Zoom Nearshoring

Banorte Research

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Nearshoring could unleash Mexico's potential

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I. Introduction

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International trade is facing an important paradigm shift at this moment due to a series of economic, political, and social changes. Investors have shown an increased preference for a more integral strategy to procure goods, responding not only to cost efficiencies, but also to manage risks more effectively. As a result, concepts like *nearshoring* (and similar ones) reflect the need to relocate operations, with supply and production chains closer to final consumption destinations. There are a plethora of motives behind this strategy. Among them, to mitigate risks stemming from public policies in faraway countries that could lead to delays in deliveries, or bottlenecks driven by the Coronavirus. Even just to dampen the effect of wars and other conflicts, such as the one taking place since last year in Ukraine. On top of the latter, we must also factor in the reconfiguration in companies' way of doing business, shifting from a "*just-in-time*" to "*just-in-case*" model, which means different ways of managing inventories to satisfy consumer needs.

In this new international trade order, Mexico could play a key role given its geographic proximity to the world's most important market (United States). Not only this, but also due to a series of positive factors associated with demographics, logistics, and costs. Nevertheless, to capitalize the benefits arising from these dynamics, Mexico needs to address challenges in several fronts. In our view, a 'four-helix' model –composed of the government at its three levels of organization (Federal, State, and Municipal), the private sector, education institutions, and society as a whole– that aims to improve infrastructure, competitiveness, and the rule of law, among other issues, would help raise our country's growth potential.

In this note we present a timely analysis about this trend, trying also to study it from a sectoral and regional viewpoint. We believe an innovative aspect in this research note is that it is complemented quite well with a series of interactive dashboards that will allow final users to access a much more comprehensive analysis that will be updated frequently. It is also important to highlight that this document is only one in a series of publications that will be released in the future to study this complex subject from several perspectives. These will be an integral part of our efforts in what we have named as **"Zoom Nearshoring"**. Our commitment is to provide a disruptive and valuable analysis that will help explore new ideas and debates about this trend. But especially, we strive to help all decision makers with a direct or indirect relationship to this new global trade environment to access a timely, complete, and innovative information ecosystem.

II. *A new paradigm for global trade*

Global trade is experiencing a very important paradigm shift which could modify the performance and dynamics of many global economic factors. Nowadays, economic agents not only look for the highest cost efficiencies to produce goods traded in several countries, or even the most competitive prices. They have also started to engage in a more holistic and integral risk management approach that allows for the continuity of operations, especially due to the disruptions experienced during the Coronavirus pandemic and other geopolitical factors (*e.g.* war in Ukraine, US and China tensions, among others).

This has brought an important challenge for globalization. Businesspeople are trying to relocate a large part of their production chains to places closer to consumption centers, taking advantage of the benefits from regionalization. With this, terms like "*nearshoring*" have grown in popularity. More so, we also see the need to strengthen trade ties between strategic allies with common cultural backgrounds, interests, and public policies, giving birth to terms like "*friendshoring*" or "*ally-shoring*".

This scenario sets an opportunity for Mexico to keep developing industrial clusters and receive higher amounts of investment flows –both foreign and domestic– that would allow exports of goods to increase and the provision of more services to several countries. As a result, the country would take even more advantage of an ecosystem which positions it as a strategic player in international trade. This is especially true with our main trade partner, the US. Currently, Mexico has 12 free-trade agreements, providing it with privileged access to 46 countries. Moreover, throughout the last 30 years, a series of logistical advantages have been developed which help businesses attain economies of scale more quickly. It is also important that demographic conditions provide Mexico with a competitive edge. According to the 2020 Census, the Mexican population totals 126 million, the tenth largest in the world, and with a favorable population pyramid. Specifically, the working age population (between 15 and 64 years old) stands at 78.9 million, close to 67% of the total. This is higher than the world average, which according to the OECD, stands at 65.2%. In addition, young people (0-15 years old) represent 25.2% and the birth rate stands at 1.9 children per women, so the demographic bonus should keep paying off in the medium-term.
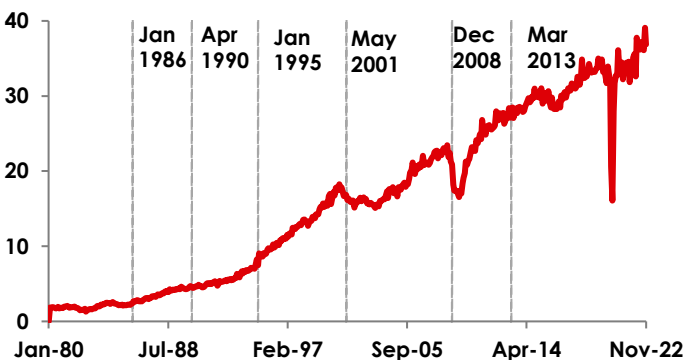
III. Mexico's trade reality

In our view, the likely future for international trade can be analyzed from two fronts: the first corresponds to an inertial component that would extend in the short-term (for years after 2023) given the accumulated progress seen over the last three decades; the second, to the possible structural change in case nearshoring opportunities materialize, which could imply additional gains in the medium term (5 years and beyond).

Inertial growth

The country experienced a watershed moment in the 90s, when Mexico integrated to a strategic trade block with the US and Canada after the signature of the North American Free Trade Agreement (NAFTA) in December 1992. It came into force on January 1st, 1994, boosting the development of several industries (*e.g.* autos) and higher GDP growth.

To identify the structural changes that Mexico has experienced in the last decades, we carried out an econometric exercise* on non-oil exports (deflated and seasonally adjusted) from 1980 to 2022 to find 'breakpoints' in the historical series. The following chart summarizes the results, identifying six optimal structural changes in the years 1986, 1990, 1995, 2001, 2008, and 2013. In our view, structural changes identified in the 90s likely reflect the effects from NAFTA. The remaining ones, further ahead, are more closely associated with recessions such as the *Tequila Crisis*, the *Dot-com crisis,* or the *Great Global Financial Crisis*.

Based on these breakpoints, we project the trend that would have prevailed for each one of these periods until 2025 with the goal of finding the sensibility that growth in Mexico's non-oil exports could experience inertially, not accounting for the additional effects from nearshoring, as seen in the following chart.

