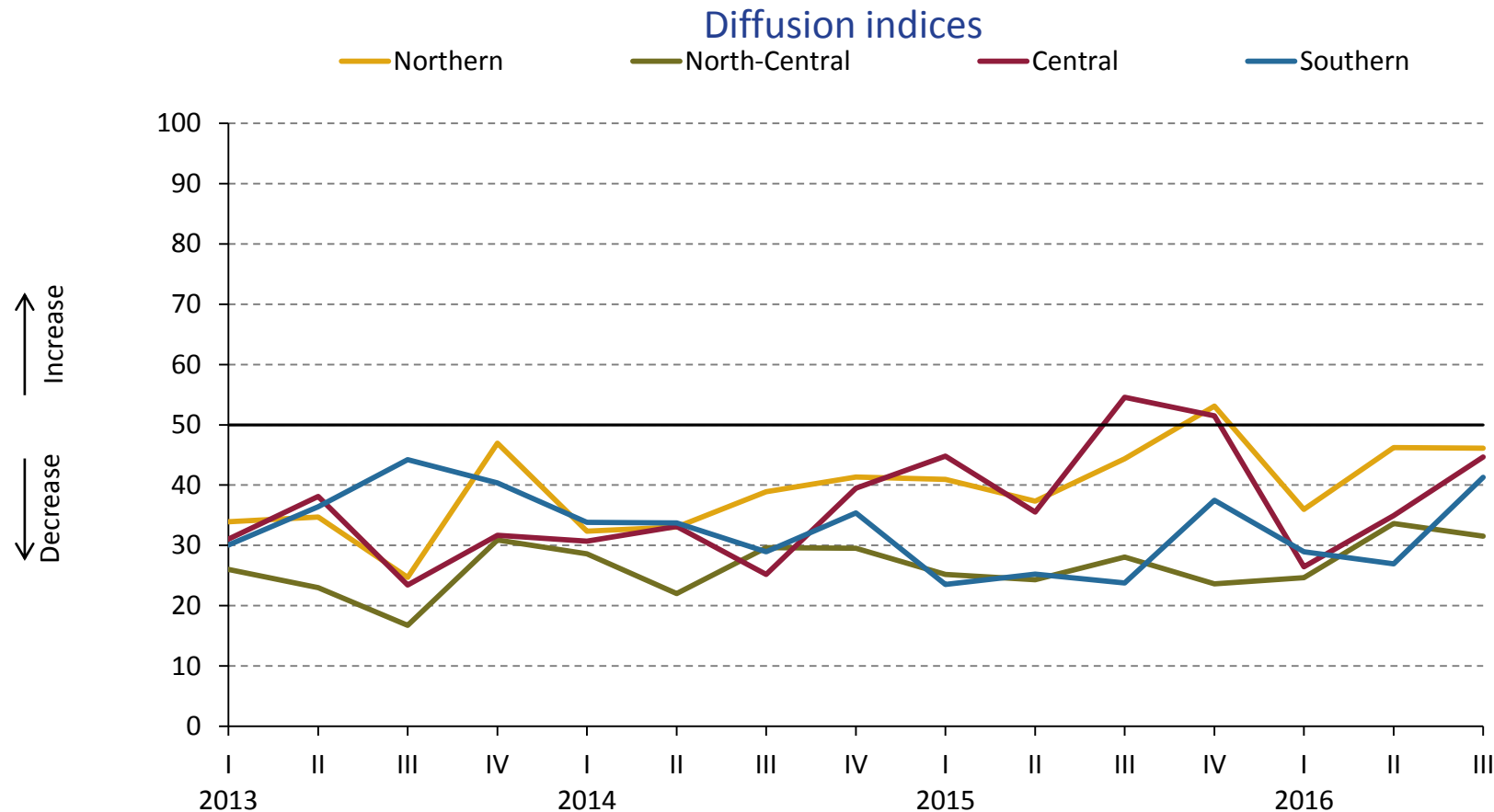


Economic Outlook

- Regarding the sales' prices of own goods and services, business agents generally anticipate lower annual change rates as compared to 2015, for a 12-month period.
 - ✓ However, the expectations of a decrease in the growth rate of their prices weakened considerably, with respect to those reported in 2Q 2016 in the Central and Southern regions, while in the Northern and North-Central ones they remained relatively constant.
- As regards wage costs for the next 12 months, the consulted agents anticipate a lower annual change rate than that in 2015, in all regional economies.
- In contrast, regarding the outlook for the future evolution of input prices, business contacts expect an annual change rate that is equal to or higher than in 2015 in all regions, with the exception of the North-Central region.

