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Vietnam's Integration with Regional Economies and Some Implications for RCEP

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Abstract

This paper has reviewed the recent trends in the trading relations between Vietnam and RCEP countries after a decade of integrating with the regional economies and analyzed the impacts on Vietnam's exports of tariff reductions in RCEP trading partners. Our analysis has showed that exports to regional markets have substantially increased, and the growth of exports has been accompanied with significant shifts in the composition of exports toward manufacturing products. Tariff reductions under regional FTAs have produced positive effects on Vietnam's major exports, including agricultural products and electronics products. The increasing complementarity between Vietnam and RCEP partners implies a greater potential for expanding trade in coming years. The formation of a region-wide market under the RCEP can significantly open regional markets for Vietnam's exports through deeper tariff liberalization, the removal of non-tariff barriers, and the consolidation of the rules of origin.

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1. Introduction

Vietnam has developed profound trade and investment relations with RCEP members during the last two decades. The RCEP region has become the market for more than 40% of Vietnam's exports, whereas, nearly 80% of Vietnam's imports have been sourced from the region. Many RCEP members have been amongst Vietnam largest investment partners. In 2013, eight RCEP members have been listed in top ten of foreign investors in Vietnam. Exports and foreign investment have significantly contributed to Vietnam's economic growth and industrialization. Vietnam's integration with regional economies began in 1995 with its acquisition of ASEAN membership. The process of regional integration has been accelerated since the early 2000 through Vietnam's participation into ASEAN+1 FTAs between ASEAN countries and its dialogue partners. All these ASEAN+1 FTAs have been implemented and tariffs have been removed or gradually reduced for an increasing number of products, both in Vietnam and RCEP trading partners. The process of integration with the regional economies will continue in the coming years as trade liberalization under the ASEAN+1 FTAs is extended to cover sensitive and highly protected products. The formation of a region-wide FTA under the Regional Comprehensive Economic Partnership (RCEP) also deepens Vietnam's integration with regional economies through the extended coverage of tariff liberalization, the removal of non-tariff barriers, and the consolidation of rules of origin.

How has trade between Vietnam and regional economies developed after a decade of regional economic integration, and to what extent has the regional economic integration contributed to the development of trade with regional countries? This paper is an attempt to answer these questions. In this paper, we review the recent trends in the trading relations between Vietnam and RCEP countries and analyze the impacts on Vietnam's exports of tariff reductions in RCEP trading partners. The paper continues with a brief overview of the process of regional integration in Section 2. It is followed by the analysis of recent trends in Vietnam's trade with RCEP countries in Section 3 and the analysis of the changing pattern of trade competitiveness and complementarity between Vietnam and RCEP countries in Section 4. Section 5 employs a gravity model and estimates the impacts of tariff liberalization in RCEP trading partners on Vietnam's exports. Section 6 summarizes the major findings and discusses policy implications for the RCEP trade liberalization.

2. Vietnam's Regional Integration

The last two decades have witnessed the rapid proliferation of free trade agreements in East Asia. East Asian countries have negotiated and concluded various trade agreements with countries inside and outside the regions, creating a network of overlapping Free Trade Areas (FTA) agreements. According to ADB (2013), the number of FTAs in Asia more than tripled between 2002 and 2013, from 70 FTAs to 257 FTAs. The number of FTAs with

the participation of ASEAN countries and its dialogue partners also increased substantially during the same period, from 27 FTAs in 2002 to 179 FTAs in 2013.

There are various factors that have contributed to the rise of Asian regionalism and the resulting rapid expansion of free trade areas in Asia, including the disappointment with respect to the US and IMF policies during the Asian Financial Crisis, the slow progress in the Doha negotiation round, the formation of the NAFTA, the expansion of the EU and their possible negative effects on the region's trade and investment flows, the emergence of China as a new global economic power and the rivalries between the three Northeast Asian countries (China, Korea, and Japan). The sluggish recovery and the rising protectionism in the post financial crisis period have also created the need for Asian countries to strengthen regional integration to deal with the global risks and uncertainties. Asian countries have been shifting the growth model and resorting more on domestic demand and intra-regional trade to promote exports and investment. The impetus and the evolution of the proliferation of FTAs in Asia have been discussed in the large number of studies such as Kawai (2005), Kawai (2007), Aminian et al. (2008), Kumar (2005), Kumar (2011), and Rajan (2005).

