



# Implications of the entry into force of the RCEP in the trade among Mexico, China, and the United States; The case of the electronic sector

## *Implicaciones de la entrada en vigor de la RCEP en el comercio entre México, China y Estados Unidos; el caso del sector eléctrico*

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### Abstract

In this article, the perspectives of the trading relationship among Mexico, China and the United States (US) are analyzed, before the entry into operation of the Comprehensive Regional Economic Association (RCEP) since the beginning of 2022. Such agreement completes a new context of global free trade based on the several mega regional agreements that were signed, implemented, and entered into force in the world, such as CPTPP and USMCA. The hypothesis of this article is that Mexico could strengthened its exchanges with Malaysia and Vietnam, countries that are part of the CPTPP and the RCEP simultaneously, meanwhile would register potential losses of competitiveness in the United States market and a possible reduction in its bilateral exchanges with China. To verify the hypothesis, a Vector Autoregressive (VAR) model is applied for the products belonging to Chapter 85 of the harmonized system that Mexico traded with the US, China, Malaysia, and Vietnam, in the period from 2010 to 2023.

*JEL Code:* F02, F14, F15

*Keywords:* USMCA; CPTPP; RCEP; competitiveness; complementarity

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## Resumen

En este artículo, se analizan las perspectivas de la relación comercial entre México, China y Estados Unidos, ante la entrada en vigor de la Asociación Económica Regional Integral (RCEP) a partir de principios de 2022, lo que completa el nuevo marco del libre comercio global basado en la firma, instrumentación y puesta de operación de varios mega acuerdos regionales en el mundo como el TIPAT, el T-MEC, entre otros. Se plantea la hipótesis de que México podría ver fortalecido su intercambio comercial con Malasia y Vietnam, países que forman parte del TIPAT y de la RCEP simultáneamente, pero registraría potenciales pérdidas de competitividad en el mercado de Estados Unidos y una posible reducción en sus intercambios bilaterales con China. Para comprobar la hipótesis, se formula un modelo vector autorregresivo (VAR) para los productos pertenecientes al Capítulo 85 del sistema armonizado que México comercializó con Estados Unidos, China, Malasia y Vietnam entre 2010-2023.

*Código JEL:* F02, F14, F15

*Palabras clave:* T-MEC; TIPAT; RCEP; competitividad; complementariedad

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## Introduction

In the highly competitive scenario of the actual production and international trade pattern, characteristic of the current century, and given the inoperability of the World Trade Organization (WTO) to unblock various issues in commercial discord between developed and developing countries, such as agricultural subsidies and exemptions, rules of origin, intellectual property, rights of commercial services and patents, among others, lot of the countries have often opted to advance their integration projects through the creation of preferential economic trade zones, under the arrangements of the WTO itself.

These are the cases of mega-trade agreements such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the United States, Mexico, and Canada Agreement (USMCA), and the Regional Comprehensive Economic Partnership (RCEP), which outline a new type of international trade, dominated by large trade blocs. Derived from this new international trade structure, this article analyses the implications of the RCEP for trade flows and the type of products traded between countries a little over a year after it entered into force. To this end, it does not analyze the implications of the RCEP for current international trade but only for some of the most important members of the mega-trade agreements, such as Mexico, China, and the United States (USA), as well as the emergence of new players, such as Malaysia and Vietnam, countries that participate in both CPTPP and the RCEP and that have sufficient comparative and competitive advantages to compete in the new international trade scenario.

This article aims to analyze the implications of the entry into force of the RCEP for the international trade of Mexico, China, and the USA. Although these implications are present in the short, the medium and the long run, they are likely to affect Mexico's relations with China and the USA greatly

and with countries such as Malaysia and Vietnam, which would begin to generate or widen the recent trade deficit. Some of the questions that will be answered are: What are the short-run implications of the RCEP for trade among Mexico, China, and the USA? What is the basis for international trade in the RCEP? Which countries could benefit from the entry into force of the RCEP? Finally, would Mexico be able to generate a trade strategy that may allow it to compete with countries such as Malaysia and Vietnam, as the new competitors in both Chinese and US markets?

The article consists of a brief introduction and eight sections. The first section presents the background to Mexico's trade relations with China in the context of mega-international trade agreements; the second section describes the stylized facts to analyze the key variables that provide an understanding of the current international trade structure dominated by mega-trade contracts and their implications for Mexico's competition and complementarity with China and the USA for Mexico's trade in electronic products with Asian countries. In the third section, the methods and sources are presented to subsequently design an explanatory model of the implications of the RCEP for Mexico, China, and the USA; in the fourth section, a VAR explanatory model of the implications of the RCEP for the structure of Mexico's international trade with China, the USA and new partners not invited to this tripartite relation is formulated. In the fifth section, the results of the model are described; in the sixth section, the results of the model are analyzed; in the seventh section, a discussion of the results and implications for Mexico's trade with China and the USA is presented; the final section consists of the conclusions.

