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Analysis of Trade Creation and Trade Diversion Effects in Regional Economic Integration: A Case Study of the North American Free Trade Area

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Abstract: This article comprehensively reviews the impact of regional economic integration on trade creation and trade transfer, with a particular focus on the North American Free Trade Agreement (NAFTA) and the subsequent USMCA. By extensively synthesizing various existing literature materials, this study explores in depth the impact of regional economic integration on the economic development of member and non member countries. The article reveals in detail the specific manifestations of trade creation and trade transfer in agriculture and automobile manufacturing, two key industries, during different time periods. The research results indicate that NAFTA and USMCA have effectively promoted trade between these two industries within the region, but have also to some extent triggered trade diversion among non member countries. Although regional economic integration has improved the overall economic welfare level of member countries, it also faces many challenges such as decreased public support and limited policy implementation space. In the future, regional economic integration urgently needs to explore a balance between deepening internal cooperation and effectively addressing the challenges of globalization.

Keywords: Regional Economic Integration, Free Trade Area (FTA), Trade Creation, Trade Diversion, North American Free Trade Agreement (NAFTA).

1. Introduction

Against the backdrop of global fragmentation, inflationary pressures, and geopolitical turmoil, many countries are striving to deepen regional economic integration. From the European Union (EU) to the North American Free Trade Agreement (NAFTA), and the Asia-Pacific Economic Cooperation (APEC), regional economic integration organizations continue to emerge, with their scale and influence steadily expanding.

Regional economic integration is based on regional integration agreements (RIA) that are fundamentally characterized by their geographically selective trade policies. Historically, RIAs are categorized into three main types. The first is a free trade area (FTA), which is established by eliminating tariffs on trade between member countries while allowing each member to independently set tariffs on trade with non-member nations. The second type is a customs union (CU), which not only removes tariffs among members but also adopts a unified tariff policy for trade with non-members. And the third type is a common market (CM), which extends the benefits of a customs union by also allowing the free movement of production factors, such as labor and capital, alongside

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goods and services among member states [1]. Above all, regional economic integration relies on officially recognized RIA to provide member states with preferential trade access to each other's markets, aiming to reduce costs for both consumers and producers and to increase trade among the countries participating in the agreement.

Jacob Viner first introduced the theory of Regional Economic Integration in his book The Customs Union Issue, published in 1950. His research established specific criteria for distinguishing the advantages and disadvantages of economic integration and analyzed the static effects of economic integration, categorizing its potential impacts into trade creation and trade diversion [2]. Trade creation is defined as the phenomenon where, when a trade agreement is signed between two countries, trade shifts from a high-cost producer within the member countries to a low-cost producer. On the other hand, trade diversion occurs when imports shift from a low-price producer in a third country to a high-price producer within the member countries. This happens when the integration agreement protects higher-cost suppliers within a member country from external competition, leading to the adoption of a common tariff. He explained that trade creation increases a country's welfare, while trade diversion reduces it.

With the development of economic academic literature, the definition of trade creation and trade diversion of regional economies has been greatly specified. Trade creation refers to the phenomenon where, after the establishment of a customs union or free trade area, the elimination of tariff barriers among member countries leads to the replacement of domestically produced high-cost goods with lower-cost goods produced by member countries, thereby promoting an increase in trade volume and enhancing the efficiency of resource allocation. Under the introduction of regional trade agreements (RTAs), these agreements allow more efficient producers to supply products, which is known as trade creation. In contrast, trade diversion occurs when an RTA shifts trade from more efficient suppliers outside the RTA to less efficient suppliers within the RTA. Regional trade agreements have two types of effects on the economy: static effects and dynamic effects. Trade brings arbitrage gains, economies of scale, and more complex product differentiation and innovation by leveraging differences in factor endowments, larger markets, and new technologies, as described by traditional trade models. Enhanced competition improves production efficiency, larger markets lead to economies of scale that lower average production costs, increased investment opportunities drive international investment, and intensified competition promotes technological progress. These dynamic effects alter the trajectory of the economy [3].

The in-depth exploration of the trade creation and trade diversion effects of regional economic integration is significant for understanding the advantages and disadvantages of regional economic integration, as well as for formulating reasonable regional cooperation policies. This paper will analyze existing literature, provide a comprehensive review of the trade creation and trade diversion effects of regional economic integration, and on this basis, discuss the impacts of North American regional economics, the USMCA (United States-Mexico-Canada Agreement), and the European Union's regional economics in Central Asia on member and non-member countries. Additionally, it will explore the future development directions of regional economic integration.