Non-oil exports and inertial growth
US$ billion, constant 2015 prices
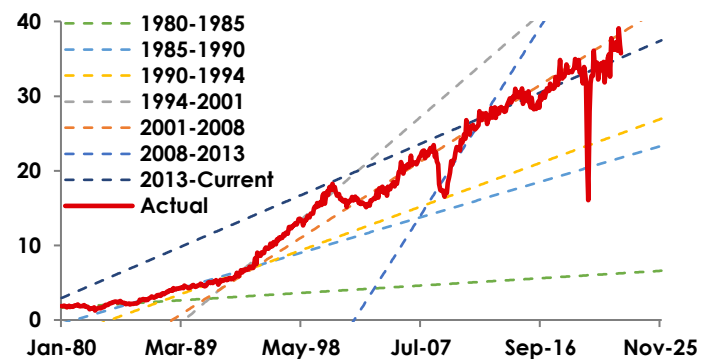
Source: Banorte with data from Banxico, INEGI, and BLS

After this analysis, we decompose the series using a Hodrick-Prescott filter with tail restrictions –such as the one commonly used to calculate the output gap– to estimate the behavior of Mexican non-oil exports relative to its potential throughout the years. The model suggests that exports have not shown a significant deviation relative to its potential throughout the years –apart from some exceptions, commonly associated with significant economic crises– and have adjusted rapidly towards their previous underlying trend.

Non-oil exports
US$ billion, constant 2015 prices

Source: Banorte with data from Banxico, INEGI, and BLS

* Time-series method for testing structural changes developed by Bai and Perron (2003), which estimates Ordinary Least Squares (OCMs) sequentially until the hypothesis of no structural change cannot be rejected.

Another important result is that the average annual growth rate oscillates between 6.4% (using a sample between 1994 and 2022) and 7.5% (between 1980 and 2022). This suggests that nearshoring or not, non-oil exports could advance close to this magnitude in the future. To grasp this exercise better and based on a grand total of US$539,000 million in full-year 2022 non-oil exports, the nominal yearly increase could be between US$35,186 million to US$41,233 million on average going forward.

Non-oil exports: Current and Potential
US$ billion, constant 2015 prices
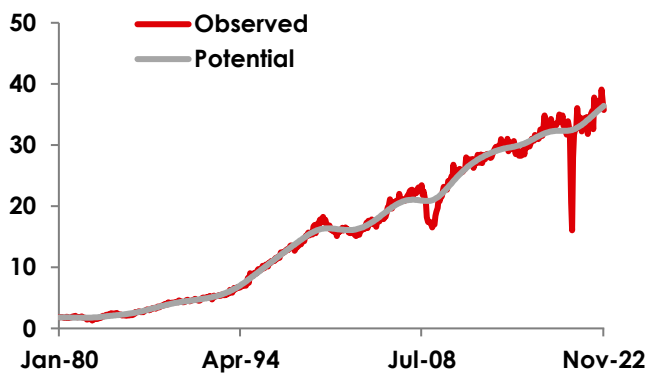
Source: Banorte with data from Banxico, INEGI, and BLS

Structural change from nearshoring

Considering that investment related to this phenomenon would imply a deviation relative to its current trend, nearshoring would result in an additional increase above the one related to the inertia that exports have shown during the last couple of years.

Statistically, we tested and proved a positive relationship between investment and exports (using national accounts for private GFI and non-oil exports). Specifically, Granger's causality test shows that investment indeed causes exports (in the period 1993-2001) and that the effect extends for up to three years (lags). This suggests that investment has a non-contemporary effect on production and exports, with the results more evident in later years. This is also clear in the relationship between non-oil exports and FDI. Nevertheless, these relationships are particularly interesting when separating the latter as 'profit reinvestments' or 'new investment'.

Doing the same causality test, we find that, for the former, the optimal lag happens with one year of delay; for the latter, it happens three years afterwards. We believe this reinforces two points: (1) Some time is necessary for investment to materialize and trigger additional exports; and (2) the effect from 'profit reinvestments' is more immediate given existing economies of scale due to progress already made. This also suggests that, in the short-term, the most meaningful effects from nearshoring will come from companies that already operate in the country.

It is also relevant that this is consistent with the methodology outlined by Banco de México in its research paper titled "Evolution of the Localization and Regional Specialization of the Mexican Manufacturing Industry: 1993 – 2013". In the document, they mention that the effect from investment on activity –and eventually on exports– is seen in two stages. The first is related to the actual construction of a manufacturing plant, while the latter is seen directly in the production of goods. This assumes a temporal difference in both categories, with production reflected several years later in the 'second stage'.

This matches anecdotal evidence, such as the experience with BMW's plant in San Luis Potosí. Specifically, the investment was announced in mid-2014. The actual construction started in early 2016 –as preliminary work on land was made before. The first vehicle and official opening happened in mid-2019, five years after the original announcement. Therefore, our view is that current news about investments will start materializing in a timeframe ranging between 6 to 12 months (mainly in construction activity), albeit with their effect as higher exports probably more evident until 3 to 5 years ahead (depending on the complexity of the projects involved).

IV. Estimating potential gains from nearshoring

With these results, we made a sensitivity analysis (see tables below) to estimate marginal gains that Mexico could obtain in exports due to nearshoring. To have a sense of the magnitude, we took as a reference the period between 1995 – 2001, when non-oil exports grew at a compounded annual growth rate of 12.9%. We believe the positive shock from the implementation of NAFTA was clearer in this period, as competition from China grew meaningfully after its acceptance as a WTO member in 2001 (when offshoring accelerated). We assume a 5-year period and average inflation of 2% (consistent with the Fed's target) to express all figures in nominal USD. Our starting point is from the almost US$539 billion in non-oil exports seen in 2022.

We estimate that Mexico could obtain close to US$168 billion in additional exports during the next five years (annual average: US$33.6 billion) because of this trend. This would be exclusively from nearshoring, after subtracting the effect from inertial growth. This represents 6.2% of total non-oil exports in 2022.

Although this is our base case, it is very important to warn that there is very high uncertainty about the underlying assumptions, dynamics, and potential effects from nearshoring. Specially, because we have had more companies announcing new investments, albeit with a very uncertain time horizon about when these initiatives could bear fruit. Hence, it also implies a very wide range of possible outcomes and the need to be very cautious. Based on the latter, we estimate a range between US$84 billion to US$300 billion for the same period, consistent also with this sensitivity analysis.