## **Mexico vs China or Mexico vis-a-vis China; Reinterpreting the trade relation**

Since Mexico and China opened up to the world economy in the late 1970s (China) and early 1980s (Mexico), respectively, their productive endowments have been a decisive factor, at least in the first decade after their external opening, to sustain the success of their respective newly inaugurated models, based on the economic reform processes that both countries implemented (González, 2002; López & Rodil 2019).

At the same time, China's growing importance in the world market, particularly in the US one soon led to trade frictions with the rest of the world. One of the first countries was Mexico, a developing nation linked to the US market through the North American Free Trade Agreement (NAFTA) and facing Chinese competition both in the USA market and in the domestic.

After China entered into the WTO, the competitiveness of the Chinese products began to gain a greater share of world markets and of the Mexican and US markets, soon positioning it as a main trading partner with a greater surplus balance in both cases (Mendoza 2015; Bernal 2020; González, Mendoza, & Zhang, 2015).

In the trilateral relation among China, Mexico, and the USA, Mexico has maintained a significant trade deficit with the Asian nation for the last 30 years. At the same time, Mexico has registered a significant surplus with the USA, mainly explained by the increase in Chinese imports of intermediate goods, electronic devices, auto parts, and various inputs. These are necessary ingredients for Mexican production and its exports destined for the US market.

This deficit-surplus situation, which derives from Mexico's ties with China and the USA respectively, has supported the competitiveness of Mexican exports in the US market and the complementarity of Mexican industry's cost reductions generated by the intermediate goods, inputs, and final goods that it imports from the Asian nation.

Accordingly, it can be said that Mexico and China have developed a complementary, mutually beneficial relation, which has been maintained to date, shifting from confrontation to negotiation and, recently, to a comprehensive strategic partnership. Concerning the USA, the competitiveness of Mexican exports is explained, above all, by imports from China.

Mexico's trade relation with China and the USA has become strategic, which could be impacted in two ways by the RCEP: a repeat of the confrontation that occurred in the 1990s or a deepening of the strategic relation vis-à-vis China's central role in this mega trade agreement. Moreover, in the case of the USA, Mexico's surplus balance with that country is diminishing little by little, particularly since NAFTA at first and currently with the USMCA.

Indeed, based on the coexistence of competition and complementarity in the trade relations between the three economies, at least two potential impacts derived from the application of the RCEP can be appreciated. On the one hand, the competitive advantages expected to be generated by the RCEP could strengthen the competitive relation with Mexico in the common export market, particularly with the USA.

On the other hand, the same signatories to both the RCEP and the CPTPP would further promote readjustments in the development of global value chains, not only those already in place but also the possible arrival of new players in Mexico, which would presumably reduce the complementarity in its commercial relation with China and its competitiveness in the US market. To this end, seeking to minimize the negative effects and, at the same time, enhance the positive ones will be an enormous challenge for Mexican economic authorities and the business sector.

The provisions in the USMCA are indeed part of the mechanisms intended to boost further regional integration of value and supply chains in North America, such as the rules of origin in the automotive sector and the clause related to non-market economies (NMEs). Nevertheless, due to the coexistence of competitive and complementary relations between these two economies, the term of NMEs would impact differently on these flows and consequently generate adjustments in them.

Specifically, on the one hand, the entry into force of the RCEP as envisaged would imply an increase in the level of competitiveness for the products of the ‘factories of the world’ located in East Asian countries, including China, Japan, South Korea, and Indonesia, which are among the top 10 exporters of manufacturing products on a global scale, and to a lesser extent, Malaysia and Vietnam (Pan 2021; Yang 2021; UN, 2010; Richer 2021).

On the other hand, given the limitations set out by the NME, Mexico has little chance of reaching a trade agreement with its second trading partner, which in the long run could be a disadvantage for Mexican products or at least lead to a stagnation of their competitiveness in comparison with similar products originating from the RCEP countries.

At the same time, it is important to mention that, among the members of the RCEP, several of them are also part of the CPTPP, which would imply a potential substitution of Chinese products with similar ones but from other Asian economies. Nevertheless, in the short and medium run, the expected positive effect of improving the competitiveness of Mexican products in the US market through this route is difficult to achieve. There are two main reasons for this:

Firstly, due to the volume of trade between China and Mexico, several production chains in Mexico, especially in the highly export-oriented sector, depend to a great extent on the supply of intermediate goods and inputs from China. Second, free trade between Mexico and the Asian members of CPTPP and RCEP would be limited by the rule-of-origin requirement stipulated in the trade agreements. In other words, Mexico could not easily substitute the goods it imports from China in its production chains with similar goods from Vietnam or Malaysia, free of tariffs without certificates of origin.