2. Analysis of North American free trade area: NAFTA & USMCA

The history of North American economic integration can be traced back to the signing of the Canada-United States Free Trade Agreement (CUSFTA) in 1988. During the 1980s, the global economic landscape underwent significant changes, and the trend of regional economic integration became increasingly prominent. As geographically adjacent and economically complementary entities, the United States and Canada took the lead in establishing CUSFTA, aiming to eliminate tariff barriers and promote the free flow of goods, services, and capital, thereby laying the foundation

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for regional economic cooperation. This agreement marked the beginning of North American economic integration and provided the framework for the negotiation of NAFTA.

In 1990, Mexican President Carlos Salinas de Gortari and U.S. President George H.W. Bush announced their intention to sign a bilateral Free Trade Agreement (FTA), which served as a precursor to NAFTA. A year later, the Canadian government joined this initiative, and the three countries began negotiations, culminating in the signing of the North American Free Trade Agreement (NAFTA) in December 1992. This established what was then known as the world's largest free trade zone. The core provisions of NAFTA included the gradual elimination of tariffs and non-tariff barriers, the promotion of investment liberalization, and the strengthening of intellectual property protection [4].

NAFTA was a unique example of global trade integration at the time. Its distinctiveness lies in its inclusion of a developing country alongside two industrialized nations within the same framework. For instance, in terms of per capita income, the United States was six times that of Mexico, a disparity far greater than the economic differences within the European Union, where the income gap between the wealthiest country, Germany, and the poorest, Greece, was only twofold among the EU-15. Unlike the multilateral integration model of the European Union, NAFTA adopted a trilateral agreement structure, consisting of three bilateral agreements: one between Canada and the United States, another between Mexico and the United States, and a third between Canada and Mexico. Despite having been in operation for over thirty years since its inception, the membership of NAFTA has not expanded to include other countries in the Americas. During this period, although there have been numerous attempts in the Americas to promote the expansion of free trade agreements at the multilateral level, unlike the EU's approach of establishing detailed legal procedures and standards for the accession of new members, Article 2204 of NAFTA does not provide clear guidelines or standards for accession, leaving the decision entirely to the discretion of each member state [5].

However, the ratification process of NAFTA in the United States was fraught with controversy. In 1993, the U.S. Congress passed NAFTA by a narrow margin of 234 votes in favor to 200 against, reflecting domestic skepticism towards free trade, particularly concerns from labor and environmental groups about potential negative impacts. This period laid the foundation for North American economic integration but also sowed the seeds for subsequent revisions.

Entering the 21st century, the implementation of NAFTA entered a deepening phase. In 2005, the United States, Canada, and Mexico launched the Security and Prosperity Partnership of North America (SPP) initiative, aimed at further strengthening regional economic cooperation, especially in the fields of energy, transportation, and security. The introduction of SPP marked NAFTA's evolution from a mere trade agreement to a broader framework for economic and security cooperation. However, SPP did not achieve significant results, partly due to disagreements among the three countries on policy coordination and benefit distribution. Nevertheless, NAFTA remained an important pillar of North American economic integration during this period, with trade and investment among the three countries continuing to expand.

Amidst the changing global economic landscape, technological advancements, and shifts in political priorities, the agreement required modernization. The failure to modernize the North American trade system was highlighted by the Donald J. Trump administration's withdrawal of the United States from the Trans-Pacific Partnership (TPP) negotiations in 2016 [6]. After several rounds of negotiations, the United States, Canada, and Mexico reached the United States-Mexico-Canada Agreement (USMCA) in September 2018 to replace the original NAFTA. USMCA retains the core content of NAFTA while making several important revisions, including strengthening labor and environmental standards, updating digital trade rules, and adjusting rules of origin for the automotive industry. The USMCA officially took effect on July 1, 2020, marking a new era for the North American Free Trade Agreement. The negotiation and enactment of USMCA reflect new trends in

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global economic governance, especially against the backdrop of rising trade protectionism and deepening regional economic cooperation. While the agreement balances the interests of all parties and provides a new framework for future regional economic integration, some new provisions have also introduced greater uncertainty into North American trade and investment relations [7].

3. Trade creation and trade diversion

3.1. Agriculture

Agriculture, as one of the core industries of the NAFTA member states (the United States, Canada, and Mexico), has seen its trade flows directly reflect the economic impact of the agreement. Additionally, the significant changes in trade barriers for agricultural products before and after the implementation of NAFTA provide a clear data foundation for studying trade creation and trade diversion.