Sensitivity Analysis: Accumulated gains in non-oil exports during the next 5 years
US$ million

		Potential growth (% y/y)				
		5	6	7	8	9
	10	198,892	162,031	123,752	84,014	42,778
	11	243,254	206,393	168,114	128,376	87,140
CAGR*	12	289,244	252,383	214,103	174,366	133,130
	13	336,906	300,044	261,765	222,028	180,792
	14	386,285	349,424	311,145	271,407	230,171

* Compound annual growth rate of non-oil exports
Source: Banorte with data from Banxico, INEGI, and BLS

Sensitivity Analysis: Average annual gains in non-oil exports during the next 5 years
US$ million

		Potential growth (% y/y)				
		5	6	7	8	9
	10	39,778	32,406	24,750	16,803	8,556
	11	48,651	41,279	33,623	25,675	17,428
CAGR*	12	57,849	50,477	42,821	34,873	26,626
	13	67,381	60,009	52,353	44,406	36,158
	14	77,257	69,885	62,229	54,281	46,034

* Compound annual growth rate of non-oil exports
Source: Banorte with data from Banxico, INEGI, and BLS

V. Snapshot of Mexico's international trade

Nowadays, the main destination of our exports is the US (81.8% of the total). This is thanks to USMCA and our geographical location, among other factors. Even within the US, there is a relevant concentration as 57.9% of all our exports are sent to just three states: Texas, California, and Michigan. This also suggests an opportunity to diversify, not only beyond the US, but also within said country, particularly to states located on the East Coast. The other countries in the top 10 in terms of our exports are Canada (2.7%), China (1.9%), South Korea (1.3%), Spain (1.0%), Japan (0.8%), Brazil (0.8%), India (0.7%), Colombia (0.6%), and Guatemala (0.5%).

Mexico: Top export destinations*

|	US$ billion		Accumulated growth (%)	CAGR (%)**	Market share %	
	2012	2022			2012	2022
Total	**370.8**	**578.2**	**55.9**	**4.5**	**--**	**--**
USA	287.8	472.7	64.2	5.1	77.6	81.8
Canada	10.9	15.6	42.8	3.6	2.9	2.7
China	5.7	10.9	90.8	6.7	1.5	1.9
South Korea	1.7	7.5	334.2	15.8	0.5	1.3
Spain	7.1	5.5	-22.0	-2.5	1.9	1.0
Japan	2.6	4.7	80.1	6.1	0.7	0.8
Brazil	5.7	4.5	-19.8	-2.2	1.5	0.8
India	3.3	3.9	16.2	1.5	0.9	0.7
Colombia	5.6	3.7	-34.0	-4.1	1.5	0.6
Guatemala	1.8	3.0	64.8	5.1	0.5	0.5

* Note: The ranking is based on 2022's market share
** Note: Compounded annual growth rate
Source: Banorte with data from Banxico

Exports from Mexico to the United States by state
US$ million in 2022

Imports
141,331

23

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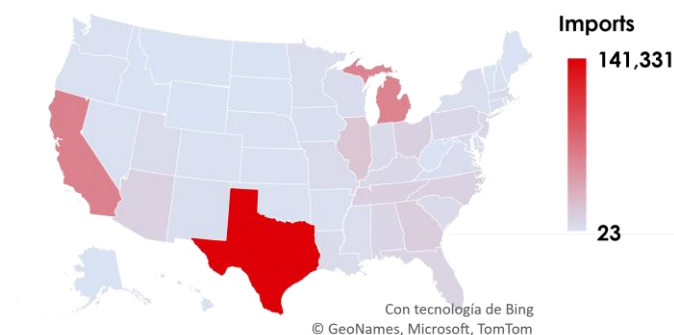
Source: Banorte with data from the US Census Bureau

By type of good, our main exports are cars and passenger vehicles, computers, heavy trucks, auto parts, monitors and projectors, electrical cables, telephones, medical devices, tractors, and furniture. For several years, Mexico has had a very important comparative advantage in this type of goods. This will likely help exploit further our strategic position in these industries going forward.

Mexico: Main export products

	US$ billion		Accumulated growth (%)	CAGR (%)**	Market share %	
	2012	2021			2012	2021
Autos and passenger vehicles	29.2	40.8	40.1	3.8	9.2	8.9
Data processing units	18.4	33.5	81.8	6.9	5.8	7.3
Vehicles for the transport of goods	14.8	31.1	110.5	8.6	4.6	6.8
Auto parts and accesories	19.0	30.6	60.7	5.4	6.0	6.6
Monitors and projectors	17.8	15.7	-11.5	-1.3	5.6	3.4
Wires and electrical cables	8.9	13.6	54.2	4.9	2.8	3.0
Telephones	17.2	11.9	-30.8	-4.0	5.4	2.6
Medical	4.7	9.3	98.0	7.9	1.5	2.0
Tractors	6.0	8.7	43.9	4.1	1.9	1.9
Armchairs	4.6	6.2	33.2	3.2	1.5	1.3

Note: The ranking is based on market share in 2021. Products are defined with the classification of the Harmonized Commodity Description and Coding System (HS 4)
** Compounded annual growth rate
Source: Banorte with data from the Ministry of Economy

Many of these industries have grown at an accelerated pace because of the boost provided by FDI, which in the last ten years has averaged US$34.3 billion. In 2022, this figure stood at US$35.3 billion, highest in 7 years. Nevertheless, we must contemplate that US$6.9 billion were related to extraordinary operations, such as Aeroméxico's restructuring and the merger between Televisa and Univision. Even so, it is encouraging when considering that 48% corresponds to new investments, 45% to profit reinvestments, and just 7% to inter-company accounts. As analyzed in the previous section, the positive effect from FDI on exports suggests additional benefits related to nearshoring.