For years, there have been discussions amongst researchers and policy makers on the formation of a region-wide FTA in Asia. On May, 2013, during the East Asian summit, the leaders of ASEAN members and the dialogue partners have announced the official launching of the negotiation for the Regional Comprehensive Economic Partnership (RCEP). The RCEP is expected to consolidate the current SEAN+1 FTAs and create a single regional market to further promote trade and investment between member countries. Regarding trade in goods, the RCEP will deepen trade integration in member countries through expanding the coverage of liberalization toward sensitive and highly protected products and removing non-tariff barriers. The RCEP is expected to create a framework for the application of rules of origin, thus reducing the problem of noodle bowls and further promoting trade and resource allocation across the region[1]. The completion of negotiation is targeted at the end of 2015, and nine rounds of negotiation have been conducted so far on various issues relating to the liberalization of trade in goods and services, investment liberalization, property right, competition, trade facilitation, legal and institutional issues and technical cooperation.

In face of the rapid proliferation of FTAs, Vietnam has made efforts to negotiate and conclude several FTAs with its major trading and investment partners in Asia and around the world. Similar to China and ASEAN countries, exports and investment have been the major drive for Vietnam's economic growth over the last two decades. Through the integration with the regional economies, Vietnam has been seeking to further expand export markets and attract foreign investments to develop its manufacturing sector. The engagement in regional FTAs is also

[1] Guiding Principles and Objectives for Negotiating the Regional Comprehensive Economic Partnership. http://www10.iadb.org/intal/intalcdi/PE/CM%202013/11581.pdf

needed to secure Vietnam's export markets and investment flows in the wake of the rapid expansion of the regional FTA network.

Vietnam started its integration with the regional economies in 1995 with the acquisition of ASEAN membership and the implementation of tariff reductions under the ASEAN Free Trade Area (AFTA). The process of regional integration was accelerated in the 2000s through the participation in ASEAN+1 FTAs between ASEAN countries and China, Korea, Japan, Australia, New Zealand and India. After the conclusion of the FTA agreement with China in 2005, ASEAN countries reached a free trade agreement with Korea in 2006 and Japan in 2008. It was followed by the establishment of the Free Trade area between ASEAN and Australia and New Zealand and the FTA between ASEAN and India in 2009. Vietnam also concluded bilateral FTAs with Japan and Korea, respectively in 2009 and 2015.

In addition to the ASEAN+1 FTAs, a number of FTAs have been negotiated or concluded between Vietnam and trading partners outside East Asia, including the FTA with the EU and the Trans-Pacific Partnership agreement that are under negotiation. The number of FTAs with the engagement of Vietnam is relatively low compared to China and some middle-income ASEAN countries, reflecting partly its cautious approach to trade liberalization and the lack of resources for negotiation. As of March 2015, Vietnam has been negotiating or signed 16 free trade agreements, among which 2 FTAs have been signed but not yet in effect and 8 FTAs have been implemented[2]. Amongst the implemented FTAs, seven FTAs are located inside the RCEP region, including the ASEAN free trade area (AFTA), five ASEAN+1 FTAs and the bilateral FTA between Vietnam and Japan. The remaining implemented FTA is the FTA agreement between Vietnam and Chile, which was signed in 2011 and took effect in 2012.

Although certain progresses have been made toward the liberalization of trade in services and investment regimes in recent years, the liberalization of merchandise trade has been the focus of ASEAN+1 FTAs. The ASEAN+1 FTAs adopted a flexible approach to tariff reductions. Under these FTAs, tariff reductions have followed different schedules being applied to different product groups and countries. Sensitive products, which are often highly protected with tariffs and non-tariff barriers in the domestic market, are excluded or have a longer period of implementation and lesser extent of reductions. Flexible and favorable treatments are provided to less developed ASEAN countries, including Vietnam. These preferential treatments take the form of longer implementation periods, lesser extents of tariff reductions, and a larger number of products specified in the sensitive list.