The trade creation and trade diversion effects of NAFTA in the agricultural sector are notable. Since the implementation of NAFTA, agricultural trade between the United States and Canada, as well as Mexico, has increased substantially, more than tripling in volume. Particularly, agricultural products that saw significant reductions in tariffs and non-tariff barriers experienced the most notable growth in trade. For example, between 1993 and 2000, U.S. agricultural exports to Canada and Mexico increased by 59%, while exports to the rest of the world grew by only 10% during the same period. This indicates that NAFTA generated significant trade creation effects in the agricultural sector, promoting the expansion of regional agricultural trade. At the same time, U.S. agricultural exports also benefited from NAFTA, particularly to China and Hong Kong, where the export share surged from 3.3% to 18.3%, while Canada's agricultural exports to China increased from 7.2% to 10.2%. Although U.S. exports of certain agricultural products (such as corn, sorghum, and soybeans) to Mexico and Canada experienced fluctuations, NAFTA ensured tariff-free treatment for U.S. corn exports to Mexico, further boosting bilateral trade. According to model estimates, from 1994 to 1996, U.S. agricultural exports to Canada and Mexico were 7% and 3% higher, respectively, than they would have been without NAFTA, while imports were 5% and 3% higher. Furthermore, studies show that if Mexico were to withdraw from NAFTA, its agricultural exports and imports would decrease by 7% and 18%, respectively, further highlighting the importance of NAFTA to regional agricultural trade. These data and analyses collectively demonstrate that NAFTA not only drove the growth of regional agricultural trade but also laid a solid foundation for member states in the global market [8].

Although NAFTA promoted trade growth between the United States, Canada, and Mexico, it also led to trade diversion effects. The trade diversion effects of NAFTA in agriculture are particularly significant, especially for key crops such as corn, wheat, and soybeans. U.S. corn exports to Mexico surged by 413% after NAFTA's implementation, primarily due to the Mexican government's lax enforcement of tariff-rate quotas (TRQs) and the large-scale export of U.S. corn not subject to TRQ restrictions. Mexico's dependence on corn imports rose from 7% to 34%, even though domestic corn production increased by 50%, while actual producer prices fell by 66%. In the case of wheat, U.S. exports to Mexico increased by 599%, while Mexico's wheat production declined by 7%, with import dependence skyrocketing from 18% to 73% and producer prices dropping by 58%. Soybeans and cotton followed similar trends, with U.S. soybean exports increasing by 159%, Mexico's soybean production declining by 83%, and import dependence rising from 74% to 97%. Cotton imports increased by 531%, while Mexico's cotton production stagnated, and import dependence rose from 48% to 70%. Additionally, the U.S. provided implicit subsidies to Mexico's livestock industry through low-cost feed (such as corn and soybeans), further intensifying competitive pressures on Mexican domestic producers. Overall, NAFTA's implementation led to a significant increase in Mexico's agricultural dependence on the United States, with domestic producers facing both declining prices and shrinking market shares, highlighting the pronounced trade diversion effects. Moreover, U.S. agricultural imports from non-NAFTA countries grew relatively slowly, indicating that some trade was diverted from non-member states to NAFTA members. However, this trade diversion does not necessarily imply a shift from more efficient suppliers to less efficient ones, as the growth in regional trade may reflect more efficient supply chain integration and regional economic complementarity [9].

The impact of NAFTA on U.S. agricultural employment has been generally positive, albeit modest. Studies show that after NAFTA's implementation, employment in U.S. crop and livestock sectors slightly increased, with an average annual growth rate of 1.3%. Additionally, NAFTA indirectly enhanced the economic welfare of the agricultural sector by promoting trade growth. Furthermore, U.S. agricultural exports to non-NAFTA countries decreased, while exports to NAFTA members increased significantly. This regionalization trend suggests that NAFTA not only boosted regional trade but may also have somewhat weakened trade ties between the United States and non-member states [10].

3.2. Automotive manufacturing industry

The automotive manufacturing industry is a highly integrated sector in North America, characterized by complex and transnational supply chains, making it an ideal case for analyzing the impact of trade agreements on production division, investment flows, and market competition. Additionally, the automotive industry exhibits significant trade flows among NAFTA member countries (the United States, Canada, and Mexico), and changes in tariffs and non-tariff barriers directly influence production layouts and trade patterns. This makes it a suitable example for examining trade creation including intra-regional trade growth, and trade diversion including reduced trade with non-member countries.

Before the implementation of NAFTA, the automotive manufacturing industries in the United States, Canada, and Mexico followed different development paths, but the overall trend was toward increasing regional integration in North America. The signing of NAFTA further accelerated production integration and enhanced competitiveness within the region. By 2001, the United States, Canada, and Mexico had become the world's first, seventh, and ninth largest automobile producers, respectively.