Business agents consulted in all regions of Mexico generally anticipate smaller annual changes in the prices of produced goods and services as compared to last year, for a 12-month horizon. Still, the expectations of the lower growth rate in their prices weakened with respect to those reported in 2Q 2016 in the Central and Southern regions, while in the Northern and North-Central regions they remained relatively constant.

Business Agents' Expectations: Annual Inflation Dynamics of Sales' Prices, Next 12 Months ^{1/}

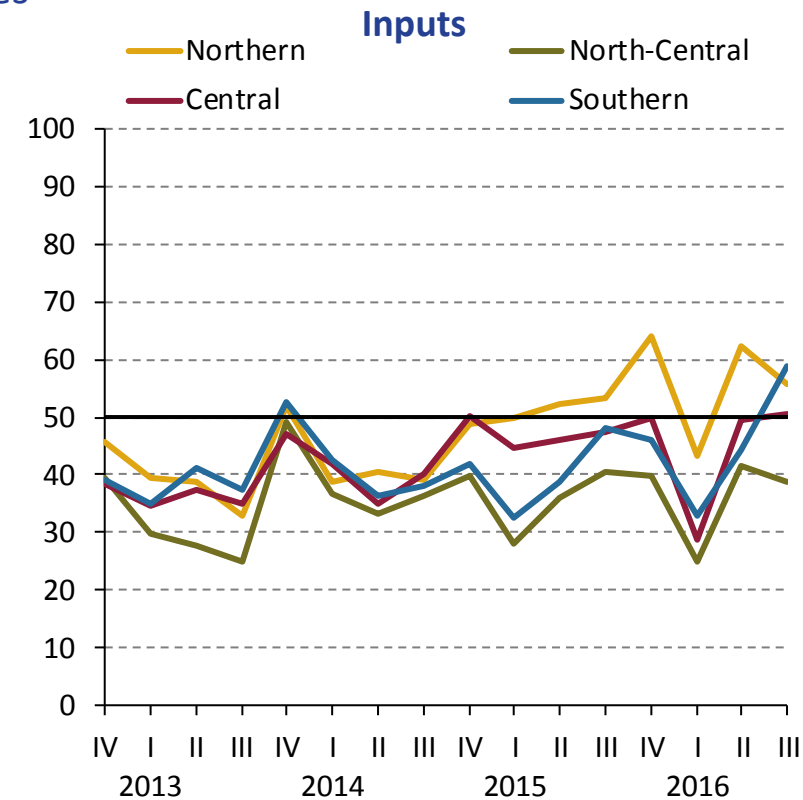
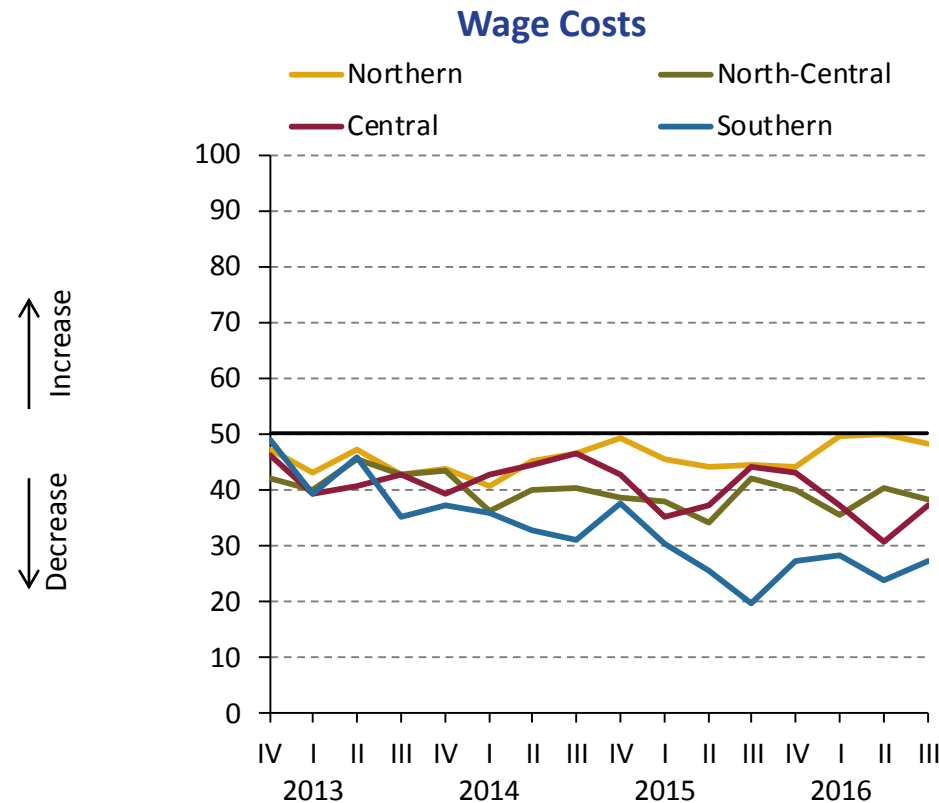