[2] ADB Free Trade Agreement Database, https://aric.adb.org/fta

Even a large proportion of tariff lines are subject to tariff reduction in the end, the level of tariff liberalization under the ASEAN+1 FTAs is not sufficient (Fukunaga and Isono, 2013)[3]. Non-tariff barriers have not been addressed in ASEAN+1 FTAs, in which the provisions relating to the NTMs are missing or are largely in general forms. Different rules of origin adopted in different FTAs also create the well-known problem of noodle-bowl and significantly undermine the potential benefits of preferential tariffs. The existence of difference tariff schedules and rules of origin applied in different FTAs increases the transaction costs and prevents firms from using the preferential tariffs[4].

Vietnam has made substantial commitments to tariff reduction under ASEAN+1 FTAs, although the level of commitment and time frames vary with the FTAs. The completion of tariff reductions is set at 2020 in ASEAN-China Free Trade Area, 2022 in the case of ASEAN-Korea FTA, and 2025 in ASEAN-Australia-New Zealand FTA. Tariff reductions under the ASEAN-Japan Economic Partnership are too be completed after 18 years from the date of entry into force. Although tariff reductions have been taking place in Vietnam, products that are phased in the reduction list often have low tariff rates. Significant tariff cuts, however, will take place in the coming years when tariff cuts are applied to highly protected and sensitive products.

3. The Growth and Composition of Intra-Regional Trade

3.1. The Growth of Intra-regional trade

East Asian countries have been the traditional trade and investment partners of Vietnam since the early of 1990s when Vietnam started comprehensive reforms and opened the economy to the rest of the world. In 2013, Vietnam's exports to ASEAN+6 countries amounted to $58.1 billion, accounting for around 44% of total exports. More than 70% of Vietnam's imports, or $95.3 billion, were sourced from the regional economies. Vietnam's exports to the RCEP markets as well as the imports from RCEP countries increased more than four times during the period between 2004 and 2013.

Amongst the RCEP members, Japan has been one of the largest trading partners of Vietnam. Japan has been the third largest export market of Vietnam, ranking just behind the US and the EU. Another important regional trading partner is China. More than one-fourth of Vietnam's imports were sourced from China, consisting of a wide range of products from machinery and equipments, production materials and consumer goods. Exports to

[3] According to Fukunaga and Isono (2013), Japan, Korea, China and middle-income ASEAN countries have committed more than 90% of tariff lines for tariff elimination, less-developed ASEAN members have less than 90% of their tariff lines being subject to tariff reductions. In the case of India, less than 80% of tariff lines are committed for liberalization.

[4] The enterprises survey conducted by the ADB has shown a low level of FTAs utilization. On average, less than 30% of firms reported using FTA preferences to export. Amongst the reasons for not using FTA preferences, administrative costs and procedure associated with the rules of origin are amongst the most cited impediments, which were reported by more than 50% of responding firms in Japan and as much as 60% of responding firms in Singapore Kawai and Wignaraja (2011).

China remained low until the early of 2000s, but it has accelerated since then. In 2013, exports to China amounted to 13.1 billion, which was almost equivalent to the level of exports to Japan. Similar to China, exports to Korea has rapidly expanded in the latter half of 2000s after the signing of the ASEAN-Korea Free Trade area (AKFTA).

These three Northeast Asian countries, i.e. China, Japan, and Korea, account for a large proportion of Vietnam trade with RCEP members. In 2013, around 56% of Vietnam's exports to RCEP markets were shipped to China, Korea and Japan, whereas as much as 70% of imports from RCEP countries were sourced from these countries. In addition to China, Japan and Korea are important sources of import supply for Vietnam, most of which are motivated by the foreign direct investment flows from Japan and Korea. The ASEAN countries as the whole accounted for around one-third of exports to regional markets and around one-fourth of imports from regional countries. Trade with other RCEP members remained low.

The pattern and composition of intra-regional trade varied across trade flows, commodities and trading partners. On the export side, Vietnam traded intensively with RCEP members in a number of products, including chemical, fuel and mineral products, metal, processed food, transportation equipments, and wood products. The shares of intra-regional exports were much lower for garment, footwear, and machinery and electronics. On the import side, high intra-regional trade shares were observed in a wide range of products including fuel and minerals, machinery and equipments, chemical, metal, plastics, garments and textile. Due to the lack of domestic production, Vietnam has depended on the imports of production inputs and machinery for domestic production and investment, and imported inputs and capital goods were largely sourced from East Asian countries.