That is, the competitive advantages potentially provided by the entry into force of CPTPP could be insufficient for Mexico when its products enter the US market, competing with similar products from Asian countries, including China, Vietnam, Malaysia, Indonesia, and others, especially in comparison with those derived from the formation and implementation of the RCEP. Due to this situation, one could foresee a potential imbalance in the competitiveness of the trade relations that China and Mexico have maintained for several decades, which would negatively impact the efficient development of complementarity.

## **Stylized facts**

Regional trade agreements (RTAs), regional integration agreements (RIAs), or free trade agreements (FTAs) have proliferated in the 21st century more than in the 20th century, thus recognizing that this means of regional integration, instead of being a second way to promote multilateralism, has become the

main route to encourage free trade (De la Reza, 2015). Such is the case of the CPTPP, in force since 2018; the USMCA, in force since 2020; and the recently created RCEP, in force since January 1, 2022.

The abovementioned trade agreements, together with the European Union (EU), are the mega-agreements that predominate in trade flows at present, representing 30.1%, 27.8%, 15.0%, and 15.5% of the total at the international level for the EU, CPTPP, CPTPP, and USMCA, respectively (UNCTAD, 2022). Although it is still too early to assess the potential impacts generated by these mega-agreements, particularly the RCEP, due to its magnitude and growing strength, there is no doubt that it could imply a reconfiguration of production processes and trade and investment flows worldwide.

In this global reconfiguration, economic, investment, and trade relations will undoubtedly be impacted by the decisions to be made by large institutional and individual players, especially transnational corporations. At the bilateral and multilateral levels, the RCEP will pose challenges to countries that are in one or the other trade agreement, particularly in the Asia-Pacific region, including not only countries that are in the CPTPP and the RCEP simultaneously but also those that are in only one of the two, such as the USA and China.

At the same time, the RCEP poses major challenges for the other mega-agreements, which have been taking place in the context of adjusting global value, supply, and sourcing chains. This process began a few years ago but was reinforced by the US trade conflict with China and later by the emergence of the COVID-19 pandemic.

Among the three mega trade agreements in force in the Asia Pacific, the USA leads the USMCA, and China leads the RCEP. Because of its membership in both USMCA and CPTPP, it would appear that Mexico has a greater advantage than China and the USA. Nevertheless, as a small country in terms of population and economy, with practically no influence in global trade transactions, it is subject to the configurations potentially derived from the mega-agreements, which could imply a reformulation of its pattern of trade exchanges with China and the USA.

Firstly, although from a bilateral point of view, Mexico's relations with China and the USA are beneficial, in the overall tripartite balance, this benefit will by no means remain unchanged in the short term, particularly because most of the countries that are members of the Association of Southeast Asian Nations (ASEAN) have both comparative and competitive advantages greater than those of Mexico in terms of wage costs, educated workforce, and institutional facilities for foreign direct investment (FDI). Several of them are members of both CPTPP and RCEP.

Undoubtedly, the comparative and competitive advantages of some ASEAN countries are important for making investment decisions on a global scale and will represent a great challenge for Mexico; consequently, the segments or major parts of the production processes that would leave China, instead of going to Mexico due to the advantages provided by the new Nearshoring phenomenon, would

be transferred to its Asian competitors. Most probably, the products imported by Mexico from China would be replaced by similar products from Malaysia and Vietnam, thus reducing the volume of bilateral trade with China.

Secondly, the short- and perhaps medium-run implications would be that Mexican products destined for the US market would have to face increasing competition from Asian countries that belong to both the RCEP and the CPTPP due to lower production costs and other comparative and competitive advantages generated by the RCEP's entry into force. Accordingly, the slower pace of growth of Mexican exports to the USA would translate into a lower demand for products from China, which would have an even more negative impact on trade relations between the two countries.

Regardless of what the final medium- and long-run impact of the new configuration of international trade on a global scale will be, from the authors' point of view, the USMCA, and particularly the RCEP, constitute so far the empirical evidence that the world is entering a new stage of competition and industrial-trade complementarity.

## **Methods and sources**

Several studies have been conducted about Mexico's trade with its two main trading partners. Nevertheless, attention has yet to be paid to evaluating the potential impacts of the RCEP on bilateral trade among Mexico, China, and the USA, particularly in quantitative terms. Therefore, the main objective of this paper is to analyze the implications of the entry into force of the RCEP for Mexico's bilateral trade with both countries in the short and medium run, particularly for the products that make up Chapter 85 of the Harmonized Commodity Description and Coding System (HS), such as electrical machinery, apparatus and equipment, and parts thereof; sound recorders and reproducers; television image and sound recorders and reproducers; and parts and accessories.

