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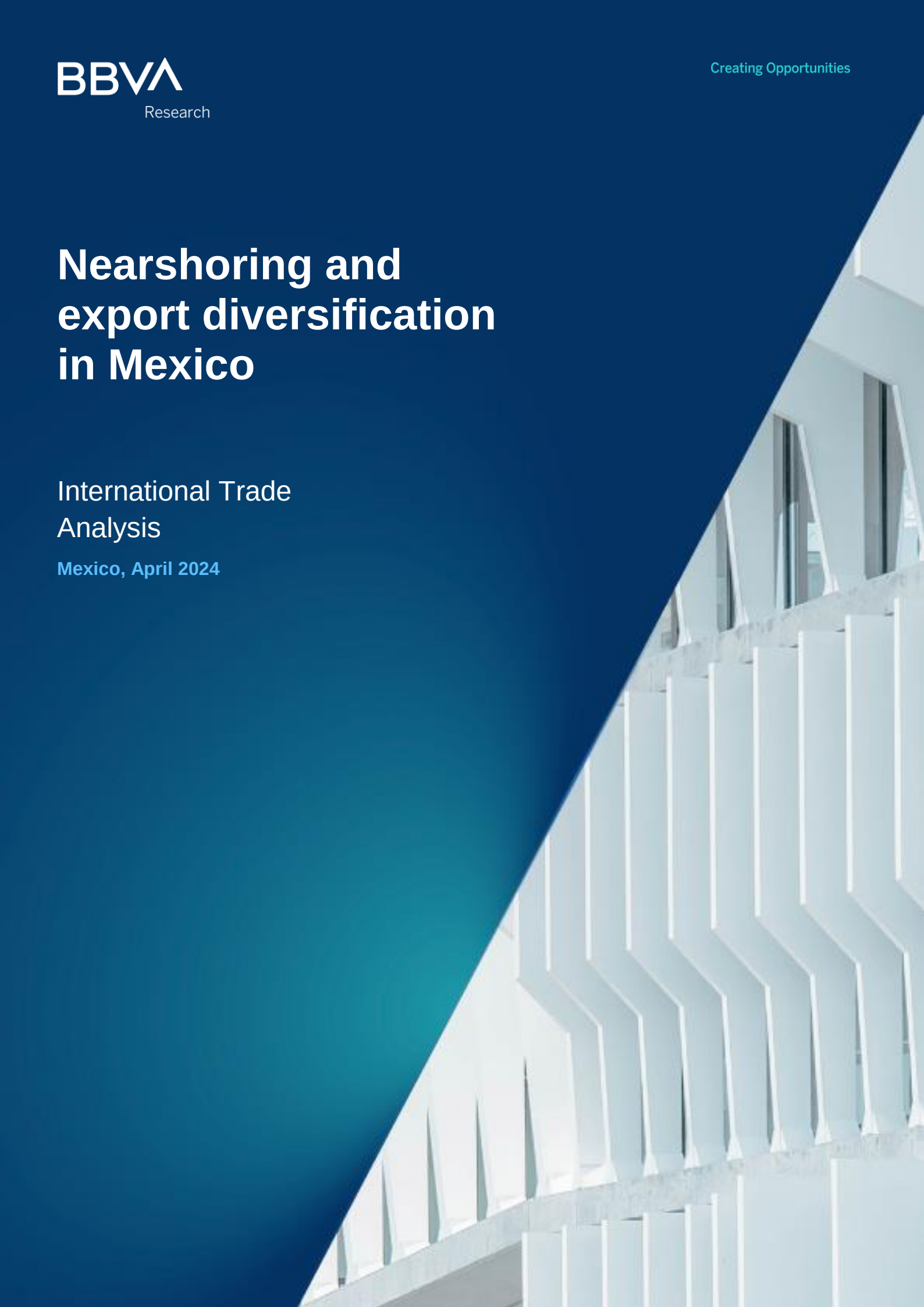
Nearshoring and export diversification in Mexico

International Trade Analysis

Mexico, April 2024



Nearshoring and export diversification in Mexico[1]

Diego López / Carlos Serrano / Samuel Vázquez / Mauricio Escalera

Mexico's trade integration with the rest of the world began to take off in the 1980s when the country signed the General Agreement on Tariffs and Trade (GATT). The country further strengthened its trade integration by signing 1994 the North American Free Trade Agreement (NAFTA). Over the next 25 years, Mexico continued expanding its trade partnerships by signing bilateral treaties and initiatives with European, South American, and Asia countries. Negotiations began in 2018 for the current Treaty between Mexico, the United States, and Canada (T-MEC). Today, Mexico is one of the most open economies in the world, with 14 Free Trade Agreements (FTAs) with 50 countries[2]. This trade opening process has dramatically increased the Exports/GDP ratio from 16.7% in 1986 to 42.6% in 2022[3].

Despite Mexico's great commercial openness, its geographical proximity to one of the largest markets in the world, such as the United States of America (USA), has generated a significant concentration of Mexican exports. At the end of 2023, this country absorbed 83.3% of Mexican non-oil exports, and Canada and China were far behind, with only 3.1% and 1.7%, respectively. In this same year, we observed the consolidation of Mexico as the leading trading partner of the USA, surpassing China as a supplier of merchandise and surpassing Canada in total trade volume[4]. This trend continued until January 2024, when the US imported 263.6 billion dollars from Mexico, representing 15% of its total imports. This escalation in Mexico's trade position resulted from the trade war between the US and China in 2018, leading to commercial reconfiguration and nearshoring[5].

In this analysis article, we seek to answer two questions. First, how has the degree of concentration in our exports evolved in two dimensions: product and destination since 2018? Second, how does the current nearshoring process relate to export diversification in these two dimensions?

To answer these questions, we start by studying the situation of Mexico's foreign trade, focusing on the high commercial integration with the USA. We subsequently carried out a regional analysis on the evolution between 2018 and 2023 of the degree of concentration of international sales in terms of destination country and product under the hypothesis that nearshoring would have the effect of diversifying sales in terms of products without affecting or even slightly increasing the concentration in terms of destination (to the USA). We review the main results and then zoom in on the states of Chihuahua, Guanajuato, and Puebla, identifying opportunities linked to diversification at the sectoral and regional levels. Finally, it concludes by reflecting on the benefits and costs of diversification versus specialization in international trade.

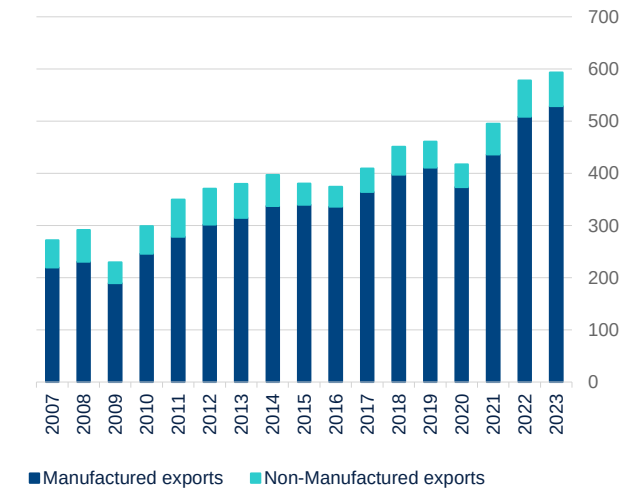
In 2024, the nearshoring race continues, and it is a priority to consolidate the country's strategic position to benefit from this relocation process of global value chains.

1 This article is part of a study titled "Mexico | Regional Sectoral Outlook. First Half 2024" and is available at this link.
2 Foreign Trade, Countries with Treaties and Agreements signed with Mexico. Ministry of Economy (SE).
3 Source: World Bank. Exports as % of GDP
4 Since February 2023, the United States has imported more merchandise from Mexico than China. Since May 2023, the total volume of trade (exports + imports) between Mexico and the US exceeds the volume between Canada and the US
5 In our publication "Mexico | Regional Sectoral Outlook. Second Half 2023", we identify the industries that have driven this growth in Mexican participation in US imports compared to China.