The share of exports increased for some RCEP members including Korea and India, but it decreased for most other RCEP members, including China, Japan, Australia and ASEAN as the whole. The relative decline in the intra-regional exports, however, does not mean that Vietnam has been trading less with the regional countries. Manufacturing exports and agricultural exports to the regional markets steadily increased their shares in Vietnam's total exports. The share of manufacturing exports increased from 33.6% in 2004 to 38.8% total exports in 2013, and the share for agricultural exports increased from 42.3% to 46.3% correspondingly.

In regards to imports, the share of imports from the RCEP members increased significantly from 63.9% in 2004 to 72.2% in 2013. Around 75% of manufacturing imports were sourced from the regional countries in 2013, representing a sharp increase compared to the corresponding figure of 60% in 2004. The increase in regional imports was largely attributed to the increase in the imports from China and Korea, which substantially increase shares in Vietnam's total imports. On the contrary, the shares of imports from Japan and ASEAN countries experienced a considerable decline during the same period.

<Table 1 is about here>

<Table 2 is about here>

3.2. Changing Composition of Trade

Vietnam's trade with RCEP members has been based on Vietnam's endowments of abundant labor forces and natural resources. The composition of trade with RCEP member is largely in line with the country's general composition of trade. The regional countries provided markets for Vietnam's exports of agricultural products, fuel and raw materials, garments, textile, and footwear, and supplied machinery, equipment and production materials to Vietnam. However, the pattern and composition of trade with the regional countries has experienced significant changes in recent years.

Firstly, in line with the change in general composition of Vietnam exports, the share of agricultural exports in total exports to regional markets declined from 18.1% in 2004 to 15.9% in 2013. However, the regional markets have remained important for Vietnam's exports of agricultural products, and the share of agricultural exports to the regional markets kept increasing during this period.

Secondly, in the past, Vietnam exported all of its crude oil production and imported petroleum and related products to meet the domestic demand. The oil refinery plant that has been constructed and put into operation in recent years has allowed Vietnam to reduce imports of petroleum and export of crude oil as well. As a result, the share of exports of fuel and mineral products dropped significantly during the period between 2004 and 2013, from 44.7% to 15.6% of total exports to regional countries.

Thirdly, there has been a significant shift in the export structure from the exports of fuel, mineral and raw materials toward labor-intensive manufacturing products. Exports of garments and footwear have been growing fast and became Vietnam's major exports since the late of 1990s. Until the mid of 2000s, however, with the exception of Japan, only a small proportion of exports of garments and footwear were shipped to the regional markets. Most of garments and footwear were exported to outside the region, and the US and EU markets in particularly. In 2004, exports of garments, textile and footwear accounted for 8.5% of total exports to RCEP countries, and less than 20% of Vietnam's exports of garments, textile and footwear were shipped to regional markets. The corresponding figures increased to nearly 12.1% of regional exports and 32.5% of total exports of garments and footwear in 2013. The most significant increase in the exports of garment and footwear were observed in the case of China and Korea. Exports of garment and footwear to China and Korea increased from $61 million $148 million in 2004 to $1.7 billion and $2.3 billion in 2013 correspondingly. Although a large proportion of garments and footwear has been shipped outside the region, the RCEP markets have become increasingly important for Vietnam's exports of labor-intensive products.

Finally, a substantial increase is also observed for the exports of consumer electronics. Vietnam's successful efforts to attract multinational corporations to invest into the country have lead to a sharp increase in the export of consumer electronics, and computers and telecommunications equipments, parts and components in particular.

Many multinational corporations have set up their plants in Vietnam, and most of their products have been exported. Exports of electronics amounted to around $40 billion in 2013, which even exceeded the combined exports of garment, textile and footwear. A similar trend was also observed in Vietnam's intra-regional trade. Export of machinery and electronics (HS 84 and HS 85) increased nearly 9 times, from $1.7 billion in 2004 to $15 billion in 2013. Nearly 40% of Vietnam's exports of machinery and electronics products were directed at the RCEP markets, and most of which were shipped to China, Japan, India, Malaysia, and Korea.

4. Trade Competitiveness and Complementarity

4.1. Revealed Comparative Advantage (RCA)

A country's comparative advantage is commonly measured through the Revealed Comparative Advantage (RCA) index. The Revealed Comparative Advantage for a product is calculated by dividing the share of that product in a country's exports by the share of the same product in the world's exports. If the RCA index is greater than unity, i.e. the country exports the product more than the world average, the country is said to have a comparative advantage in that products. By contrast, when the RCA index is less than unity, the country is said to have a comparative disadvantage in the product of concern[5].