Therefore, it is hypothesized that Mexico could be strengthened in its trade with Malaysia and Vietnam, which are simultaneously part of the CPTPP and the RCEP, despite the potential loss of competitiveness in the US market and a considerable and possible reduction in its bilateral trade with China.

Qualitative and quantitative analyses are applied through a Vector Autoregressive (VAR) model to confirm the above. It is predicted that implementing the RCEP would probably diminish the complementarity between Mexico and China in the development of global value and supply chains.

The data for this study are derived from Banco de México's "Foreign Trade Information Cube," which can be found at <https://www.banxico.org.mx/CuboComercioExterior/>. These are monthly figures on the country's trade with the USA, China, Malaysia, and Vietnam, and due to their importance, two

economies are also included in the analysis: South Korea and Taiwan, from January 2010 to February 2023.

### **VAR model on Mexico's foreign trade with China and other Asian countries; The electronics sector**

The products listed in Chapter 85 are dominated mainly by electrical and electronic products, whose main current supply source in Mexican imports is China, followed by the USA, Malaysia, South Korea, and Vietnam, with high volumes during the last four years. In turn, these same products represent one-fifth of Mexico's annual purchases, and their sales to the international market account for a similar share of the total.

The analysis of this specific sector shows that, on the one hand, implementing the RCEP could decrease the competitive advantages of Mexican shipments to the US market over similar shipments from Asian nations. On the other hand, Mexican imports of articles cataloged in the electronics sector could see an effect of substitution of the Chinese by similar ones, but coming from Malaysia and Vietnam, respectively, since Mexico and these two Asian nations are members of the CPTPP, and their membership in the RCEP could further increase this effect.

Monthly data on trade with the USA, China, Malaysia, and Vietnam are used to analyze the effects of the RCEP's entry into force on trade relations among China, Mexico, and the USA. Due to their importance, two economies are included in the analysis: South Korea and Taiwan, from January 2010 to February 2023, sourced from Banco de México.

Among the suppliers of the products listed in Chap. 85 within the HS, the USA maintained its dominant position until 2008 with a share of 31.0%, followed by China, with 23.9%; Japan and South Korea in the 3rd and 4th positions, with 10.9% and 8.5%, respectively, in the same period. From 2009 to 2022, China surpassed the USA, thus becoming Mexico's most important supplier (Figure 1). From the above, it can be seen that the importance of South Korea and Japan has also decreased over time, being surpassed by Malaysia, Taiwan, and even Vietnam.



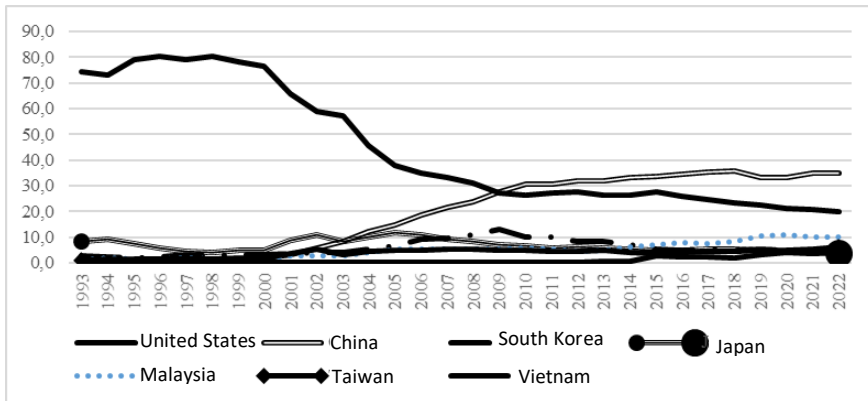


Figure 1. Imports of the products listed in HS Chap. 85 by country of origin, 1993-2022 (%)  
 Source: Banco de México, “Foreign Trade Information Cube”

In Figure 2, the following variables are presented in monthly terms: Xeu represents Mexican exports to the US market, while Meu, Mch, Mm, Mcs, Mt, and Mv are the purchases made by Mexico from the USA, China, Malaysia, South Korea, Taiwan, and Vietnam, respectively, all referring only to the products included in Chap. 85. Clearly, the trends and seasonal cycles registered by the different series can be observed, which, with a high probability, could lead the observer to suspect the presence of a unit root.