^{1/} Results obtained from responses to the question: "With respect to the situation in 3Q 2016, do you anticipate any modification in the sales' prices of produced goods and services, over the next 12 months?" and "As compared to the same period of last year, of what magnitude do you expect this adjustment: greater, same or smaller?", from interviews conducted by Banco de México.

Consulted business agents anticipate a smaller annual change rate in their wage costs as compared to 2015, in all regions of Mexico for the next 12 months. In contrast, as regards the future evolution of their input prices, business contacts expect an annual change rate that is equal or higher than that in 2015, in all regional economies, with the exception of the North-Central region.

Business Agents' Expectations: Annual Inflation Dynamics of Input Prices and Wage Costs, Next 12 Months ^{1/}

Diffusion indices



^{1/} Results obtained from responses to the question: "With respect to the situation in 3Q 2016, do you anticipate any modification in input prices and wage costs over the next 12 months?", and "As compared to the same period of last year, of what magnitude do you expect this adjustment: greater, same or smaller?", from interviews conducted by Banco de México.

Outline

- I. Regional Economic Report
- II. Results July – September 2016
 - A. Economic Activity
 - B. Inflation
 - C. Economic Outlook
- III. Final Remarks

Final Remarks

- ① During 3Q 2016, the reactivation of productive activity was mainly attributed to the recovery in the services' sector, while industrial production, as a whole, remained stagnant. In this context, it is estimated that the Northern and the North-Central regions presented a higher dynamism in the level of activity as compared to 2Q 2016, while the Central region expanded moderately, although it was less than in the previous quarter. A relative stagnation was registered in the Southern region, following a contraction in 2Q 2016.
- ② During the reported quarter, annual headline inflation accumulated 17 consecutive months below the permanent 3 percent target, although in November it lied above the said level.
- ③ Business agents interviewed by Banco de México in all regional economies generally expect demand for own goods and services to grow during next year. Likewise, the consulted sources anticipate a rise in the number of hired personnel and the volume of physical capital stock across different regions.
- ④ As regards inflation expectations for the next 12 months, business contacts in all regional economies anticipate annual growth rates of prices and wages costs to be lower than in 2015. Additionally, in most regions business agents expect increments in input prices to be equal to or greater than in 2015.
- ⑤ Finally, it should be noted that the outlook for regional economies has turned more complex, in part as a consequence of the U.S. elections and their result. Indeed, it should be acknowledged that this event could affect the structural relation between Mexico and its main trade partner. Hence, to achieve both greater trade diversification and fast and sustained economic growth, it is important to proceed with the prompt and adequate implementation of structural reforms, and to continue boosting all factors that promote investment in Mexico, particularly improving infrastructure.



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