Table 3 reports the comparative advantage indices calculated in 2013 for Vietnam and RCEP members. As can be seen in Table 3, Vietnam shows a comparative advantage for 33 product groups, consisting of crude oil, agricultural products, fishery products, and labor-intensive manufacturing products. In regards to the manufacturing products, Vietnam exhibits a comparative advantage in garments, textile, footwear, machinery and electronics. These products have been Vietnam's major exports to the RCEP markets.

<Table 3 is about here>

The pattern of Vietnam's comparative advantage differs from the pattern observed in high-income RCEP members. In the case of Japan, Korea, and Singapore, there are only few cases where these countries show a comparative advantage in the same product with Vietnam. Given their level of income, these countries tend to have comparative advantage in capital- and technology-intensive products, The number of overlaps in comparative advantage is higher for Australia and New Zealand, most of which is observed in agricultural products. There are greater extents of RCA overlap between Vietnam and other RCEP members. The highest degree of RCA overlap is found in the case of China and India. China exhibits a comparative advantage in 20 products where Vietnam also has a comparative advantage. The corresponding number is 16 for India.

[5] More specifically, the RCA index is calculated using the following formula: $RCA_{ik} = \frac{X_{ik}/X_i}{X_{wk}/X_w}$. Here X_{ik} and X_i are the export of product k in country i and total exports of country i respectively; X_{wk} and X_w are the world's export of product k and total world exports respectively;

In regards to the product groups, the largest extent of RCA overlap is observed in electrical machinery, parts and components (HS 85), where Vietnam, China, middle-income ASEAN countries, Japan and Korea all exhibit a comparative advantage. In addition to electronics, RCA overlap between Vietnam and Thailand and Malaysia countries is largely observed in agriculture and fishery products. For lower-income ASEAN countries, such as Cambodia, Philippines and Indonesia, trade similarity occurs more in labor-intensive products including garments (HS 61 and HS 62), footwear (HS 64), and textile.

4.2. Trade Similarities and Competitiveness

To further examine the extent of export similarity, we processed the data on top exports of Vietnam and RCEP trading partners at the 4-digit HS level. Tables 4 and 5 report top 30 exports of Vietnam ranked by the value of exports and the ranks of the same exports in RCEP trading partners in 2004 and 2013. In 2004, most of Vietnam's top exports were agricultural and fishery products, garments, footwear, and crude oil. Agricultural and labor-intensive products remained dominant in the list of Vietnam's top exports in 2013, but there were also considerable changes during this period with the increasing presence of electronic products. In 2013, a number of electronic products were added to the list (HS 8525, HS 8517, HS 8542, and HS 8518), and some electronic products move to the top of the list (HS 8525 and HS 8471).

<Table 4 is about here>

<Table 5 is about here>

As it can be expected, the number of export overlap were lower for high-income trading partners such as Japan or Australia compared to the extent of trade overlap for middle-income ASEAN countries and China. In 2013, Japan had only three top exports that were also listed in Vietnam top list. The numbers of overlapping exports were 4 and 2 for Korea and Australia correspondingly. A greater extent of export similarity was observed for Malaysia and Thailand, each of which had 8 top exports that were also found in Vietnam's top list. The largest extent of trade overlap was observed in the case of China, where 12 Chinese top exports were also listed in the list of Vietnam's top exports. Most of overlapping exports between Vietnam with China and middle-income ASEAN countries occurred in electronics, and to a lesser extent in agricultural and labor-intensive products.

The largest extents of trade overlap were found in the case of transmission apparatus (HS 8525), automatic data processing (HS 8471), electronics integrated circus (HS 8542), electrical apparatus for line telephone (HS 8517). These products were often found in the top export lists for Vietnam, China, middle-income ASEAN countries as well as Japan and Korea. The large extent of overlapping electronic exports reflects the high degree of specialization in the electronics industries in ASEAN countries and other RCEP partners. There were a number of overlapping exports in garments and footwear, largely occurred between Vietnam and China, and between

Vietnam and India to a lesser extent. There was almost no case of overlapping garments and footwear exports between Vietnam and middle-income ASEAN countries[6]. In addition to electronic products, export overlap between Vietnam and middle-income ASEAN countries also occurred in some agricultural products.