Mexico: Main investment announcements in the auto sector during 2022 and 2023

2022				
Position	Company	Sector	Location	Amount (US$ million)
1	Solarever	Batteries	Jalisco	1,000.0
2	Volkswagen	OEM	Puebla	763.5
3	Nissan	OEM	Aguascalientes	700.0
4	Kia	OEM	Nuevo León	408.0
5	Michelin	Tires	Guanajuato	400.0
6	Jabil	Integrated circuits	Chihuahua	336.0
7	Link EV	EVs	Puebla	265.0
8	Bosch	Electrical components	Guanajuato	225.0
9	Continental	Electrical components and Breaks	Guanajuato	210.0
10	Pegatron	Integrated circuits	Chihuahua	200.0

2023				
Position	Company	Sector	Location	Amount (US$ million)
1	Tesla	EVs	Nuevo León	5,000.0
2	BMW	OEM	San Luis Potosí	868.0
3	ZF Group	Technology	Querétaro	254.6
4	Cenntro Automotive México	Lithium batteries	Nuevo León	200.0
5	Navistar	Heavy trucks	Nuevo León	120.0
6	Noah Itech	Automation	Nuevo León	100.0
7	Mahle	Auto parts	Chihuahua	58.0
8	Bendix	Breaks	Coahuila	57.0
9	Modineer Group	Metallic parts	Chihuahua	30.0
10	DANA	Transmissions	Querétaro	21.7

Source: Press reports

Foreign Direct Investment
US$ billion

Source: Banorte with data from the Ministry of Economy

VI. Most attractive sectors in Mexico

Apart from the macro drivers discussed throughout this note, we took a deeper dive to identify some idiosyncratic catalysts in several industries, especially within manufacturing, which could mean additional competitive advantages for relocation. In this backdrop, the *US Manufacturing Leadership Council* conducted a survey in the summer of 2022 in which more than 260 C-suites in said country –including multiple sectors and small-, medium- and large-sized companies– were questioned about the future of manufacturing. When asked about potential supply chain changes by 2030, the most popular choice was the view of more *nearshoring*, with 35.6% of total answers. In second place, more *onshoring* (production back to the US) with 27.7%. Lastly, 27.7% said they were not planning significant changes, while only 8.9% expected even more *offshoring*.

We also highlight a study from *KPMG and The Manufacturing Institute (2020)* about how the US fares relative to its 16 main trading partners in terms of its attractiveness as a manufacturing hub. Both primary and secondary factors that affect companies' operating costs were analyzed. According to this report, Mexico ranked at 14 out of 17 countries under investigation. China and other Asian countries (*e.g.* Taiwan, South Korea, Malaysia) were the leaders, while our country was better positioned than Vietnam, India, and Brazil. The US stood at fifth place. More specifically, Mexico was tied at first place –with Malaysia, China, and Vietnam– in terms of primary factors, in turn related to labor, real estate, and financing costs; utilities and tax burden. Nevertheless, it lagged at 14th in secondary drivers, which have an impact at the corporate level and in production efficiency. The latter are grouped in four categories: (1) Quality of labor; (2) ease of doing business; (3) infrastructure; and (4) risks and protections. It is worth noting that the ranking does not include other potential drivers that could benefit Mexico the most, such as changes due to COVID-19, preferential access to consumer markets, and most recent trade disputes. In 2018, the *Brookings Institution* also ranked countries, with similar results. In our view, these investigations are valuable as they show some of the challenges and opportunities that Mexico faces to capitalize on this trend.
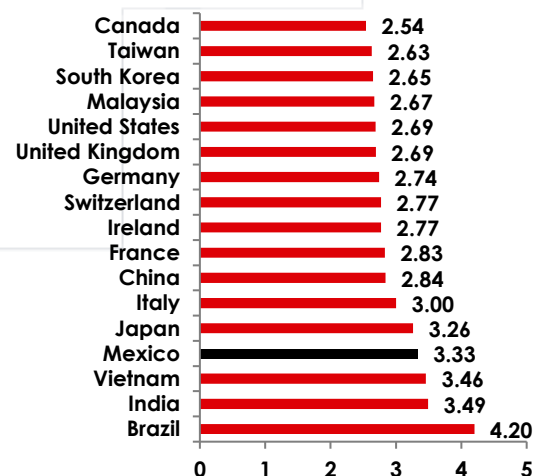
In the next section, we present some industrial sectors that in our view have the most attractive growth potential because of *nearshoring* in a 3- to 5-year horizon. We should mention that we purposefully excluded construction and real estate (*e.g.* industrial parks) despite their high likelihood of being among the main beneficiaries, along with those that would accrue to transportation, storage, logistics, and a plethora of other services. Therefore, this list does not pretend to be exhaustive in terms of the potential opportunities that may arise because of this significant shift in the current paradigm.

How do you see your production and supply chain networks changing by 2030?
% of responses

More nearshoring	35.6
More onshoring	27.7
No significant changes planned	27.7
More offshoring	8.9
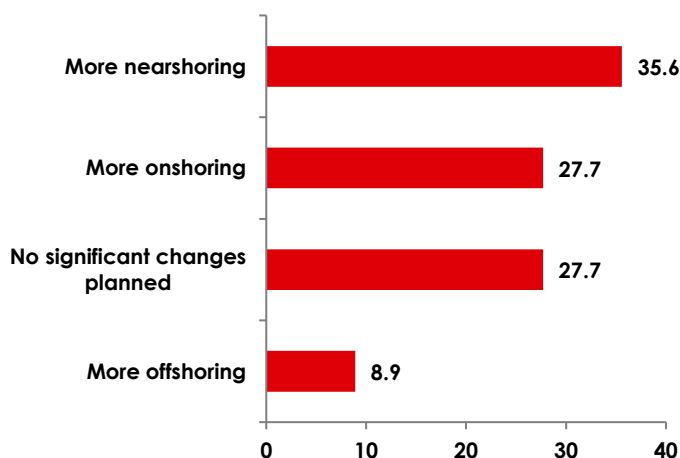
Source: "A lens on the future" survey, *Manufacturing Leadership Council*, (2022)

Manufacturing production cost index by country
1: Best, 5: Worst

Country	Index
Canada	2.54
Taiwan	2.63
South Korea	2.65
Malaysia	2.67
United States	2.69
United Kingdom	2.69
Germany	2.74
Switzerland	2.77
Ireland	2.77
France	2.83
China	2.84
Italy	3.00
Japan	3.26
Mexico	3.33
Vietnam	3.46
India	3.49
Brazil	4.20

Source: "Cost of manufacturing operations around the world", *KPMG* and *The Manufacturing Institute*, (2020)

Agricultural goods and livestock

As of today, Mexico is already the main provider of these goods to the US. Nevertheless, the industry is strategically well positioned to grow further, given: (1) The potential that would arise from additional technification to boost agricultural productivity; (2) the creation of new food varieties, more resistant to diseases and with higher yields; (3) accumulated experience in complying with sanitary regulations; and (4) ample natural resources available to increase production, especially in the south and southeast region of the country. Moreover, we identify opportunities due to increasing challenges imposed by climate change and the need to foster production processes in line with ESG principles. Other competitive advantages include the short distance with the US (with potential especially in the US East Coast), the need to comply with USMCA requirements, growing demand for fresh and local produce, low transportation costs, and reduced delivery times.