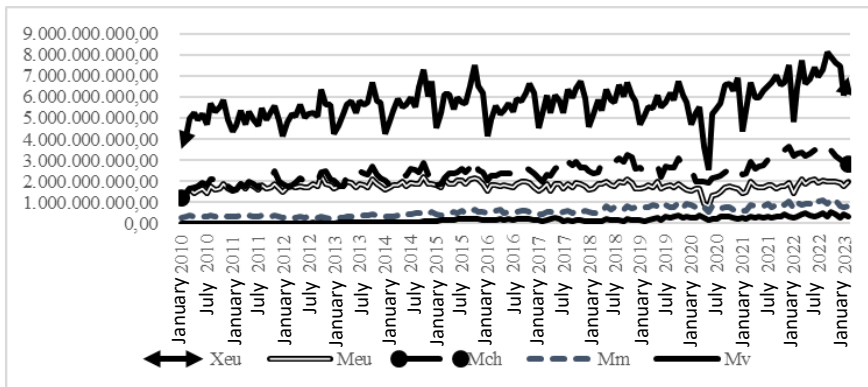


Figure 2. Trade exchange between Mexico and its partners, 2010-2023 (current dollars)  
 Source: Banco de México, Foreign Trade Information Cube  
 Note: For the sake of clarity, the figures for South Korea and Taiwan are not presented

After applying the first differentiation, the 7 series became stationary since the Dichy-Fuller Augmented Dichy-Fuller (DFA) tests were able to reject the existence of a unit root with 1%, 5%, and

10% probability (Table 1), an indispensable condition for applying the VAR model following the methodology proposed by Johansen (1991, 1995) and the classical causality analysis of Granger (1969).

Table 1  
 Augmented Dickey-Fuller Tests

Variable	Levels		First Differences		
	Level	Statistic t	P-value	Statistic t	P-value
XEU		-1.326733	0.6172	-5.701618	0.0000
	1%	-3.461178		-3.461178	
	5%	-2.874997		-2.874997	
	10%	-2.574019		-2.574019	
MCH		-1.51943	0.5220	-4.242691	0.0007
	1%	-3.461178		-3.461178	
	5%	-2.874997		-2.874997	
	10%	-2.574019		-2.574019	
MCS		-2.111964	0.2403	-9.906663	0.0000
	1%	-3.460884		-3.460884	
	5%	-2.874868		-2.874868	
	10%	-2.573951		-2.573951	
MEU		-2.271851	0.1821	-5.131468	0.0000
	1%	-3.461178		-3.461178	
	5%	-2.874997		-2.874997	
	10%	-2.574019		-2.574019	
MM		-1.024741	0.7446	-17.64053	0.0000
	1%	-3.459762		-3.459762	
	5%	-2.874376		-2.874376	
	10%	-2.573687		-2.573687	
MT		0.461488	0.9850	-7.927024	0.0000
	1%	-3.460596		-3.460596	
	5%	-2.874741		-2.874741	
	10%	-2.573883		-2.573883	
MV		0.358674	0.9808	-13.16479	0.0000
	1%	-3.460035		-3.460035	
	5%	-2.874495		-2.874495	
	10%	-2.573751		-2.573751	

Source: created by the authors in E-views

Considering that the data applied in this study are monthly and therefore the selected period goes from January 2010 to February 2023, there is a total of 158 observations to avoid the use of dummy variables given the atypical ups and downs that Mexico's commercial exchanges with its partners have produced, especially in 2008-2009 when the whole world was in the midst of the financial crisis.

To measure the potential impacts that the entry into force of the RCEP would generate, the 158 observations are evaluated in three different periods: January 2010 to June 2018, July 2018 to February 2021, and March 2021 to February 2023. The justification is that in mid-2018, China and the USA initiated

trade frictions, which have not been clearly settled to date, meaning it is highly probable that the patterns of trade flows between the economies involved in this document have been modified.

Likewise, at the beginning of 2021, the 15 economies that make up the RCEP formally declared the termination of the negotiations, and presumably, its effects already began to take effect at the beginning of 2021, despite its entry into force as of January 2022. Another reason for modeling the series in the third phase is that the available information published by Banco de México is from February 2023 as the latest date. Nevertheless, the modeling requires a series of 12 minimum observations. When more data become available from the official source, the results for this time frame are expected to be further strengthened.

## VAR modeling results

Among the 7 variables involved, the impacts generated by imports from China, Malaysia, and Vietnam are measured, mainly on Mexican exports to the USA, thus assessing the foreseeable contributions caused by the RCEP's entry into force through VAR modeling. Before applying it, it is necessary to evaluate the dynamic stability of the resolutions through the polynomial inverse roots that are less than unity in absolute terms (Figures 3-5).