4.3. Trade Complementarity

The trade potential between two countries also depends on their complementarity. The trade complementarity refers to the compatibility of trade between the two countries. Countries are complementary in trade if they export and import similar products. In this case, there is a greater opportunity for expanding trade when tariffs and non-tariff barriers are reduced. By contrast, if two countries export and import different products the trading opportunity would be limited[7].

The complementarity index between Vietnam and RCEP members are calculated for 2004 and 2013 at the 4-digit HS classification. We calculated the complementarity indices for Vietnam's exports and imports. The export complementarity index measures the extent of matching between Vietnam's exports and the imports of its trading partners, whereas the import complementarity index measures the extent of matching between Vietnam's imports and the exports of its trading partners. The results are reported in Table 6.

<Table 6 is about here>

Because of the large economic diversity among RCEP members, the degree of export complementarity varies greatly with trading partners. High-income countries, including Japan the US, and the EU, tend to have the economic and trade structures that are more complementarity to Vietnam, thus having a high degree of complementarity with Vietnam's exports. By contrast, China, India and middle-income ASEAN countries tend to have a lower degree of complementarity with Vietnam. The complementarity index calculated for these countries also varies considerably, ranging from 24.6 in the case of India and 30.9 in the case of Thailand.

For many RCEP partners, the complementarity with Vietnam's exports increased considerably between 2004 and 2013. For example, the complementarity index increased from 21.5 to 26.1 between 2004 and 2013 in the case of China, and from 18.5 to 30.2 in the case of Malaysia, and from 28.03 to 30.9 in the case of Thailand. The increasing complementarity index between Vietnam and its trade partners indicates a greater potential for trade expansion when tariff and non-tariff barriers are removed under the regional trade liberalization.

[6] The only exception is footwear with outer soles of rubber (HS 6403), which ranked 8th in Indonesia's top exports

[7] We followed the methodology proposed by Michaely (1996) to calculate the complementarity index. This index employed the trade shares to measure the correlation between a country's exports and the imports of its trading partners. More specifically, the index is calculated as follows: $CI_{ij} = 100 \times \sum_k \left|\frac{m_{jk}-x_{ik}}{2}\right|$. Here CI_{ij} is the complementary index between country i and country j; x_{ik} and m_{jk} are the share of product k in country i's exports and the share of product k in country j's imports.

In regards to the import complementarity, the high degree of complementarity is observed for China, Japan, Korea, Singapore, Malaysia and Thailand. This implies that the export supply from these countries highly match with the imports of Vietnam. It is consistent with the fact that large part of Vietnam's imports is sourced from the regional countries. The degree of import complementarity is much lower for Indonesia, Australia, and New Zealand. With the exception of Australia and New Zealand, the import complementarity indices between Vietnam and other RCEP partners significantly increased between 2004 and 2013.

5. Tariff Reductions and Vietnam's Exports to Regional Markets

5.1. The Gravity Model

For many years, the gravity model has been widely used as a powerful tool in the field of international economics. The gravity model has been applied to analyze the determinants of bilateral trade and investment flows, the impacts of trade policies, and migration. The traditional gravity model followed the gravitational law of physics, explaining bilateral trade volume by the economic sizes (the mass) of trading partners and the distance between them. Despite of the lack of the theoretical justification, the gravity model has gained a lot of popularity thank to its empirical power in explaining trade flows.

The economic theories have been gradually developed, which turned the gravity model from a model with little theoretical foundation into a model with too many theoretical foundations (Baldwin and Taglioni, 2006). The theoretical foundations have provided significant insights to the empirical work. Based on the assumption of monopolistic competition, Anderson and van Wincoop (2003) have derived the gravity equation and showed that bilateral trade flows not only depend on the economic sizes, and bilateral trade barriers, and the multilateral resistance term.

There have been a number of empirical studies applying the gravity model to quantify the impacts of free trade agreements in East Asia. These studies employed different techniques, estimated the gravity equations for different time periods, and sometimes produced contradictory results. Clarete et al. (2003) estimated the effects of 11 preferential trading arrangements for the period between 1980 and 2000. They found that, while the APEC increased intra-bloc trade and members' total exports and imports, the AFTA did not affect trade between members but reduced the members' trade with the rest of the world.