Chemicals and plastics

The chemical industry has a long history in the country, dating back to the Revolution. It includes the basic –such as petrochemicals and metallurgy–, secondary –glass, plastics, detergents, paint– and tertiary sectors –pharmaceuticals, agrochemicals, biotechnology, etc. Given its wide range, it is developed in several clusters with the participation of an ample network of companies that, in turn, provide key inputs to other industries (*e.g.* textiles, autos, cosmetics, construction, etc.) and the primary sector (*e.g.* fertilizers). Its growth potential is underpinned by abundant natural resources, especially in oil and gas. In terms of production, it is mainly located in the State of Mexico, Mexico City, and Jalisco.
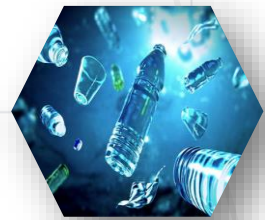
According to a *Deloitte* study about the industry outlook, there's an important shift in final client requirements to comply with their increasing needs for circularity, a lower carbon footprint, and sustainability. In terms of supply chains, it is imperative to balance agility, efficiency, and resiliency. Hence, regionalization could emerge with renewed force. The most important challenges include: (1) Scarcity of inputs at competitive prices, with high energy costs limiting companies' profitability; (2) difficulties to take further steps in ESG due to high transition costs amid technological limitations, which could influence companies' product mix; (3) the possible modification of supply chains given the global nature of operations, with heightened visibility about this because of the pandemic, adverse climate events, and geopolitical shocks; and (4) an accelerating trend in terms of digitalization in operations management and client relationships. Among the opportunities, they highlight US government support for a new and sustainable industrial policy through the recently approved *Infrastructure Investment and Jobs Act* and *Inflation Reduction Act*.

On lithium, the *US Geological Survey* estimates that the most sizable reserves are in the 'Lithium Triangle', comprised of Argentina, Bolivia, and Chile. Other relevant players include Australia (2nd place globally), and China (4th). Securing supplies has become a key issue for tech and auto companies, as this metal is required for lithium-ion batteries (also for mobile phones, and computers, among others). Mexico is ranked 9th in terms of reserves, with about 1.7 million metric tons, mostly located in Sonora and Zacatecas. Nevertheless, it is difficult and costly to extract them as they are found in clay deposits, so production could be subject to low profit margins. As of YE2022, global reserves were estimated at around 80 million metric tons. According to an article published in *Nature*, auto sector demand could grow more than 30% per year until 2030. In Mexico, lithium was declared as a mineral of public utility, with its exploitation granted exclusively to the State in 2022. In August of the same year, a decree was released for the creation of state-company *Lithium for Mexico*, 'LitioMx'. Lastly, on February 18, 2023, the President signed a decree that established the first lithium reserve in Sonora.

Apparel and accessories

Export-oriented *maquiladoras* in the textile industry began at the northern border during the 70s, where the sector's activity remains concentrated. Vigorous growth began since the start of NAFTA (1994) and until China's entrance to the WTO (2001). Mexico's market share in the US is very low, with China and other Asian countries at the top (*e.g.* Vietnam, Bangladesh, Cambodia, Indonesia, and India). Currently, companies are searching for alternative production facilities, including in Latin America, but it is a difficult and lengthy process to develop the adequate and required ecosystems. Some global industry trends include: (1) Development and innovation in sustainable materials; (2) automation across all aspects of the value chain to reduce costs; and (3) to improve response times and quality control (including the reconfiguration from "*just-in-time*" towards "*just-in-case*"). Concerns persist about the industry's environmental impact, labor rights, and worker security. From 2018 onwards, the US imposed tariffs to China (Section 301) of about 7.5%, which stand to this day, affecting close to 90% of US apparel imports from said country.

Basic metals

In steel, President Trump imposed 25% tariffs to imports from a wide range of countries based on Section 232 in 2018, including key market participants such as the European Union, Canada, and Mexico. After some negotiations and retaliatory measures, tariffs were eliminated for USMCA partners in 2019. Some US politicians are pushing to reestablish them, although they remain exempt as of today. On the other hand, some Asian countries have been hit with additional measures (such as quotas), providing Mexico with a competitive advantage. To the latter we must add other initiatives already approved in the US, such as the *Infrastructure Investment and Jobs Act* of 2021, a multi-year plan that includes US$550 billion for investments in roads, bridges, railways, electricity, internet coverage, and airports, among others. Apart from its role in supplying other sectors, this suggests a higher probability of a strong demand impulse. Nevertheless, the reality is that Mexico has a deficit with the US and the rest of the world. The former country represents about 35% of Mexico's steel imports. On the other hand, Mexico sends about 70% of domestic production to its neighbor, although it only has a 15% market share. In this backdrop, the most important challenge is to increase production capacity locally to avert supply bottlenecks. Mexico's potential in other basic metals such as copper, lead, and zinc, is also relevant. By state, the main steel manufacturers include the states of Coahuila, Michoacán, Nuevo León, Veracruz, and San Luis Potosí; copper in Sonora, Zacatecas, San Luis Potosí, and Chihuahua; in lead, the states of Zacatecas, Chihuahua, and Durango; zinc in Zacatecas, Durango, Chihuahua, and the State of Mexico.

Machinery and equipment, electric and electronic appliances

Machinery and equipment. Production is quite diverse, from the primary sector (*e.g.* plows and harvesting tools), intermediate goods, and finished items for other industries. Competition is not homogeneous, but as in other categories, most rivals are in Asia. Increased optimism about higher investments in other sectors would drive construction, so related machinery could also see stronger demand in the short term. Following this 'first wave', it will be important to see if new plant operations boost other sectors.