NAFTA's trade creation effect in the automotive manufacturing industry is significant. By gradually eliminating tariffs and non-tariff barriers in North America, it fostered a highly integrated regional production and supply chain. Before NAFTA, Mexico imposed tariffs as high as 20% on automobiles and auto parts, while the United States maintained lower tariffs on Mexican automotive products specifying 2.5% for cars and 25% for light trucks. NAFTA not only removed these tariffs but also abolished Mexico's "Automotive Decree," which included restrictive policies such as high domestic content requirements and export mandates, creating a more open environment for foreign investors. Since NAFTA's implementation, Mexico has emerged as a key hub for automotive manufacturing in North America, with its share of total North American automobile production increasing from 2.5% in 1986 to 20% in 2016. Many Asian and European automakers established new factories in Mexico, and trade in auto parts surged, with Mexico's exports of auto parts to the United States growing by 85% since 2010, while U.S. exports of auto parts to Mexico increased by 64%. Additionally, Mexico's low labor costs, extensive network of free trade agreements, and government investments in technical education further bolstered its position in the global automotive supply chain. NAFTA also facilitated the multiple cross-border movements of auto parts, with some components crossing the U.S.-Mexico border more than eight times during the production and assembly process. Although the United States has a trade deficit with Mexico in finished vehicles, the U.S. automotive manufacturing sector retains significant domestic parts and assembly operations, highlighting NAFTA's positive role in enhancing regional value chains and trade creation [11].

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In the United States, NAFTA promoted trade growth with Mexico. U.S. automakers adopted vertical specialization and outsourcing strategies to relocate some production to Mexico to reduce costs, while accelerating technology transfer and market penetration through joint ventures. Canada, through the U.S.-Canada Automotive Agreement and NAFTA, further solidified its trade relationship with the United States. Although currency depreciation once made Canada a low-cost production base, NAFTA did not lead to investment shifting from Canada to Mexico; instead, it drove productivity improvements and employment growth. Mexico transitioned from an import-substitution model to an export-oriented one, with NAFTA accelerating this transformation and positioning the country as a low-cost export platform, particularly for the U.S. market. The production of auto parts and exports of finished vehicles grew significantly. However, Mexico's competitive advantages faced challenges from currency overvaluation and competition from emerging markets like China, necessitating strategies to address global competitive pressures.

NAFTA spurred intra-regional automotive trade growth, particularly between the United States and Mexico. Mexico became a key supplier of auto parts to U.S. automakers, while its exports of finished vehicles also increased substantially. In terms of trade diversion, NAFTA led to a reallocation of trade within the region, with some production shifting from the United States and Canada to Mexico. However, this shift did not entirely replace production in the U.S. or Canada; rather, it enhanced overall efficiency through regional specialization.

NAFTA generated both trade creation and trade diversion effects in the automotive manufacturing industry. Trade creation is reflected in the significant growth of intra-regional automotive trade, while trade diversion is evident in the reallocation of production activities, particularly toward Mexico. Although Mexico became a low-cost production base, the automotive manufacturing sectors in the United States and Canada did not decline. Instead, they achieved mutual growth through regional specialization and enhanced competitiveness [12].

3.3. International impact and future challenges

The overall impact of NAFTA on the U.S. economy has been limited, particularly in terms of the labor market and trade balance. Although initial concerns suggested that NAFTA would lead to a significant loss of U.S. jobs to Mexico, studies have shown that these effects were exaggerated. Research from the 1990s indicated that NAFTA's impact on U.S. employment was minimal, with fewer than 500,000 workers potentially needing to change jobs, and real wage growth was only between 0.1% and 0.3%. Post-NAFTA empirical analysis further confirmed that while NAFTA did result in some job losses, these effects were overshadowed by broader macroeconomic trends in the U.S. economy. Additionally, NAFTA indirectly boosted U.S. exports to Mexico by promoting economic growth in Mexico, thereby somewhat alleviating the pressure of Mexican immigration on the U.S. labor market. In terms of trade balance, NAFTA's impact was also limited, as the U.S.-Mexico bilateral trade deficit had a negligible effect on the overall trade deficit. Overall, NAFTA's influence on the U.S. economy was modest and primarily concentrated in specific industries and regions rather than the economy as a whole [13].