Mexico's trade outlook and the role of the USA

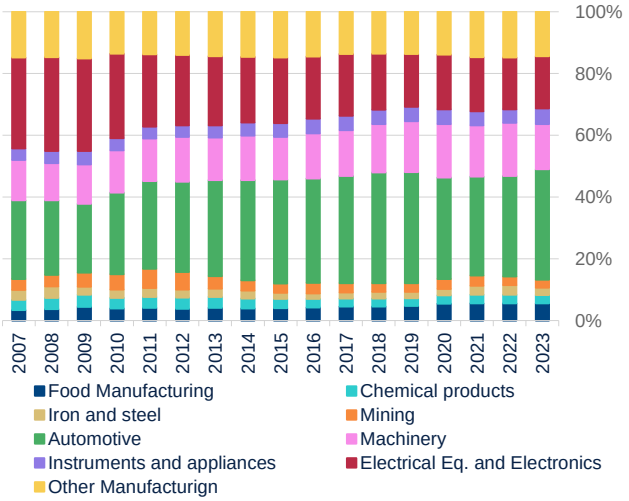
According to National Institute of Statistics and Geography (INEGI) figures, in 2023, Mexico exported 593.01 billion dollars, an advance of 2.64% compared to the previous year. Disaggregating non-oil exports, which advanced 3.9% in 2023, we see that manufacturing shows the most outstanding dynamism, growing 2.8%, with automotive manufacturing leading growth with 14.3% in the same period.

Figure 1. **MEXICO TOTAL EXPORTS** (BILLIONS OF CURRENT USD)



Source: BBVA Research with data from Inegi

Figure 2. **MEXICO MANUFACTURING EXPORTS** (PARTICIPATION % BY SECTOR)



Source: BBVA Research with data from Inegi

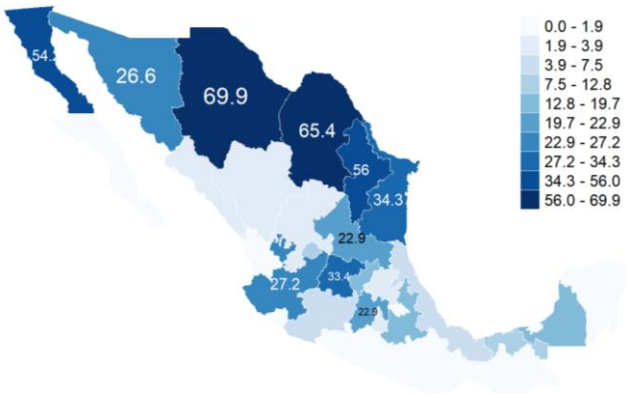
Mexican exports are concentrated both in composition and destination; Manufacturing is the driving force of Mexican international trade, representing 85.5% of exports[6], and the United States is the leading destination (80.7% on average), followed by Canada, the European Union, South America and to a lesser extent China, South Korea, and Japan. This composition has remained stable in the last decade (Figure 5). Added to the concentration of exports by country (USA) and sector (Manufacturing) is an additional concentration if we look at the disaggregation of manufacturing, where two subsectors have concentrated on average 62.8% of manufacturing exports since 2012. These are Transportation Equipment (336 NAICS[7] code) and Computer and Electronic Equipment (334)[8]. If we sum the contribution of exports of Primary Metals (331), Machinery and Equipment (333), Electrical and Generation (335), and the Chemical Industry (325), we reach 80% participation in manufacturing exports.

At the regional level, by the end of 2023, Chihuahua remains the leading exporting state with a contraction of 8.7% compared to 2022; Coahuila advances 9% annually, positioning itself as the second exporting state, followed by Nuevo León growing 5.5% and Baja California, which advances 3.2% at an annual rate. These four states represent

[6] Share of manufacturing exports in total exports since 2012
[7] North American Industry Classification System
[8] Manufacture of Computer, Communication, Measurement, and other electronic Equipment, Components, and Accessories (Subsector 334)

46.1% of state exports in 2023. On the other hand, the states that contract their exports the most this year are Quintana Roo, Zacatecas, and Veracruz, representing 4.4% of exports this same year.

Figure 3. **MEXICO EXPORTS BY STATE 2023** (BILLIONS OF USD)



* Values in USD billions for top 10 export states. Source: BBVA Research with data from Inegi

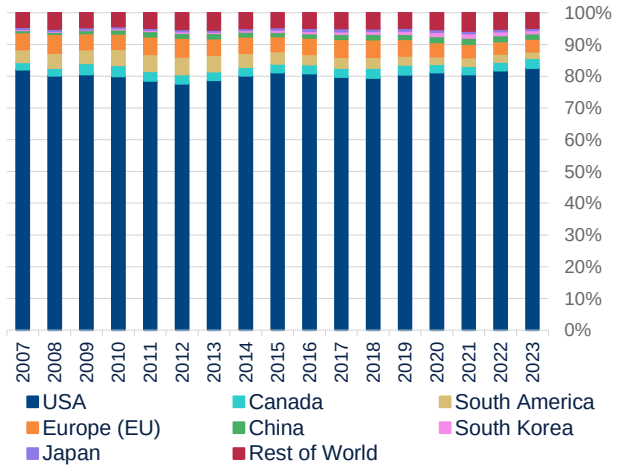
Figure 4. **MEXICO EXPORTS BY STATE 2023** (YoY GROWTH, %)

Source: BBVA Research with data from Inegi

United States as the leading export destination

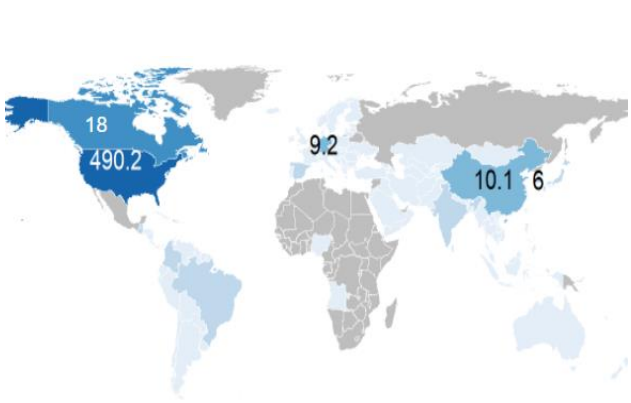
By the end of 2023, the total trade value between countries reached 745.6 billion dollars, of which 490.2 billion dollars were sales of Mexican merchandise to the United States; this represents a trade surplus favorable to Mexico of 234.7 billion dollars. The amount of sales to the USA increased at an annual rate of 3.7% and to Canada at 15.5%. In this way, North America increased its commercial relevance, confirming regional consolidation in the nearshoring process at the same time that sales to Asia fell 10.9% and, in particular, to China, fell 7.9%

Figure 5. **EXPORTS FROM MEXICO** (SHARE % BY DESTINATION COUNTRY)



Source: BBVA Research with data from Inegi

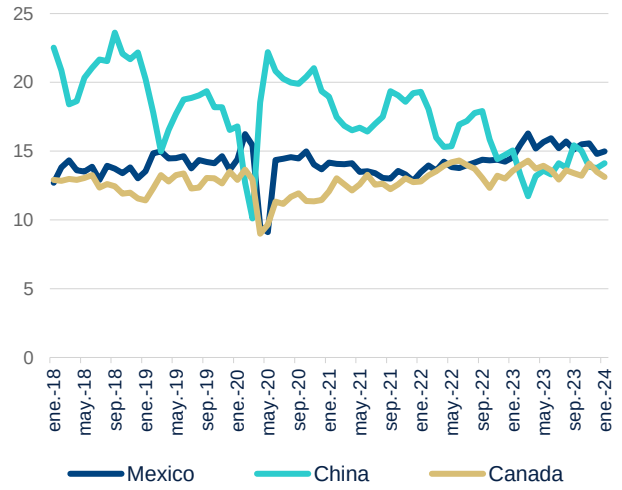
Figure 6. **MEXICO GOODS EXPORT 2023** (BILLIONS OF USD)



USA: 490.2, Canada: 18, China: 10.1, Germany: 9.2, South Korea: 6.
Source: BBVA Research with data from Inegi

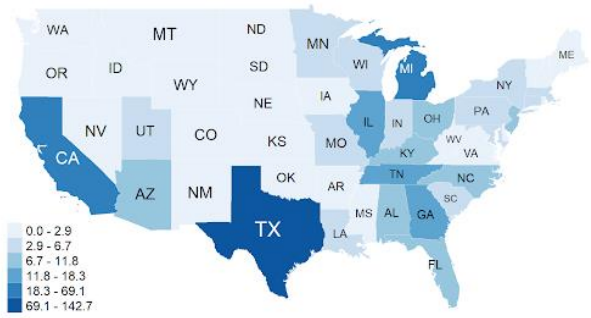
From the US point of view, with Census data, annual imports of goods from Mexico in 2023 reached 475.6 billion dollars, while imports of Mexican manufacturing reached 422.1 billion dollars (88.7% of total US imports from Mexico), corroborating the concentration in manufacturing goods. From a regional point of view in the USA, US demand for Mexican goods is mainly concentrated in the states of Texas (142.7 billion dollars, 30.3% of the total), Michigan (69 billion dollars, 14.7%), and California (61.5 billion dollars, 13.1 %).