Electric and electronic appliances. Flagship products include TVs (Mexico is the main producer in the world), monitors, home appliances, mobile phones, and projectors, among others. Geographic concentration is focalized at the country's northern border, albeit with some states in the central region also with a significant market share. Before the pandemic, growth was surpassing broader economic activity. Nevertheless, production was affected by supply chain disruptions, which are expected to be resolved relatively soon. In this backdrop, the *Association for Advancing Automation* has stated that orders for manufacturing robots picked up 67% between 2020 and 2021, with more than half coming from sectors other than autos. In this sense, the US *International Trade Commission* sees strong potential in advanced manufacturing. According to their calculations, this subsector has grown exponentially since 2020. In home appliances, *Nuevo Leon's Home Appliances Cluster* estimates that production will grow 8% this year, underpinned by the first results from nearshoring efforts which are already evident in plant openings from brands such as Hisense, Whirpool, and Bosch, among others. An important growth opportunity has been identified in smart devices, for which the local industry is already well positioned. We believe there is room for expansion given China's leadership in this space, especially as the US pushes to reduce its dependency to said country.

Pharma and medical devices. This ecosystem is comprised of around 400 laboratories producing pharmaceuticals, mostly in Mexico City, Jalisco, the State of Mexico, Puebla, and Morelos. The US remains as the top investor, but Indian companies have penetrated the generics market on bets of increasing their participation in the US. This is especially relevant as the latter products have lower profit margins, so cost control is crucial. In medical devices, more than 2,500 companies are established in our country, according to *American Industries Group*. Some of them include global leaders such as Medtronic, J&J, Phillips, GE, and Siemens, among others. Production is clustered in the country's north, highlighting Baja California, Chihuahua, and Tamaulipas. The most cited advantages for an additional expansion include low labor costs and proximity with the US –highlighting synergies between the cities of Tijuana and San Diego, with the latter being a medical hub in said country. Moreover, updated provisions for the sector within the USMCA trade agreement –especially about intellectual property rights– should provide additional support.

Transportation equipment

Automotive. Mexico has become a world leader, ranked as the seventh top producer in light vehicles, and sixth place in heavy trucks (2021). Synergies with the US more than compensate for some degree of competition. In this respect, Mexico's main competitors include China, Japan, South Korea, Germany, and Canada. Our country's relative advantages include the strong integration fostered by USMCA, recently with a favorable result in the dispute about rules of origin in essential components. More broadly, the domestic industry stands out because of: (1) Competitive costs –especially in labor; (2) accumulated experience, which is very valuable in highly specialized industries; (3) geographical location; and (4) economies of scale. Production is concentrated in the Central, the Bajío region, and Northern states, with the latter two increasingly more relevant in recent years. Among the global trends, we highlight additional '*clusterization*' with the goal of slashing waiting and storage times throughout the value chain. Currently, production includes finished vehicles and other relevant subsectors, such as: (1) Original parts; (2) after-market installation parts; (3) electric and hybrid vehicles; (4) specialized equipment; and (5) remanufactured products.

According to the *US Commercial Service Mexico*, most opportunities are in the first three categories. In our view, the energy transition, decarbonization commitments, and zero-emissions probably represent one of the most significant opportunities in decades for a multi-annual acceleration in investments to our country, with an additional boost from the *Inflation Reduction Act* in the US. Other sectors have been flagged in heavy trucks, with clients mostly in Latin America. This cluster is spread throughout several states, albeit highlighting Nuevo León, Guanajuato, San Luis Potosí, Aguascalientes, and Puebla.

Aerospace. Its significance started to build up in 2005, with the sector primarily composed of parts and components manufacturers and a modest share in repairs, innovation, and technology. Apart from the US, main competitors include Singapore, Brazil, South Korea, and Russia. Mexico's advantages, apart from its geographical location and USMCA, include its accumulated experience in the automotive, electric, and electronics sector, along with the development and availability of a qualified labor force. Moreover, the Ministry of Economy has made alliances with the private sector, setting goals and actions towards 2025 for Mexico to become one of the top ten exporters in aerospace goods (currently, 12th), with total sales breaching the US$12 billion mark. Challenges include fostering and integrating new value chains, along with attracting more innovative projects. Main investors include the US, Canada, France, and Spain. The top five states in this cluster are Baja California, Sonora, Chihuahua, Nuevo León, and Querétaro.

According to *Deloitte*, the global industry is still recovering from the COVID-19 shock, estimating that pre-pandemic levels of activity will be reached by year-end 2023 or early 2024. The industry still suffers from unsolved issues in supply chains and problems to retain talent, which are their two top challenges (along with high inflation). In this environment, 18% of C-suites believe that their priority is to promote *friendshoring*. The top five trends are: (1) The need to build more resilient supply chains through diversification, as well as a more efficient and intensive use of data; (2) higher connectivity and digital transformation in all steps of the value chain to become more agile; (3) challenges to attract, retain, and develop high-level talent, with increasing competition from the Defense sector; (4) emission reduction and development of sustainable manufacturing processes; and (5) adapt to new markets such as private space travel, supersonic, and hypersonic.

Furniture and others

Furniture. Comprised of four main activities including upholstered furniture, home furniture, kitchen solutions, and office furniture. The industry has been consolidating in the last decades and Mexico is the sixth global exporter, on top of the US and Canada, albeit with China staying at the top. Some of the challenges include: (1) Scarcity of local inputs –especially wood– and workers for import substitution; (2) Chinese competition as these companies establish operations in Mexico; (3) more technological innovation and automation to boost productivity; and (4) sustainability and scalability of operations. There are lingering concerns about the impact of higher interest rates in the US housing market. In terms of opportunities, growth in domestic construction would push demand for new spaces, along with remote work (despite being in a very advanced, post-pandemic stage). In Mexico, main producers include the State of Mexico, Jalisco, Nuevo León, Baja California, Chihuahua, and Mexico City. Exports are sent almost exclusively to the US, at 96% of the total (value: US$13.1 billion in 2022), followed very far behind by Canada (3.7%) and Brazil (0.3%). On the contrary, our country imports mostly from the US (41.1%) and China (40.1%).