Plummer (2006) analyzed the ASEAN economic integration and discussed policy lessons for ASEAN countries from the European experiences. He estimated a gravity equation and found that the ASEAN membership significantly increased bilateral trade among ASEAN countries. On contrary, Bhavish et al. (2007) analyzed the impacts of free trade agreements in Asia-Pacific region and found that the ASEAN increased trade between ASEAN countries and the rest of the world, but it is associated with lower intra-ASEAN trade.

Manchin et al. (2008) applied the gravity equation and estimated the impacts of tariff reductions on intra-ASEAN trade. Their estimation showed that tariff reductions have significant and positive effects on ASEAN trade flows when the magnitude of preferences is greater than 25%. This suggests that the cost of applying for the preferential tariffs can be high and this may render the stimulating effects of preference tariffs. In a recent study, Okabe and Urata (2014) also employed a gravity equation and estimated the impacts of preferential tariffs on intra-ASEAN trade for 54 product groups. Their estimation results showed that the impacts of ASEAN trade liberalization vary between countries. While tariff reductions increase trade among original members in a wide range of products, but have limited effects for less-developed ASEAN members including Vietnam.

In order to quantify the impacts of trade liberalization under the AFTA and ASEAN+1 FTAs on Vietnam's trade, we have constructed and estimated a gravity model for Vietnam. The gravity equations employed in our analysis is as follows:

$$TR_{i,t} = \propto_1 \ln(GDP_{vn,t}GDP_{i,t}) + \propto_2 \ln(POP_{vn,t}POP_i) + \propto_3 \ln(YDIFF_{i,t}) + \propto_4 \ln(RER_{i,t})$$
$$+ \propto_5 ln(MARGIN_{i,t}) + \beta_t\, DY_t + \delta_i\, DPART_i + \varepsilon_t$$

Here $TR_{i,t}$ is the trade volume between Vietnam and trading partner i in year t;

$GDP_{vn,t}$ and $GDP_{i,t}$ are the real GDP of Vietnam and trading partner i in year t, respectively

$POP_{vn,t}$ and $POP_{i,t}$ are the population of Vietnam and trading partner i in year t, respectively;

$YDIFF_{i,t}$ is the difference in real per capita GDP in absolute value between Vietnam and trading partner i in year t;

$RER_{i,t}$ is the bilateral real exchange rate between Vietnam and trading partner i in year t;

$MARGIN_{i,t}$ is the preferential tariff margins provided by trading partner i in year t;

DY_t and $DPART_i$ are the dummy variables for year and trading partners, respectively;

GDP and population are commonly found variables in empirical studies, and their effects on trade are well discussed. The GDP of exporting and importing countries are included to account for the expenditures and output in the importing countries and exporting countries respectively. The variables are expected to have a positive correlation with bilateral trade. The increase in the GDP of importing countries raises the demand for goods and services, whereas the increase in the GDP of exporting countries implies a higher production capacity and export supply.

The population variable is used as a proxy for the market size. A large population of importing countries implies a large market and a higher demand for imports. However, the population of exporting countries does not necessarily increase trade. On one hand, a large population of exporting countries implies a large domestic market and may reduce the incentive to export. One the other hand, a large domestic market allows firms to exploit the economies of scale and results in higher output. Thus the population of exporting countries can be negatively or

positively correlated with exports. The absolute difference in per capita income between Vietnam and trading partners is introduced into the gravity equation to represent the different in factor endowments. The coefficient of this variable can have minus or plus signs.

The bilateral real exchange rates are calculated for Vietnam and each trading partners using the nominal exchange rates against the US dollars and consumer price indices of Vietnam and trading partners. An increase in the real exchange rate implies a real depreciation of Vietnamese dong against foreign currencies, which is expected to encourage exports and discourage imports. Thus, the real exchange rate variable is expected to positively correlate with export flows and negatively correlate with import flows.