Figure 7. **US GOODS IMPORTS** (% OF TOTAL IMPORTS)



Source: BBVA Research with Census data

Figure 8. **US GOODS IMPORTS FROM MEXICO BY STATE** (BILLIONS OF USD)



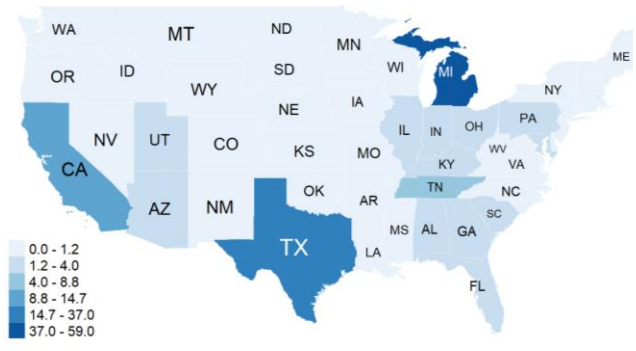
Source: BBVA Research with Census data

The demand for Mexican goods imported from the US shows a geographic pattern linked more to US industrial regions and less to the main cities regarding final consumption. This relationship is more apparent when disaggregating American exports of manufactures such as Transportation Equipment (34% of total imports from Mexico in 2023), concentrated mainly in the state of Michigan (59.0 billion dollars), Texas (36.9 billion dollars), California (14.7 billion dollars) and Tennessee (8.8 billion dollars). Computers and Electronics hold the second place (16% imports from Mexico, 2023), concentrated mainly in the states of Texas (34.1 billion dollars), California (12.8 billion dollars), Georgia (3.9 billion dollars), and North Carolina (3.6 billion dollars).

The literature recognizes a significant synchronization between the Mexican industrial cycle and US demand with differences at the regional level. Delajara (2012), through a linear structural time series model, identifies a more significant covariance between the cyclical disturbances of the USA and the northern regions of Mexico, more significant than the covariance with the center and south of the country. Additionally, Delajara identifies that most of the economic cycle of the northern and central regions is mainly associated with shocks to the US economy. At the same time, Mexico's south region reacts primarily to specific shocks to the Mexican economy. We establish this result by analyzing the variations between industrial cycles with a correlation coefficient of 91.19% and a linear fit[9] with a determination coefficient of 83%.

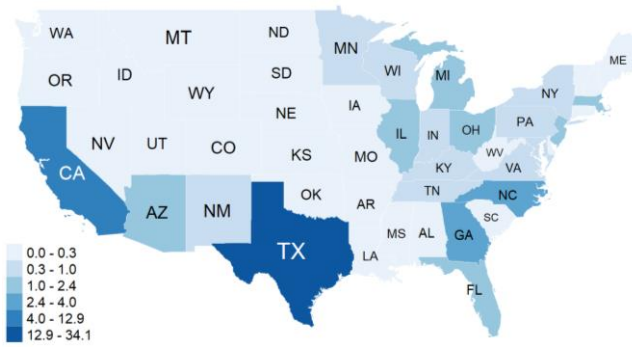
[9] Estimated through MCO testing specifications at 1 and 2 lags with the Monthly Indicator of Industrial Activity (Mexico) and the Industrial Production and Capacity Utilization (US).

Figure 9. **US TRANSPORTATION EQ. IMPORTS FROM MEXICO BY STATE** (BILLIONS USD, 2023)



Source: BBVA Research with Census data

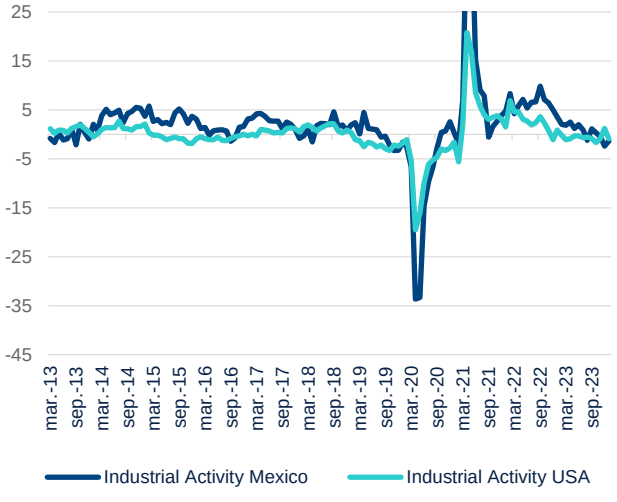
Figure 10. **US COMPUTER & ELECTR. IMPORTS FROM MX BY STATE** (BILLIONS USD, 2023)



Source: BBVA Research with Census data

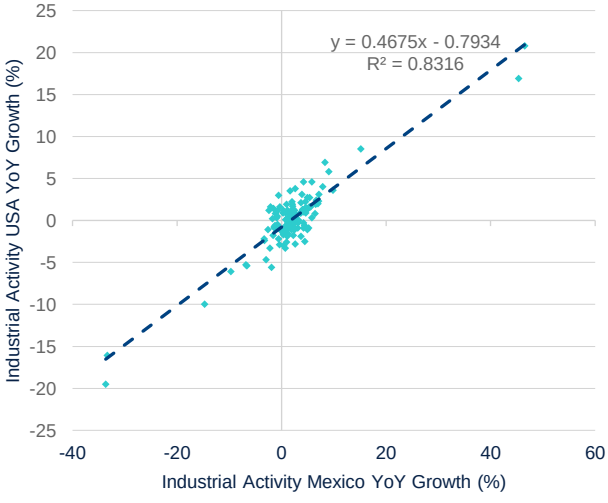
The above shows that the greater economic integration between Mexico and the USA has boosted our country's export profile. However, despite the apparent benefits that regional integration with the USA has left, a heterogeneous pattern is observed at the regional level in Mexico, where the effect on exports is perceived to a greater extent by northern states, and it dilutes as we move further down to the south of the country. This diversity in the export vocation of the states is not only due to the geographical proximity to the USA. Regional differences in infrastructure, human capital endowment, and transportation costs can affect the competitiveness of states (Chiquiar, 2005).