Beyond its impact on the U.S. economy, NAFTA also played a role in shaping trade patterns for non-member countries. A notable feature of NAFTA was the decline in exports from non-member countries, indicating a trend toward greater regionalization of international trade. The regionalization of international trade caused by NAFTA represents a unique form of trade diversion, which does not necessarily imply a shift from more efficient to less efficient suppliers, making its welfare effects difficult to quantify [14].

The transition from NAFTA to the USMCA (United States-Mexico-Canada Agreement) introduces future economic impacts and challenges, primarily in the form of further restrictions on policy space and increased uncertainty in market access. As a template for North-South trade

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agreements, NAFTA provided stable market access for Southern countries like Mexico, but its limitations on policy space constrained their ability to adopt proactive trade and industrial policies. The renegotiation of the USMCA has further reinforced these restrictions, particularly in areas such as intellectual property, state-owned enterprise rules, and dispute resolution mechanisms. At the same time, the Trump administration's unconventional negotiation tactics and provisions—such as the sunset clause and stringent rules of origin for automobiles—have undermined the stability of Mexico's access to the U.S. market, increasing economic uncertainty. Although the Mexican government accepted these limitations to maintain market access and investment certainty, the provisions of the USMCA and the U.S. shift toward protectionism may exacerbate market access uncertainty in future review cycles. Additionally, disruptions in global supply chains, the U.S.-China trade war, and geopolitical conflicts have accelerated regionalization trends, potentially further weakening the ability of Southern countries to access Northern markets. Moving forward, countries like Mexico will need to explore compatible industrial policies within the context of regional integration and constrained policy space to address these challenges and seize opportunities for nearshore investment [15].

4. Conclusion

This paper has examined the trade creation and trade diversion effects of regional economic integration, with a particular focus on the North American Free Trade Agreement (NAFTA) and its successor, the United States-Mexico-Canada Agreement (USMCA). By analyzing the impacts of these agreements on two key industries—agriculture and automotive manufacturing—the study highlights the complex dynamics of regional economic integration and its implications for member and non-member countries. The findings reveal that while NAFTA and USMCA significantly promoted intra-regional trade and economic integration, they also led to trade diversion effects, particularly in the form of reallocated production and trade flows. These agreements have enhanced the economic welfare of member states but also introduced challenges such as limited policy space and increased market uncertainty.

In the agricultural sector, NAFTA facilitated substantial trade creation by eliminating tariffs and non-tariff barriers, leading to a tripling of agricultural trade among the United States, Canada, and Mexico. However, the agreement also resulted in trade diversion, as Mexico became increasingly dependent on U.S. agricultural imports, particularly for key crops like corn, wheat, and soybeans. This shift disrupted domestic production in Mexico and highlighted the dual nature of regional economic integration, which can simultaneously boost regional trade while displacing trade with non-member countries. Similarly, in the automotive manufacturing industry, NAFTA fostered deep integration of supply chains and production networks, with Mexico emerging as a key hub for automotive manufacturing in North America. The agreement promoted trade creation by reducing tariffs and non-tariff barriers, but it also led to trade diversion as production shifted from the United States and Canada to Mexico. Despite these shifts, the automotive industries in all three countries benefited from enhanced regional specialization and competitiveness.

The transition from NAFTA to USMCA reflects the evolving dynamics of regional economic integration in the face of global challenges such as trade protectionism, geopolitical conflicts, and disruptions in global supply chains. USMCA introduces stricter rules of origin, labor standards, and environmental provisions, which aim to address some of the shortcomings of NAFTA. However, these changes also limit policy space for member countries, particularly Mexico, and increase uncertainty in market access. The agreement’s emphasis on regionalization and nearshoring presents both opportunities and challenges for member states, as they seek to balance the benefits of regional integration with the need to address global competitive pressures.

Looking ahead, regional economic integration will continue to play a critical role in shaping global trade and economic governance. However, its success will depend on the ability of member states to address the challenges of globalization, including rising protectionism, economic inequality, and environmental sustainability. Future regional agreements must strike a balance between deepening economic cooperation and ensuring that the benefits of integration are equitably distributed. This requires a focus on inclusive policies that support workers, small businesses, and vulnerable industries, as well as mechanisms to mitigate the negative impacts of trade diversion and market uncertainty.

In conclusion, NAFTA and USMCA have demonstrated the potential of regional economic integration to enhance trade, investment, and economic growth. However, they have also highlighted the complexities and challenges of managing integration in a rapidly changing global economy. As countries continue to pursue regional economic cooperation, they must adopt a forward-looking approach that addresses the needs of all stakeholders and ensures that the benefits of integration are sustainable and inclusive. By doing so, regional economic integration can remain a powerful tool for promoting economic development and fostering global cooperation in the 21st century.

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