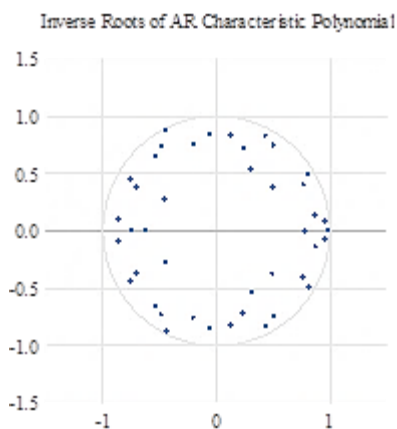


Figure 3. Polynomial inverse roots, January 2010 to June 2018 (6 lags)  
Source: created by the authors based on the econometric package E-views

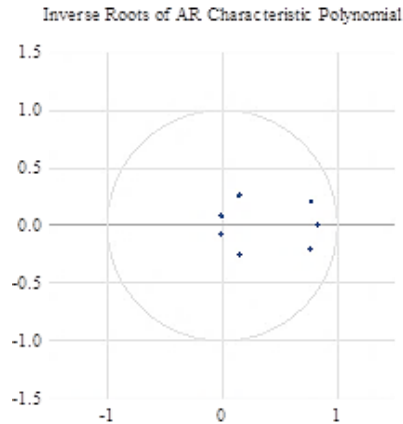


Figure 4. Polynomial inverse roots, July 2018 to February 2021 (1 lag)  
 Source: created by the authors in E-views

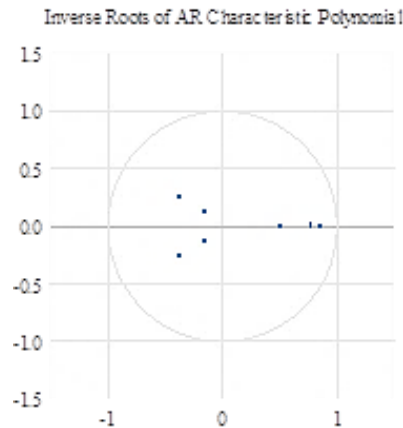


Figure 5. Polynomial inverse roots, March 2021 to February 2023 (1 lag)  
 Source: created by the authors in E-views

The above demonstrates the dynamic stability of the resolutions of each of the three modelings, which yield the following equations (the figures in parentheses refer to the standard deviation values of each of the estimated coefficients).

1st period						
XEU	MCH	MCS	MEU	MM	MT	MV
1.000000	0.528906	1.223848	-1.992174	-0.883889	-6.204836	-2.366212
	(0.47161)	(0.86278)	(0.52445)	(1.18371)	(2.45362)	(1.80553)

2nd period						
XEU	MCH	MCS	MEU	MM	MT	MV
1.000000	-2.815939	7.352656	1.218122	-4.472689	-7.231109	1.400650
	(0.39064)	(2.30020)	(0.65090)	(1.36220)	(2.47961)	(1.85740)
3rd period						
XEU	MCH	MCS	MEU	MM	MT	MV
1.000000	2.918562	-11.01537	0.252412	-12.53282	2.818786	-5.685740
	(0.31345)	(2.78179)	(0.79212)	(1.10917)	(1.77327)	(1.83709)

Table 2  
 Summary of VAR modeling results

Period	China	Malaysia	Vietnam	USA	South Korea	Taiwan
2010-.01-	-0.528906	0.883889	2.366212	1.992174	-1.223848	6.204836
2018.06	(0.47161)	(1.18371)	(1.80553)	(0.52445)	(0.86278)	(2.45362)
2018-07-	2.815939	4.472689	-1.400650	1.218122	-7.352656	7.231109
2021.02	(0.39064)	(1.36220)	(1.85740)	(0.65090)	(2.30020)	(2.47961)
2021.03-	-2.918562	12.53282	5.685740	-0.252412	11.01537	-2.818786
2023.02	(0.31345)	(1.10917)	(1.83709)	(0.79212)	(2.78179)	(1.77327)

Source: created by the authors according to the results derived from E-views

## Results analysis

The results presented in Table 2 are interpreted from two angles. From the statistical point of view the analysis consist en the significance and the signs of each of the coefficients to determine their rejection or acceptance . On the other hand, based on the statistical significance and the observed signs, an attempt is made to explain the changes registered by each of the economies to evaluate the impacts derived from the entry into force of the RCEP.

- Statistical significance and signs of estimated coefficients

In the first period of the analysis, the coefficients obtained are statistically insignificant for imports from China, Malaysia, and Vietnam, while those from the USA, South Korea, and Taiwan are not. From July 2018 to February 2021, except for the Vietnamese case, the other estimates cannot be rejected. Finally, the results derived from the VAR modeling for the USA and Taiwan cannot be statistically accepted.

Likewise, regarding the signs of the coefficients, some interesting points are observed since, on the one hand, in the last period of the analysis, when the RCEP came into force, the USA and Taiwan were not part of the mega trade agreement, it would be difficult to quantify the corresponding impacts of

imports from these two economies on Mexican exports to its northern neighbor. On the other hand, Malaysia, Vietnam, and South Korea, the three member nations of the RCEP, have seen their exports destined to Mexico with higher importance to boost the Mexican sales in the US market, compared to the impacts recorded respectively in the two previous periods.