Figure 11. **INDUSTRIAL ACTIVITY MEXICO & USA** (YoY GROWTH, %)



Source: BBVA Research with data from Inegi & Census

Figure 12. **INDUSTRIAL ACTIVITY MEXICO USA** (YoY GROWTH, %; LINEAR FIT OLS)

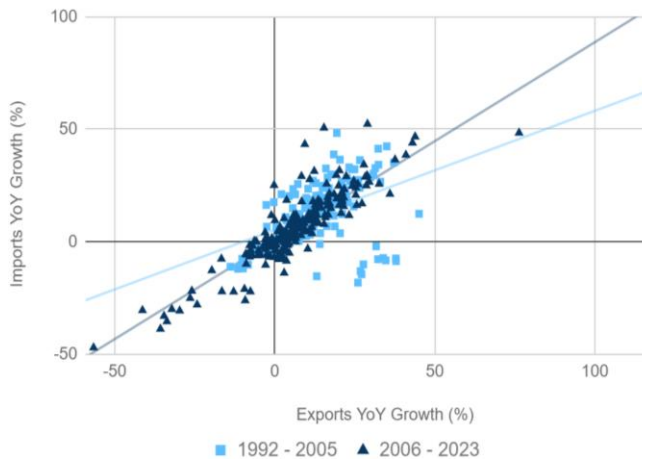


Source: BBVA Research with data from Inegi & Census

In addition to regional variation in Mexico's export industry, the country's growth as an export powerhouse has led to increased dependence on imported inputs to produce these goods. According to the World Trade Organization (WTO), in Mexico, the imported content of exports increased on average from 27.3% in 1995 to 33.5% in 2015, an increase of 22.7% in 20 years, surpassed only by South Korea[10]. The information from the global input-output matrices published by the Organization for Economic Cooperation and Development (OECD) for 2018 (the most recent year as of the date of this article), together with the methodology presented by Koopman et al. (2014), allows us to estimate the imported content in Mexican export industries. This analysis enables us to identify the industries with the highest proportion of foreign inputs (Computers and Electronics, Machinery and Equipment, Transportation Equipment)[11], the same industries that, as shown above, lead sales from Mexico to the USA.

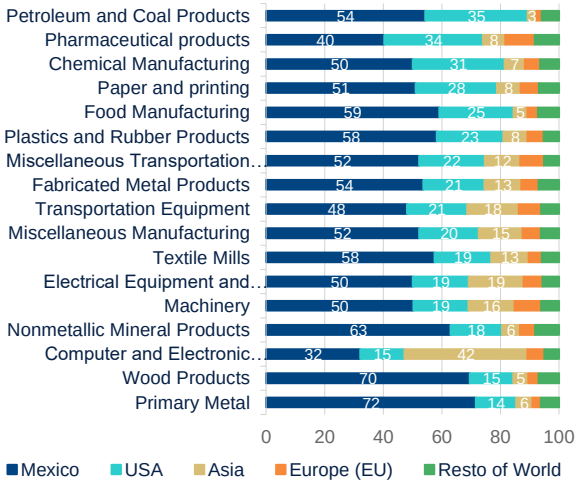
Another way to see this phenomenon is by analyzing the relationship between exports and imports (measured in annual variation), which for the period from 1992 to 2005 was 0.38 (for every percentage increase of 1% in exports, imports increased by 0.38%); while for the period from 2006 to 2023, this relationship strengthens to 0.91%[12]. Economic literature has studied this phenomenon known as Thirlwall's Law[13], which indicates that the imported content of high added value and the low domestic value incorporated in export manufacturing limits the benefits for the rest of the economy and thereby limits the potential growth. Incorporating parts of the value chain with greater domestic added value and the diversification of Mexico's export profile with nearshoring would help counteract this effect. The following section addresses the second hypothesis: diversification through nearshoring in Mexico's export profile.

Figure 13. **MEXICO EXPORTS AND IMPORTS** (YoY GROWTH, % LINEAR FIT 1992- 2023)



Source: BBVA Research with data from Inegi

Figure 14. **MEXICO: IMPORT CONTENT OF EXPORTS** (SHARE %)



Source: BBVA Research with data from OECD

[10] Trade Profile, México. World Trade Organization, 2018

[11] For a more in-depth discussion of the breakdown of exports by imported content and the methodology to estimate the content, see "Mexico Regional Sectoral Outlook. First half 2022".

[12] Estimated with an OLS linear regression, where the dependent variable is the annual percentage variation in exports and the independent variable is the yearly percentage variation in imports for the two periods, we obtain significant coefficients at 99%.

[13] Anthony Philip Thirlwall was a British economist who, in 1979, proposed a growth model for open economies with a restriction derived from the imported share of export content

Concentration of foreign sales by destination and by product

The primary data source used in the following analysis is the database "Trade Balance of Merchandise of Mexico by state (BCMM)." This statistical program is developed jointly by the Tax Administration Service (SAT), the Ministry of Economy (SE), the Bank of Mexico (BM), and the National Institute of Statistics and Geography (Inegi), which contributes to the integration of the System of National Accounts and the calculations of the Balance of Payments. We retrieve the data through the API of the Data México portal, disaggregating annual international sales[14] (exports) between 2018 and 2023 by state and country of destination at the item level, corresponding to 4-digit level of the Harmonized System (HS).

A limitation when using this source of information is the loss of information as the disaggregation increases for reasons of anonymity, sub representing the state's total export figures. For this reason, although disaggregation at the 6-digit level (HS6) is available, we find a balance[15] between disaggregation and the loss of information due to anonymization, carrying out our analysis at the 4-digit level (HS4). This approach contrasts with Banxico (2016), which infers the destination of exports at the state level from the structure of national exports. Our approach uses international sales data directly reported to the BCMM without assuming a structure on state exports.

We estimate Herfindahl-Hirschman indices[16] (HHI) to measure the concentration of exports of each state in two dimensions: 1) by destination (IHH_D) and 2) by product (IHH_P). The HHI results from the sum of the square of the shares of the destination countries to which the state exports (IHH_D) or the products exported by the state (IHH_P) according to the following formulas:

$$IHH\_D_e = \left(\sum_{d=1}^{D_e} \left(\frac{x_{ed}}{X_e}\right)^2 - \frac{1}{D_e}\right) * \left(\frac{1}{1-\frac{1}{D_e}}\right) \qquad (1)$$

$$IHH\_P_e = \left(\sum_{e=1}^{P_e} \left(\frac{x_{ep}}{X_e}\right)^2 - \frac{1}{P_e}\right) * \left(\frac{1}{1-\frac{1}{P_e}}\right) \qquad (2)$$

Where e ϵ {1,...,32} represents the Mexican State, d ϵ {1,...,D} represents the country (destination) to which the state exports, p ϵ { 1,...,P} represents the product that the state exports. Following the World Bank and the OECD[17] convention, we normalized[18] the indexes. Hence, they take values between 0 and 1, where a value close to 1 means a greater export concentration (less diversification). Additionally, we estimate both indicators at the country level to have reference values.

[14] International sales refer to the total sales abroad of firms with tax domicile registered in the entity. Therefore, they may differ from the official data on exports by Inegi, which, as of the date of this article, reaches 3Q22 in preliminary figures. Due to this caveat, we exclude the results for CDMX due to the concentration bias of tax domiciles.

[15] With the HS4 disaggregation selected, we account for 81.7% of total exports at the national level.

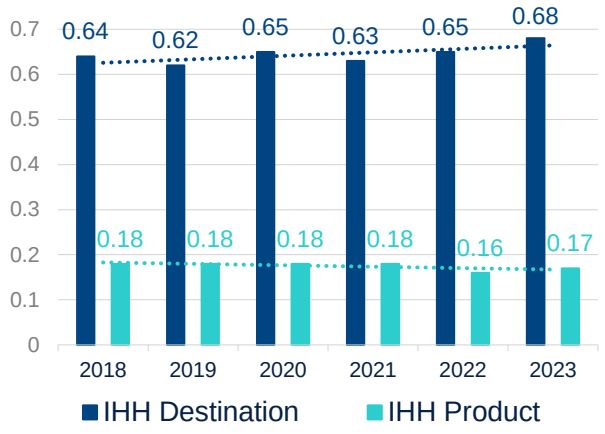
[16] Industrial organization studies also frequently employ the HHI to measure the degree of concentration of an industry. In these applications, it is standard to present the non-normalized index, taking theoretical values ranging from 1/n to 10,000 points (where n is the number of companies in the relevant market). In this case, we apply this index to the international trade of each state, taking as "n" the number of countries to which it exports (IHH_D) and taking as "n" the number of products it exports (IHH_P).

[17] The WITS system reports HHI by destination and supplier (exports and imports). In contrast, the OECD report distinguishes between the HHI of imports and the HHI of exports by destination. We estimate the latter at the country and state levels.