Like steel and aluminum, the US imposed tariffs (Section 301) to all furniture imports from China, increasing them as far as 25% in 2019. According to *Trade Partnership Worldwide* (2023), this implied additional costs for importers of around US$1 billion. Consequently, the US cut its trade ties with China, from 50% of imports in 2018 to just 25% in 2022. This was substituted by other providers, with most gains in Vietnam (+US$4.8 billion), Mexico (+US$1.5 billion), and Malaysia (+US$972 million). Despite of this, China will probably remain as top producer due to: (1) Its capacity to produce very high volumes, which is difficult to find in other latitudes; (2) experience to comply with safety requirements and other certifications; (3) limits imposed by the costs of keeping very high inventories during the transition to other suppliers; and (4) that the *Most Favored Nation* tariff for these products is at 0%.

Toys. Mexico is a sector leader as it ranks third in terms of global production, only behind China and Brazil. In addition, the industry holds a relevant opportunity for other domestic industries as around 50% of supplies are provided by local producers. Most exports are from the US and the trade surplus with that country is widening; on the other hand, imports from China have also been gaining market share and are currently close to 80%. The pandemic, trade restrictions, and the high dependency of local industry to said country suggest a high potential to substitute imports. Main exporters by state include Baja California, Chihuahua, Nuevo León, Guanajuato, Hidalgo, Jalisco, Mexico City, and the State of Mexico. Challenges ahead include: (1) Adapting to faster technological changes that resulted in greater obsolescence in toys made out of plastic, wood, and other materials; (2) higher demand for electronic toys (videogames and consoles) relative to traditional toys, along with increased technological complexity (robotics); (3) availability of intelligent sensors, digital transformation, and process automation; (4) environmental concerns (in production and packaging), as well as in safety and capacity of recycling; (5) education, diversity and inclusion content; and (6) new product lines, such as 'kidults' –growing at a faster pace than traditional age groups– and collectibles –according to consultancy *NDP Global*, one in five toys sold globally in 2022 were of this type.

Industry	Total trade with the US* US$ million (2022)		Market share (%)**	CAGR Exports (%)***		CAGR Imports (%)***	
	Exports	Imports		5 year	10 year	5 year	10 year
Agricultural goods and livestock	44,043	27,874	20.1	10.6	9.6	8.6	4.1
Chemicals and plastics	19,500	49,394	4.3	11.2	7.9	6.7	4.1
Apparel and accessories	6,815	6,640	3.8	2.8	1.4	3.2	2.6
Basic metals	21,420	24,899	11.2	13.6	7.8	5.4	4.1
Machinery and equipment, electric and electronics	184,223	104,077	17.7	7.4	5.3	2.7	3.3
Transportation equipment	113,307	29,158	31.8	5.9	7.6	2.4	2.0
Furniture and others	15,334	3,471	11.2	4.4	5.0	0.4	2.4

* Note: Amounts based on the Harmonized System classification for traded goods (two-digits), which correspond to the most relevant economic activities. By chapters, we used the following for each sector: Agricultural goods and livestock (01 to 24); Chemicals and plastics (28 to 45); Apparel and accessories (50 to 67); Basic metals (72 to 83); Machinery and equipment, electric and electronics (84, 85 and 90); Transportation equipment (86 to 69); Furniture and others (94 to 96).
** Percentage of total US imports coming from Mexico
*** Compounded annual growth rate. The last full year available is 2022.
Source: Banorte with data form the US Census Bureau, press reports, industry chambers, among others

VII. Mexico's challenges ahead

As in every structural change, Mexico can't just sit on its laurels. In our view, this must be done integrally and through a 'four-helix' model that includes: government (at its three organizational levels), the private sector, education institutions, and society. In order to fully capitalize this paradigm shift and the opportunities arising from nearshoring, it will be key to improve public infrastructure on several fronts (e.g. electricity, water availability, roads, bridges, etc.); foster public and private policies incentivizing investment; improve on Rule of Law indicators; bet further on the development of human capital; raise competitiveness and total factor productivity; and integrate states and regions not currently part of supply chains that are specialized in attending foreign markets.

VIII. Regional footprint of international trade dynamics

In this section we analyze the scope that nearshoring will have in Mexico at a regional level. To do so, we present an assessment of regional international trade dynamics. We also highlight that our analysis is complemented with interactive dashboards that can be found in our new website, within the Nearshoring segment.

www.banorte.com/analisiseconomico

Central Region

Entities: Mexico City, State of Mexico, Puebla, Hidalgo, Tlaxcala, Guerrero, and Morelos

In terms of foreign direct investment (FDI), the Central region was the largest recipient of these inflows during 2022, reaching US$14,323.4 million, which represents a 49.7% increase. Nevertheless, we highlight that this uptick also included two events: (1) The merger of Televisa with Univision; and (2) the restructuring of Aeromexico. Both transactions represented US$6,875 million. However, the manufacturing sector was one of the main recipients of FDI derived from the industrial clusters located in the region. In the case of manufacturing, the Central region is distinguished by the automotive cluster in entities such as the State of Mexico, Puebla, and Morelos, where companies such as Honda, Toyota, Volkswagen, Ford, Audi, Mazda, and Nissan have located their factories.

The Central region concentrates 34.5% of total trade that Mexico has with the US and 39.3% of the commercial relationship with Canada. In 2022, exports from the region to the US posted a 15% increase, while exports to Canada registered 37.9% growth (January-October 2022). As such, the Central region is the most relevant in terms of the trade relationship that our country has with North America.

At an industry level, the automotive cluster concentrates around 23.6% of the total export market in the region. Regarding non-oil imports, these are largely concentrated in productive inputs for the Mexican automotive industry.

Gulf and Southeastern Region

Entities: Campeche, Chiapas, Oaxaca, Quintana Roo, Tabasco, Veracruz, and Yucatán

The Gulf and Southeastern region was the lowest recipient of FDI during 2022, reaching only US$1,352.4 million. This represented a 31.5% decrease with respect to the flows received in 2021. Within the region, the entities most benefited were Yucatan (US$535.9 million; 268.3% y/y), Quintana Roo (US$416.2 million; +34.1% y/y), and Chiapas (US$186.8 million; +7.5% y/y). Despite the weakness in FDI flows during 2022, three sectors with economic potential from nearshoring were the outperformers : (1) Energy (US$301.2 million); (2) Construction (US$301 million); and (3) Transportation, Mail and Storage (US$152.7 million).