Finally, imports from China changed their sign from March 2022 to February 2023, negatively impacting Mexican exports, contrary to what was observed in the second period of the analysis.

- Explanations of the adjustments of the coefficients obtained in each period

Although the results obtained from the modeling have not confirmed the complementary relation for trade exchanges between China and Mexico before June 2018, they have proven such a hypothesis for the second period. Before the entry into force of the RCEP, the direction of the same relation has changed. The main reason would have to do with the trade frictions initiated since mid-2018 between the two economic superpowers, which have meant that Chinese products have at least partially lost their degree of competitiveness in the US market due to the rise in tariff costs, and therefore, have led to two adjustments for the Chinese economy. Firstly, they have diversified their exports to the rest of the world more than before; secondly, some production chains have been transferred to other countries, and one of the favorite destinations is Mexico due to the advantages generated by Nearshoring.

Given these facts, Mexican exports to the USA have benefited upwards, which would nevertheless have to be accompanied by a higher volume of imports of Chinese products, especially input and intermediate goods, due to the deficiencies prevailing in Mexico in the development of value and supply chains. Presumably, it has strengthened the complementary relation between the two economies even more dynamically and has made complementarity increasingly evident. Therefore, the results derived from VAR modeling do not reject this hypothesis.

Simultaneously, the relocation of some of China's production chains has also benefited its Asian neighbors. In this regard, it was observed that imports from Malaysia have also increased their positive impacts on Mexico's sales to its northern neighbor's market. Specifically, in the period from January 2010 to June 2018, between the two variables, it is statistically insignificant despite sustaining a positive relation. Nevertheless, from June 2018 to February 2021, the positive effect is already statistically significant. In the last period of analysis (from March 2021 to February 2023), the importance has increased, going from 4.47 to 12.53, which coincides with the end of the negotiation and implementation of the RCEP.

At the same time, the Vietnamese products purchased by Mexico also began to have favorable effects in terms of boosting Mexican exports to the US market, particularly for the latter. It is important to emphasize that the relocation of some production chains from China to the rest of the world is not a new phenomenon, as several studies have pointed out that this process has been underway for

approximately 10 years and has been reinforced by trade frictions and the spread of the Covid-19 pandemic (Garrido 2022; Rosales 2022; Liu 2023).

This adjustment could explain a weak complementary relation between these two nations in the first period with statistically insignificant figures. Nevertheless, when trade frictions began in the second period, Mexico increased its exports to the USA, at least partially substituting similar exports from China. This stimulated imports of Chinese inputs and intermediate goods for those from Mexico to improve its export capacity.

Finally, in the last period when the RCEP was implemented, Chinese exports to Mexico reversed the positive relation recorded regarding sales destined for the US market in the immediately preceding period, with a statistically significant coefficient. Undoubtedly, this change is strongly related to the fact that Mexican imports from China slowed down their growth rate even with the lower value for the first two months of 2023 compared to the same period of the previous year. In the first place, despite the lower Chinese competition in the US market due to the prolongation of trade frictions, Mexico has faced competitions from Malaysia and Vietnam. These two nations have also benefited from the conflict between economic superpowers. The share of Mexican products in the US import market has practically remained stable at around 14.0% during the last three years, after the rebound registered in 2019, with 14.5% (BEA 2023).

Another equally important factor throughout 2022 and the first two months of 2023 is the negative impact generated by the outbreaks of the COVID-19 pandemic in China and particularly by the “zero tolerance” measures implemented during most part of 2022, which not only slowed economic growth in the 2nd and 4th quarters, even more so in China, but also hindered the exports required by Mexico. The share of imports from China in Mexico’s total imports decreased from 20.0% in 2021 to 19.6% in 2022 and, for the first two months of 2023, to 18.2%.

A third element that has led to the weakening of the complementary relation between Mexico and China in the third period has been due to the substitution effect for Mexican imports. With the RCEP coming to fruition at the beginning of 2021 on the one hand and the prevalence of high tariffs derived from the trade frictions between China and the USA on the other, this would probably generate greater competitive advantages for Asian countries in the face of the growing relocation of production chains from China. Thus, the products imported by Mexico from China for incorporation into the various production chains in the electrical and electronics sector would have been replaced in increasing volume by similar products from Malaysia and Vietnam.

## **Discussion of results; The China-Mexico-US trade relation**

The commercial relation between the three nations has been a topic of discussion and controversy for several decades, especially since China's entry into the WTO. At the center of the debate is a deficit balance recorded by Mexico with a growing and constant trend, and its displacement in several years as the main trading partner of the USA in the present century.