[18] When comparing the trade patterns of an economy over time, it is natural to think that the lower bound of the 1/n index can change. A normalization procedure between zero and one is necessary to ensure the comparability of the index over time. For a complete discussion, see Cracau, Lima. (2016) "On the Normalized Herfindahl-Hirschman Index: A Technical Note"

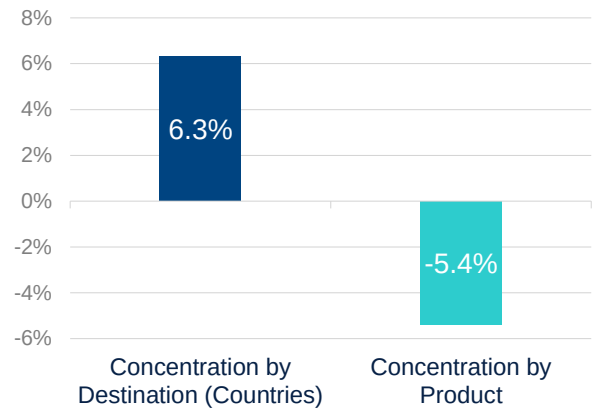
Mexican international sales are more concentrated in the destination countries' dimension than in the product range's dimension. At the national level, for the study period (2018 to 2023), the average concentration by destination (IHH_D) is 0.64 while the average concentration by product (IHH_P) is 0.17 (3.7 times more by destination than by product), remembering that values closer to 1 imply a greater concentration. When analyzing the evolution of the indicators, from 2018 to 2023, the concentration by destination increased by 4 points (from 0.64 to 0.68) while the concentration by product decreased by 1 point (0.18 to 0.17)[19]. In the period associated with nearshoring, Mexico has diversified its portfolio of exported goods by 5.4% at the cost of increasing its concentration in destination by 6.3%, mainly to the USA.

Figure 15. **MEXICO EXPORT CONCENTRATION** (HERFINDAHL-HIRSCHMAN: 0-1)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico
*Index closer to 1 imply a greater concentration

Figure 16. **MEXICO EXPORT CONCENTRATION** (GROWTH RATE 2018 – 2023; %)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

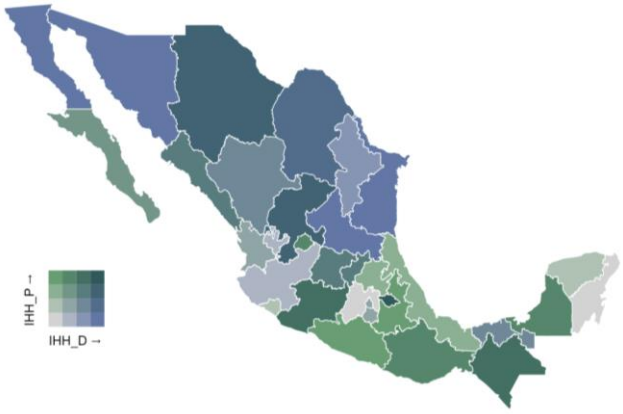
The regional approach reveals heterogeneous dynamics between the federal states[20]. We present two bivariate maps[21] for 2018 (left) and 2023 (right) that allow you to visualize the relationship between the two dimensions by classifying the states in one of 16 colored quadrants. Firstly, the concentration by destination is more significant in the northern states, and this dilutes as we move to the south of the country. For example, Chihuahua showed the highest concentration of international sales between 2018 and 2021 (averaging 0.94) and gradually diversified the destination of its exports since 2022. On the other hand, the State of Mexico (the ninth exporting state) shows a low concentration by destination, averaging 0.43 and close to zero per product (0.023) throughout the period, being the most diversified state in both dimensions.

An interesting case is Sonora, which in 2018 showed a concentration by destination of 0.77 (above the national average for that year of 0.64) and reduced it considerably in 2023 by 0.25 points, closing at 0.51 (below the national average for 2023 of 0.678). This diversification involved expanding to various destinations while maintaining a stable

[19] It is important to note that the HH indices inform us about the distribution of trade in the dimensions of product and destination rather than the underlying figures of the number of products and number of destination markets. Normalization allows comparison of indices over time but does not explicitly reveal variations in the total number of products and destination markets
[20] See the details for all states during the study period in the Appendix.
[21] A bivariate map presents two variables representing two phenomena that coexist spatially on the same map.

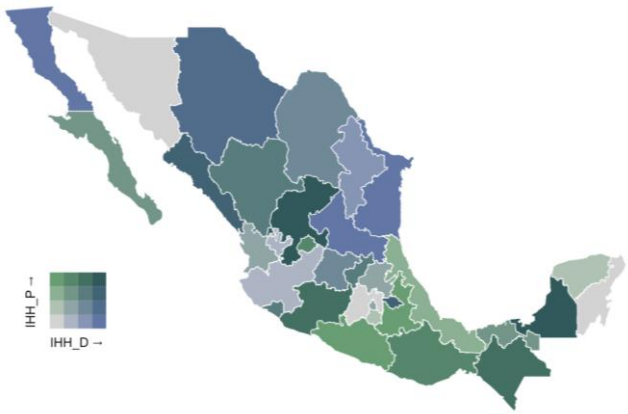
and low product concentration of 0.27, approaching the diversified profile in both dimensions that we illustrate in the case of the State of Mexico, considering that Sonora is the only border state with high diversification by destination.

Figure 17. **MEXICO EXPORT CONCENTRATION 2018** (IHH INDEX: 0-1)*



* A darker color indicates a higher concentration. Source: BBVA Research with data from Ministry of Economy (SE) Mexico

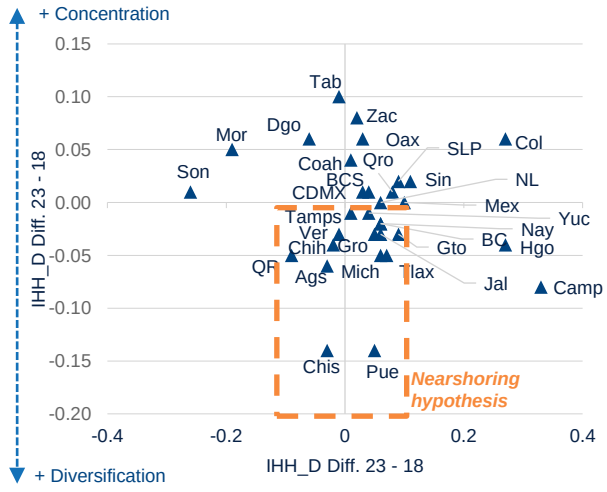
Figure 18. **MEXICO EXPORT CONCENTRATION 2023** (IHH INDEX: 0-1)*



* A darker color indicates a higher concentration. Source: BBVA Research with data from Ministry of Economy (SE) Mexico

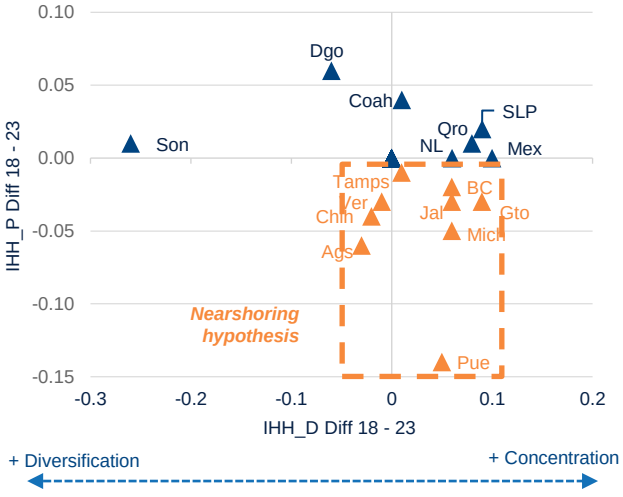
We want to determine the connection between the current nearshoring process and the diversification of international sales. To do this, we compare our initial hypothesis by setting thresholds that will help us identify which states have diversified their exports in terms of products. We also check for any changes in the destination (country) between 2018 and 2023.