The Gulf and Southeastern region concentrates 0.4% of total trade that Mexico carries out with the US and 0.5% of the commercial relationship with Canada. In 2022, exports to the US saw a 14.8% y/y increase, while exports to Canada posted a 35.3% expansion (January-October 2022). With this, the Gulf and Southeastern region ranked as the least relevant in terms of the commercial relationship of our country with North America.

At the sector level, the main exported products that would benefit from nearshoring are related to textile materials and textile manufacturing production. Regarding non-oil imports, these are largely concentrated in precious stones and metals for jewelry manufacturing.

Mid-Mexico Region

Entities: Guanajuato, Querétaro, Aguascalientes, San Luis Potosí, and Zacatecas

The Mid-Mexico region ranked as the fifth largest recipient of FDI during 2022, with an amount of US$3,296.3 million. This represented a 30.5% decrease compared to the flows received in 2021. Even so, entities such as Guanajuato, Aguascalientes, and San Luis Potosi received significant flows destined for manufacturing, due to the automotive cluster that extends over these three entities where companies like Nissan, Infiniti, General Motors, Honda, Ford, Toyota, Mazda, Volkswagen, and BMW have located their production plants. Moreover, the region was also able to capture investment flows in sectors highly correlated to nearshoring, such as Transportation, Mail and Storage (US$443.2 million) and Construction (US$129.5 million).

The Mid-Mexico region concentrates 7.6% of total trade with the US and 27.7% of the commercial relationship with Canada. In 2022, exports to the US picked up 43.3% y/y, while exports to Canada posted a 40.9% expansion (January-October 2022). With this, the Mid-Mexico region ranks as the fourth most important in trade with North America.

At the sector level, 68% of the region's exports to the US are concentrated in transport materials, mechanical devices and their components, and electrical materials. Regarding non-oil imports, these are largely concentrated in productive inputs for these type of goods.

Northern Region

Entities: Nuevo Leon, Tamaulipas, Coahuila, and Durango

In terms of FDI, the Northern region ranked as the second largest recipient in 2022, reaching US$6,737.7 million. This represented an increase of 11.1% compared to the previous year. The manufacturing sector was one of the main recipients (US$4,899.1 million) due to the region's industrial clusters. In the manufacturing sector, the Northern region is not only distinguished by the automotive cluster, but also for being a highly specialized region in manufacturing goods with a high technological component. Even so, the automotive cluster, particularly in Nuevo Leon, becomes relevant, since companies such as KIA and Hyundai, have made significant investments to increase their export potential. In addition to these investments, Tesla recently announced an investment of US$5.0 billion in Santa Catarina, Nuevo Leon, to start the construction of a factory whose production capacity could be of one million electric vehicles per year.

The Northern region concentrates 22.8% of total trade that Mexico carries out with the US and 16.3% of the relationship with Canada. In 2022, exports to the US grew 20.8% y/y, while exports to Canada expanded 14.4% (January-October 2022). With this, the Northern region ranks as the third most important in terms our shipments to North America.

By sector, 66.3% of the region's exports to the US are concentrated in transport materials, mechanical devices and their components, and electrical material. Regarding non-oil imports, these are largely concentrated in productive inputs for manufacturing this type of goods.

Northwestern Region

Entities: Baja California, Baja California Sur, Chihuahua, Sinaloa, and Sonora

In terms of FDI, it ranked as the third largest recipient, reaching US$5,747.2 million. This represented a 13.6% decline with respect to 2021. Despite lower foreign investment, the manufacturing sector was one of the main drivers of these flows (US$2,505.9) derived from the industrial clusters in the region.

The Northwestern region concentrates 28% of total trade that Mexico carries out with the US and 9.7% with Canada. In 2022, exports to the US advanced 21.5% y/y, while exports to Canada were up 18.8% (January-October 2022). With this, it ranks as the second most important for our country's trade with North America.

At the sector level, 71.8% of the region's exports to the US are concentrated in (1) Mechanical devices and their components; and (2) medical instruments and devices. Non-oil imports are largely concentrated in productive inputs for manufacturing this goods and inputs for chemical industries.

Western Region

Entities: Colima, Jalisco, Michoacán, and Nayarit

The Western region ranked as the fourth largest, reaching US$3,609.5 million. This represented a 3.7% increase compared to 2021. Manufacturing was one of the main recipients (US$2,505.9) derived from technological clusters located in entities such as Jalisco. It is not only distinguished by the automotive cluster, since it has other highly relevant clusters such as energy, which has strengthened the value chain. In this context, FDI in energy has helped foster innovation, economic growth, productivity, and competitiveness. Regarding autos, companies such as Honda have made significant investments to increase their export potential.

The Western region concentrates 6.6% of total trade with the US and 6.5% with Canada. In 2022, exports from that region to the US picked up 18.3% y/y, while exports to Canada grew 6% (January-October 2022). As such, it ranks as the fifth most important in trade with North America.

At the sector level, 60.9% of the region's exports to the US are concentrated in: (1) Mechanical devices and their components; and (2) agricultural products. Regarding non-oil imports, these are largely concentrated in productive inputs for this type of goods and inputs for chemical industries, which include fertilizers for the production and export of agricultural goods.

IX. Final remarks

In this document we analyzed, in a proactive way, the opportunities and challenges arising from the relocation of production processes to geographies closer to the centers of final consumption. Our study shows that Mexico will keep benefitting from the inertia of its export sector, with non-oil exports estimated to increase (in nominal terms) between US$35,186 million and US$41,233 million on average per year going forward, regardless of nearshoring. However, thanks to multiple factors (*e.g.* geographical location, demographic advantages, economies of scale, lower costs, and a new way of managing risks and doing business in global supply chains, among others), this new paradigm could represent additional gains close to US$168 billion in non-oil exports over the next five years, implying an annual average of US$33.6 billion.

It is important to understand that nearshoring represents a structural change, with the most important effects likely materializing in the medium- and long-term

However, it is also worth recognizing that there are some short-term gains during the early phases of investment announcements and facility construction. We also consider appropriate to make an introspective analysis as there are a series of challenges that the country must face in order to capitalize on these opportunities. Mexico is entering a new stage of competition in international trade, and although it will be primarily against China and other Asian countries, it will also include the U.S. (onshoring). Within this research note, we also took a close look to those sectors and regions that can benefit the most from this new reality in international trade.

X. Norte Económico Podcast "The nearshoring road"

A collection of chapters from Banorte's podcast

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Luis Manuel Hernández

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