Indeed, on the one hand, the implementation of NAFTA fulfilled its objective of promoting the growth of Mexico's intra-regional trade with its two trading partners and, at the same time, attracting FDI (Murayama 2010; Dussel & Gallagher, 2013; Oropeza, 2014; Mendoza, 2020); on the other hand, opinions have also been expressed that the positive results of the same trade agreement have diminished its importance, due to multiple elements, among them the active and progressive participation of China in the process of regional integration in North America.

In this case, although China has not signed any trade agreement with Mexico or the USA, it has managed to penetrate trade flows in the NAFTA region (Dussel & Gallagher, 2013). In addition, Mexico has been described as the springboard and place of assembly to place its products in the North American market, which has led to the reduction of the national value-added and the disintegration of production chains and exports based mainly on a basic maquiladora process (Gutiérrez, 2014).

Other studies indicate that China's increased presence in the North American region has generated changes in the trade structure, whose flow has a layout similar to that of a wheel with the US economy as the central component and those of Canada, China, and Mexico as the spokes that support it (López & Rodil 2014). Consequently, the competitive advantages derived from the products imported by Mexico from China have improved the competitiveness of the Mexican export sector, shaping it as "a more complementary strategy, although with intra-industry relations in some specific sectors" (López & Rodil, 2019. P. 99).

Recently, some papers applied quantitative methods to analyze the trilateral relations between Mexico and its two main trading partners by calculating the correlation coefficient and using the VAR model. In the first case, the correlation coefficient was practically linear between Mexico's exports to the USA and imports from China (Levi 2018; Liu 2019). In the second case, the coefficient between the two variables stands at 0.25 and 1.06, and from June 2001 to August 2008, the figure reached its highest level of 1.99 (Liu & Guerrero 2020; Liu & Covarrubias 2023). This confirmed a positive relation between the two variables and explained the complementary trade exchanges sustained between the two economies.

In summary, despite the diverse and controversial opinions in discussions about the consequences of China's increasingly active participation in trade exchanges with Mexico and the USA (Ley, 2012; Liu, 2012; De la Cruz & Veintimilla, 2014; González & Haro, 2013; Embassy of Mexico in



China, 2015; Limas, 2019), the links between the three countries represent a fact that no one can deny (Gómez & González, 2017).

Indeed, the position occupied by imports from China in the structure of the global value chains of Mexican production, especially those linked to exports to the USA, has shown that these products are destined not only for final consumption but also, for the most part, to be incorporated into the different links in the production plants installed in Mexico, and subsequently exported to international markets as final products. This fact confirms that trade relations between China and Mexico have been competitive and complementary.

From the results obtained from the VAR model, all of them seems to indicate that the complementarity between China and Mexico in their bilateral exchanges would be reduced because of the possible reduction of Mexican exports to the US market and, in addition, some other countries not initially involved in the triangulation between the three countries have been added.

## **Conclusions**

A year and a half after the entry into force of the new mega trade agreement in the Asia-Pacific region, the RCEP's expectations concerning world trade flows *ceteris paribus* suggest a possible reconfiguration of global value chains among the participating members of this mega trade agreement, particularly with the ASEAN countries belonging to both CPTPP and RCEP, which could become natural recipients of FDI from Japan, South Korea, and China respectively, especially for Vietnam and Malaysia, which could replace those coming from China and enter the various production chains located in Mexico.

Given the prolongation of sustained trade frictions between the two economic superpowers at the global level to date, the complementary relations established in the value chains of HS Ch. 85 between China and Mexico since 2018 could have predictably been weakened with the entry into force of the RCEP and bilateral relations with the two nations mentioned above.

From another point of view, the increase in competition of Asian countries with Mexico in the US market would be expected due to the productive and investment reconfiguration that could take place in the CPTPP and RCEP member countries since the position of "factories of the world" in the Asia Pacific region will presumably soon be consolidated and strengthened even more.

In the case of China, Mexico, and the USA, it would be expected that Mexican products maybe lose competitive advantages over similar products from China in the US market with the implementation of the RCEP. At the same time, trade transactions between Mexico and China could continue without major ups and downs, and even a possible increase in the deficit with China would not be ruled out.

Nonetheless, there could be a downward trend in the electronics sector due to the substitution effect in the face of competition from Malaysia and Vietnam.

To successfully face the challenges and win the competition or at least maintain its market share in the US market, Mexico needs to analyze and modernize the various sectoral promotion programs that have been implemented since the beginning of the century, not only to generate a higher level of integration with its two USMCA trading partners but also to promote the optimal development of its global value chains and guarantee diversification in the supply of raw materials and intermediate goods, by incorporating an increasing number of Asian countries, especially through the signing of bilateral trade agreements.

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