Figure 19. **CONCENTRATION BY DESTINATION AND PRODUCT** (ABSOLUTE CHANGE 2018 - 2023)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Figure 20. **CONCENTRATION BY DESTINATION AND PRODUCT*** (ABSOLUTE CHANGE 2018 - 2023)



* Top 15 exporting states 2018-2023, Source: BBVA Research with data from Ministry of Economy (SE) Mexico

We set the concentration threshold per target (IHH_D) between -0.5 and +0.10 to identify slight changes (although more biased to concentration). We set the threshold for concentration per product (IHH_P) in negative ranges to capture diversification. Under this criterion, we identified 17 states that meet our hypothesis for the study period (see the orange box in Charts 117 and 118 with the legend "Nearshoring hypothesis"). Restricting the sample to the leading 15 exporting states (representing 92.5% of Mexico's exports), nine (9) states meet this hypothesis: Baja California, Aguascalientes, Chihuahua, Guanajuato, Jalisco, Michoacán, Puebla, Tamaulipas, and Veracruz. These nine states add up to 53.4% of Mexico's exports in 2023.

The main implication of this result is that during the period associated with nearshoring, these states have diversified their portfolio of export goods (effect 1) at the cost of increasing their concentration in terms of destination (effect 2). Following the basic principle of risk diversification, the first effect is to reduce Mexico's exposure by diversifying the destination industries. In contrast, the second effect increases exposure by concentrating external demand in fewer countries. The net result of the exposure of these states to shocks in external demand will depend on which effect dominates and opens a beta of future research. Qualitatively, we can infer that shocks at the country level (effect 2) will shock the demand of all industries (effect 1). Therefore, increasing concentration at the destination level dominates the impact of diversifying at the industry level. However, the proposed methodology does not allow us to conclude which is the dominant effect.

As a first approximation, we will analyze in detail the products and destinations that have gained weight between 2018 and 2023 for three states: Chihuahua, Guanajuato, and Puebla, under the criterion of having a look at the northern region, the Bajío and the center-south of the country. In a complementary manner, we identify opportunities for the supplying industries of the firms and regions benefited by diversification through the Multi-State Input-Output Table[22], which allows us to identify the industries' supplying firms of intermediate goods at the state level.

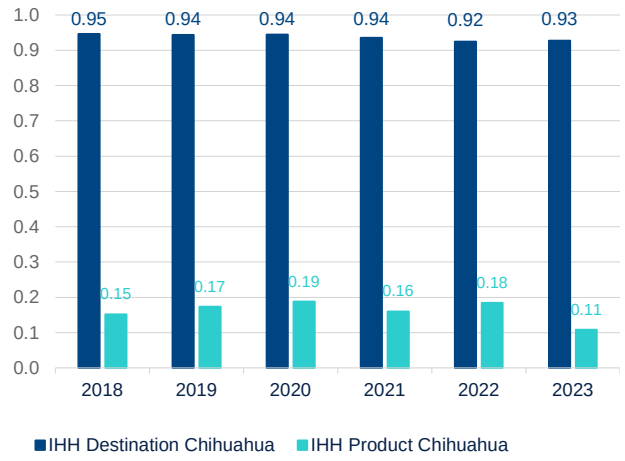
Analysis of selected states and supply opportunities

According to international sales data for the Chihuahua state, between 2018 and 2023, this state preserved its concentration by destination relatively constant (averaging 0.94) while diversifying its sales by product. In particular, in 2023, the state experienced its most remarkable diversification by product by reducing its concentration by 41.4% compared to 2022.

In this same period, Chihuahua increased the number of countries to which it sends its sales by 3.5% (from 113 to 117); The USA reduced its share marginally by 1%, while Germany and Hong Kong reduced their share with China (without HK), the Netherlands and Singapore entered the top 5 destinations for international Chihuahua sales. At the product level, we found strong diversification during 2023 without a significant increase in the number of products (from 479 in 2018 to 498 in 2023). Machines and Data Processing units reducing their share by 19.6% (still maintaining first place) while Instruments and Appliances Used in Medical Sciences increase their share by 41.8% (going from 5.3% to 7.6% of total international sales). It also highlights that Telephones, Including Mobile Phones and those of other Wireless Networks enter the top 5 in 2023 with a 3.5% share of total sales.

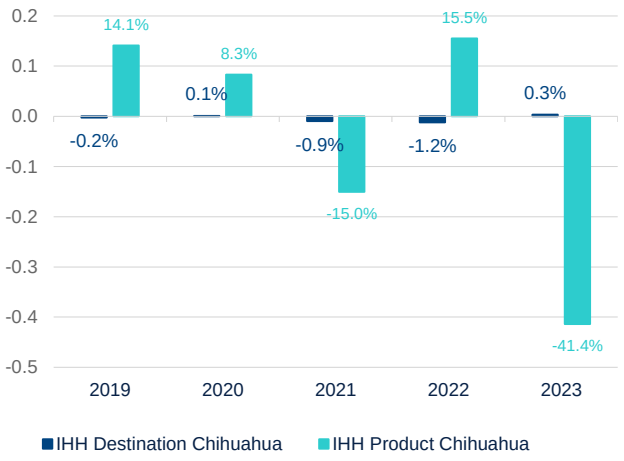
[22] We use the Multi-State Industry-by-Industry Input-Output Table published in December 2022, incorporating import and export flows between states to identify supplier states and industries. A relevant limitation in the analysis is that, despite the change in base year from 2013 to 2018 for the main Inegi series, the Multi-State MIP remains based on 2013, reflecting the productive structure of that year. A second limitation is that the identified branches are disaggregated in HS4 while the MIP groups Scian subsectors (a higher level of aggregation). It is crucial to keep in mind these limitations while interpreting the results.

Figure 21. **CHIHUAHUA EXPORT CONCENTRATION** (IHH)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Figure 22. **CHIHUAHUA EXPORT CONCENTRATION** (YOY GROWTH %)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Regarding opportunities in the value chain, the leading suppliers of the manufacturing of Machinery, Computer, Electronics, and Transportation (333-336 NAICS Codes) in Chihuahua are these same industries (333-336 NAICS) from the states of Sonora, Nuevo León, and Coahuila contributing 4%, 3.7% and 2.1% of the intermediate demand respectively. Mexico City is another relevant state in the intermediate demand of these industries in Chihuahua, supplying 3.5% of Wholesale Trade (43 NAICS) and 2.3% of Administrative and Support and Waste Services (56)

Table 1. **TOP 5 CHIHUAHUA EXPORT DESTINATIONS** (COUNTRIES AND SHARE %)

	2018		2023	
1	United States	97.28	United States	96.32
2	Canada	0.52	Canada	0.79
3	Germany	0.32	China	0.41
4	Hong Kong	0.29	Netherlands	0.34
5	China (Exc. HK)	0.26	Singapore	0.31

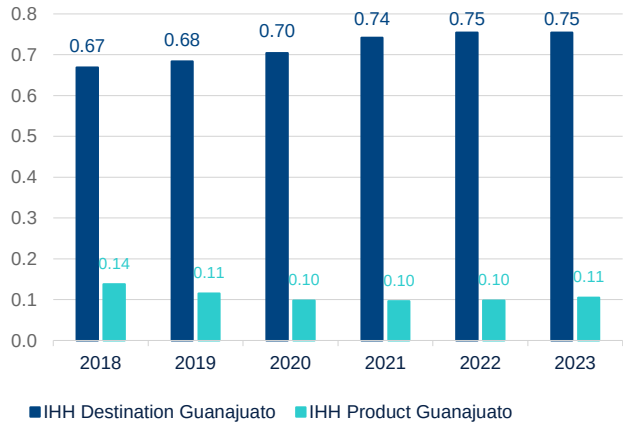
Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Table 2. **TOP 5 CHIHUAHUA EXPORT PRODUCTS** (HS4 PRODUCTS AND SHARE %)

	2018		2023	
1	Data Processing Machines and Data Processing Units, not elsewhere Specified or Included Elsewhere	36.99	Data Processing Machines and Data Processing Units, not elsewhere Specified or Included Elsewhere	29.73
2	Electrical Wires and Cables	8.32	Electrical Wires and Cables	8.43
3	Instruments and Appliances Used in Medical Sciences	5.40	Instruments and Appliances in Medical Sciences	7.65
4	Parts and Accessories of Motor Vehicles	4.58	Parts and Accessories of Motor Vehicles	4.61
5	Seats whether or not Convertible into Beds, and Parts	2.84	Telephones, Including Mobile Phones and those of other Wireless Networks	3.57

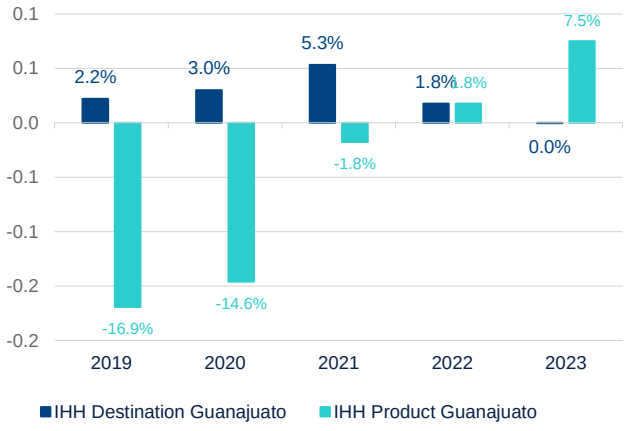
* In certain instances, we use shortened versions of the complete HS4 code name. Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Figure 23. **GUANAJUATO EXPORT CONCENTRATION** (IHH)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Figure 24. **GUANAJUATO EXPORT CONCENTRATION** (YOY GROWTH %)



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

The case of Guanajuato shows a growing trend in the concentration by destination of its international sales, going from 0.67 to 0.75 in the study period, with the most significant annual increase of 5.3% in 2021. On the products side, the state reduced its concentration from 0.14 to 0.11 in the same period, considering that in 2023, it increased slightly by 7.5% compared to 2022.

Table 3. **TOP 5 GUANAJUATO EXPORT DESTINATIONS** (COUNTRIES AND SHARE %)

	2018		2023	
1	United States	81.685	United States	86.836
2	Canada	5.937	Canada	4.680
3	China (Exc. HK)	2.176	Brazil	0.822
4	Brazil	1.302	China	0.814
5	Japan	1.160	Germany	0.776

Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Table 4. **TOP 5 GUANAJUATO EXPORT PRODUCTS** (HS4 PRODUCTS AND SHARE %)

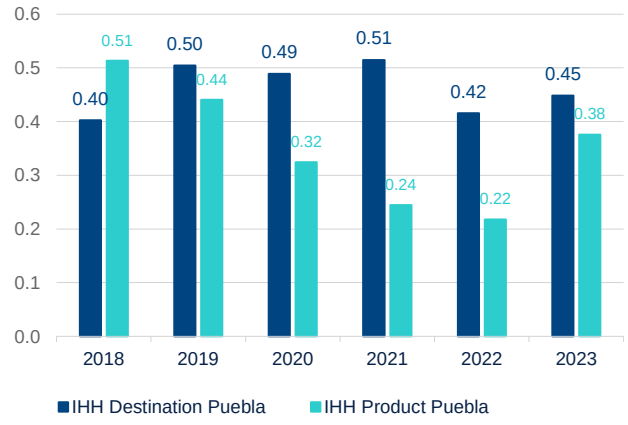
	2018		2023	
1	Parts and Accessories of Motor Vehicles	36.083	Parts and Accessories of Motor Vehicles	30.672
2	Vegetables, even if they Cooked in Water or Steam, Frozen	4.115	Rubber Soled Footwear, Plastics, or Composition Leather and Uppers of Leather	4.577
3	Tires of Rubber	3.227	Electrical Wires and Cables	4.635
4	Rubber Soled Footwear, Plastics, or Composition Leather and Uppers of Leather	3.181	Tires of Rubber	4.034
5	Instruments and Apparatus for Regulating or Controlling	2.959	Vegetables, even if they Cooked in Water or Steam, Frozen	3.847

* In certain instances, we use shortened versions of the complete HS4 code name. Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Guanajuato increased the number of countries it sends its international sales by 7.9% between 2018 and 2023 (from 114 to 123 countries). The USA also increased its participation by 6.3% (reaching 86.8%), while Canada contracted its participation by 21.1%, falling to 4.68% of the total. Brazil, China, Germany, and Japan also reduced their share, reflecting the greater concentration in the USA. At the product level, Guanajuato went from exporting 354 products in 2018 to 380 in 2023, with an absolute reduction in its concentration level. The “Parts and Accessories of Motor Vehicles Vehicle” remain in first place but decreased their share in total sales by 15%. The products that capture share and contribute to diversification are Footwear, Electrical Wire and Cables, and Tires of Rubber.

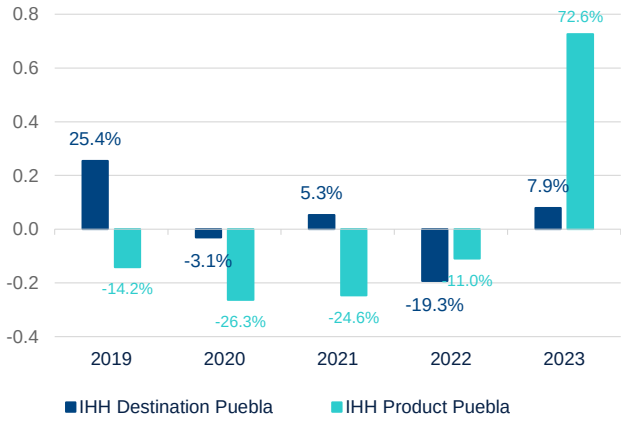
Regarding opportunities in the value chain, the leading suppliers of the manufacturing of Machinery, Computer, Electronics, and Transportation (333-336 NAICS Codes) in Guanajuato are Wholesale Trade (NAICS 43), the manufacture of Petroleum and Coal products, Chemical products and Plastics (NAICS 324-326), Primary Metal manufacturing and Metal Products (NAICS 331-332) produced in this same state, which together supply 34% of intermediate demand. The Wholesale Trade (43) of CDMX and Jalisco contribute 5.4% of the intermediate demand and the Administrative and Support services of the CDMX supply 1.6%. For Other manufacturing garments, leather, and fur products (NAICS 316-316) in Guanajuato the main suppliers are the Petroleum and Coal products, Chemical products and Plastics (10% of the intermediate demand). In comparison, CDMX and Jalisco's wholesale trade contributes 4%

Figure 25. **PUEBLA EXPORT CONCENTRATION (IHH)**



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Figure 26. **PUEBLA EXPORT CONCENTRATION (YOY GROWTH %)**



Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Finally, the case of Puebla shows a growing trend in concentration by product from 2018 to 2022. However, in 2023, this indicator rebounds 72.6% annually, closing at 0.38 (still below its 2018 levels of 0.51). At the same time, the concentration by destination remains relatively constant, averaging 0.46, with a slight increase of 7.9% in 2023. Disaggregating the indicators, we observe that the dynamics of Motor Cars and other Vehicles Principally Designed Cars for Transport of Persons drive this trend. In 2018, 70.8% of Puebla's international sales were vehicles, and 9.96% were auto parts, followed by filters, seats, and engine parts. During the following years, only one item outside the automotive industry gained participation by diversifying the state's sales, such as bakery products (reaching 6.7% of exports in 2023). However, the rebound in concentration by product observed in 2023 responds again to an increase in the shares of branches of the automotive industry, where dashboards and consoles gained ground (reaching 1.2% of exports in 2023).

Table 5. **TOP 5 CHIHUAHUA EXPORT DESTINATIONS** (COUNTRIES AND SHARE %)

	2018		2023	
1	United States	59.412	United States	65.488
2	Germany	21.224	Germany	10.467
3	Canada	9.50	Canada	9.981
4	China (Exc. HK)	2.141	China (Exc. HK)	6.225
5	Australia	1.382	Brazil	1.446

Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Table 6. **TOP 5 PUEBLA EXPORT PRODUCTS** (HS4 PRODUCTS AND SHARE %)

	2018		2023	
1	Motor Cars and other Vehicles Principally Designed Cars for Transport of Persons	70.844	Motor Cars and other Vehicles Principally Designed Cars for Transport of Persons	58.547
2	Parts and Accessories of Motor Vehicles	9.965	Parts and Accessories of Motor Vehicles	17.274
3	Apparatus for Filtering or Purifying Liquids or Gases	4.191	Bread, Pastry, Cakes, Biscuits, other Bakers' Wares; empty Cachets Suitable for Pharmaceutical Use, Rice Paper and Similar Products	6.699
4	Seats whether or not Convertible into Beds, and Parts	2.460	Parts for Engines of Reciprocating, Rotary Internal Combustion or Compression-Ignition	1.366
5	Parts for Engines of Reciprocating, Rotary Internal Combustion or Compression-Ignition	1.545	Boards, Consoles and other Bases for Electric Control or Distribution of Electricity	1.207

* In certain instances, we use shortened versions of the complete HS4 code name. Source: BBVA Research with data from Ministry of Economy (SE) Mexico

Regarding supply opportunities, the leading suppliers of Machinery, Equipment, Computing, Accessories, and Transportation (codes 333-336 Scian) in Puebla are the Wholesale Trade of CDMX, Puebla, and the State of Mexico. Together, they provide 15.4% of intermediate demand, followed by Business Support Services from CDMX with 2.6% and Primary Metal and Metal Products (NAICS 331-332) from Puebla with 2.4%.

Conclusions and perspectives towards 2025

Our analysis reveals that during the period associated with nearshoring (2018-2023), 9 of the 15 states with the highest exports have diversified their portfolio of export goods at the cost of increasing their concentration in terms of destination (mainly to the USA).

Following the basic principle of risk diversification, the first effect reduces Mexico's exposure by diversifying destination industries, while the second effect increases exposure by concentrating external demand in fewer countries. The net effect on the exposure of these states to shocks in external demand will depend on which effect dominates, opening a beta for future research. For now, it is worth asking if this diversification should continue.

Economic literature recognizes the concept of comparative advantage as a general principle of international trade where an open economy must specialize (concentrate) in producing the most competitive goods. This principle allows for expanding consumption possibilities, increasing the nation's welfare. On the other hand, natural, political, and economic phenomena at a global level fracture trade flows and fragment global value chains; this has caused nations to seek resilience in their value chains by diversifying their suppliers (from this trend, nearshoring arises). The search

for balance between these two forces means that global trade patterns are reconfiguring (Seong et al., 2019). Recent studies such as White et al. (2023) recognize a critical vulnerability in trade concentration, especially for emerging economies facing the geopolitical environment in 2024 and 2025.

In the future, finding an adequate balance for Mexico between the specialization and diversification of exports and imports and increasing investment in transportation, energy, and logistics infrastructure will allow Mexico to be more competitive and best exploit the opportunities the Nearshoring and the reconfiguration of global value chains presents for our country.

The nearshoring race continues, and consolidating Mexico's strategic position as an export power is a priority to benefit from this process of reconfiguring international trade.

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Appendix

Table 13. **HERFINDAHL-HIRSCHMAN INDEX BY DESTINATION (COUNTRY)**

State	2018	2019	2020	2021	2022	2023
Aguascalientes	0.65	0.64	0.61	0.63	0.66	0.62
Baja California	0.84	0.86	0.85	0.85	0.88	0.89
Baja California Sur	0.56	0.3	0.64	0.63	0.52	0.6
Campeche	0.61	0.86	0.91	0.91	0.97	0.94
Coahuila	0.82	0.8	0.82	0.79	0.81	0.83
Colima	0.47	0.72	0.56	0.46	0.65	0.74
Chiapas	0.74	0.74	0.69	0.64	0.66	0.71
Chihuahua	0.95	0.94	0.94	0.94	0.92	0.93
Durango	0.73	0.73	0.71	0.74	0.74	0.67
Guanajuato	0.67	0.68	0.7	0.74	0.75	0.75
Guerrero	0.44	0.44	0.43	0.44	0.37	0.49
Hidalgo	0.39	0.33	0.45	0.45	0.41	0.66
Jalisco	0.6	0.62	0.61	0.64	0.66	0.66
México	0.41	0.4	0.43	0.41	0.45	0.51
Michoacán	0.71	0.72	0.74	0.76	0.78	0.77
Morelos	0.61	0.32	0.53	0.42	0.31	0.42
Nayarit	0.59	0.55	0.54	0.47	0.64	0.66
Nuevo León	0.72	0.71	0.75	0.74	0.75	0.77
Oaxaca	0.64	0.71	0.85	0.77	0.69	0.67
Puebla	0.4	0.5	0.49	0.51	0.42	0.45
Querétaro	0.66	0.69	0.7	0.67	0.7	0.73
Quintana Roo	0.21	0.14	0.26	0.22	0.24	0.12
San Luis Potosí	0.75	0.79	0.81	0.85	0.84	0.84
Sinaloa	0.74	0.79	0.8	0.77	0.74	0.85
Sonora	0.77	0.76	0.65	0.61	0.53	0.52
Tabasco	0.67	0.55	0.65	0.45	0.33	0.66
Tamaulipas	0.91	0.91	0.92	0.92	0.92	0.92
Tlaxcala	0.85	0.85	0.89	0.88	0.92	0.92
Veracruz	0.4	0.31	0.47	0.46	0.42	0.39
Yucatán	0.5	0.56	0.53	0.56	0.52	0.53
Zacatecas	0.88	0.33	0.33	0.33	0.9	0.9

Normalized indices take values between 0 and 1. Values closer to 1 indicate less diversification of exports. Results for CDMX are excluded due to the concentration bias of tax domiciles. Source: BBVA Research with data from Ministry of Economy (SE) Mexico.

Table 14. **HERFINDAHL-HIRSCHMAN INDEX BY PRODUCT (HS4)**

State	2018	2019	2020	2021	2022	2023
Aguascalientes	0.27	0.27	0.22	0.18	0.18	0.21
Baja California	0.06	0.07	0.08	0.07	0.05	0.05
Baja California Sur	0.19	0.24	0.19	0.2	0.17	0.2
Campeche	0.33	0.3	0.22	0.32	0.23	0.24
Coahuila	0.09	0.1	0.1	0.1	0.11	0.13
Colima	0.14	0.18	0.15	0.18	0.18	0.2
Chiapas	0.42	0.47	0.4	0.32	0.31	0.28
Chihuahua	0.15	0.17	0.19	0.16	0.18	0.11
Durango	0.11	0.14	0.09	0.11	0.14	0.16
Guanajuato	0.14	0.11	0.1	0.1	0.1	0.11
Guerrero	0.42	0.38	0.52	0.38	0.41	0.39
Hidalgo	0.19	0.18	0.23	0.23	0.12	0.15
Jalisco	0.09	0.08	0.07	0.06	0.06	0.06
México	0.02	0.02	0.02	0.02	0.03	0.02
Michoacán	0.47	0.49	0.44	0.43	0.46	0.42
Morelos	0.1	0.07	0.08	0.07	0.15	0.15
Nayarit	0.13	0.12	0.15	0.14	0.1	0.11
Nuevo León	0.03	0.03	0.03	0.02	0.02	0.03
Oaxaca	0.32	0.34	0.27	0.36	0.4	0.38
Puebla	0.51	0.44	0.32	0.24	0.22	0.38
Querétaro	0.17	0.16	0.17	0.15	0.13	0.18
Quintana Roo	0.08	0.04	0.06	0.06	0.08	0.03
San Luis Potosí	0.07	0.07	0.08	0.09	0.1	0.09
Sinaloa	0.14	0.15	0.15	0.16	0.15	0.17
Sonora	0.04	0.04	0.04	0.04	0.05	0.05
Tabasco	0.11	0.12	0.12	0.13	0.07	0.2
Tamaulipas	0.04	0.04	0.04	0.04	0.03	0.04
Tlaxcala	0.26	0.21	0.19	0.28	0.23	0.21
Veracruz	0.22	0.17	0.08	0.07	0.18	0.19
Yucatán	0.1	0.09	0.07	0.08	0.08	0.09
Zacatecas	0.17	0.26	0.67	0.71	0.24	0.25

Normalized indices take values between 0 and 1. Values closer to 1 indicate less diversification of exports. Results for CDMX are excluded due to the concentration bias of tax domiciles. Source: BBVA Research with data from Ministry of Economy (SE) Mexico.

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