In addition to GDP and population, there are a number of variables that are commonly employed in the gravity equation to account for trade costs such as distances, common languages, common borders, and colonial links. In the empirical studies, distances between trading partners have been consistently found to reduce bilateral trade. Sharing a common border and having a common language lowers the transaction costs, thus stimulating bilateral trade. Colonial links are also expected to reduce trade costs and increase trade. These time-invariant variables are not accounted for in our gravity equation because of their co-linearity with country fixed effects. We introduced time and country effects in all estimations of the gravity equation. The year dummies are included to controls for idiosyncratic shocks that may affect bilateral trade flows such as business cycles. The country dummies are employed to account for unobservables that are correlated with the FTAs and trade flows (Baer et al., 2007).

In the empirical studies based on the gravity model, it has been a common practice to use dummy variables to capture the effects of free trade agreements. The FTA dummies are defined for each pair of countries, and take the value of unity when the two countries belong to the FTA under consideration and zero otherwise. A positive coefficient of the FTA dummy implies that the FTA increase trade amongst members. The changes in tariff rates are often not accounted for in empirical studies. However, Kazunobu (2013) showed that the inclusion of FTA dummies does not significantly affect the coefficient of tariff variables, thus the FTA dummies are not sufficient to control for the variations in bilateral tariff rates. Besides that, under ASEAN+1 FTAs, tariffs are gradually reduced according to different schedules that vary with countries and FTAs. The use of FTA dummies may not accurately capture the impact of tariff reductions (Okabe and Urata, 2013).

In this analysis, we directly took into account the actual tariff reductions to quantify the impacts of regional FTAs. Following Manchin et al. (2008), we calculated the preferential margin as follows:

$$MARGIN_{i,t} = \frac{MFN_{i,t} - PRF_{i,t}}{1 + MFN_{i,t}}$$

here $MFN_{i,t}$ and $PRF_{i,t}$ are the applied MFN and preferential rates, respectively. A positive coefficient for $MARGIN_{i,t}$ implies a positive impacts of tariff reductions on Vietnam's bilateral trade with RCEP countries.

5.2. Data and Estimation Results

The gravity model cover 52 trading partners, which accounted for around 95% of Vietnam exports in 2013. All RCEP trading partners are included with the exception of Myanmar, for which data on trade and GDP are largely unavailable. The gravity model is estimated for the period between 2000 and 2013. The list of trading partners and Vietnam's exports to these partners are presented in Table 7.

<Table 7 is about here>

Data on GDP, population, GDP deflators, consumer prices, and official exchange rates are collected from World Bank's databank[8]. Real GDP is defined in terms of constant 2005 US dollars. Data on Vietnam's exports to each trading partners is collected from UN COMTRADE database through WITS utility. The nominal values of exports are deflated using country GDP deflators and then converted into 2005 U.S. Dollars. With regards to tariff data, we collect the MFN tariffs and preferential tariffs under the AFTA and ASEAN+1 FTAs as reported by RCEP trading partners through the TRAINS/WITS database. The preferential rates reported in each year are combined to construct a single schedule of preferential tariff rates for each RCEP trading partner. From these tariff schedules, we calculated the simple average MFN applied rates and preferential rates, and the preference margins for total trade and disaggregated product groups.

The gravity equation is estimated for total exports as well as eighteen product groups, including Vietnam's major exports such as agricultural products, mineral and crude oil, garment, textile and electronics. The list of product groups and their classification are reported in Table 8, and the results of estimation are reported in Table 9. As can be seen, the traditional gravity variables largely have expected and statistically impacts on trade flows. The GDP variables are positively correlated with exports, for total exports and most of product groups. Similar to GDP variables, the population variables tend to show a positive correlation with exports. The GDP and population variables have negative coefficients in some cases, but in most of these cases they are statistically insignificant. The differences in per capita income between Vietnam and trading partners have negative or positive coefficients varying with the product groups. The real exchange rate has positive coefficients in most regression equations, but it is only statistically significant for total exports, animal and fishery products, processed food, mineral, footwear, metal, and machinery.

Turning to tariff reductions, the impact of tariff reductions on total exports is positive but the magnitude of effect is low[9]. The regressions by products groups show that the impacts of tariff reductions in RCEP trading partners vary considerably with products. Positive and statistically significant impacts of tariff reductions are found for

[8] These data is obtained from http://data.worldbank.org/.

[9] The regression analysis accounted for tariff reductions in six ASEAN dialogue partners (China, Japan, Korea, Australia, New Zealand, and India) and four ASEAN countries (Cambodia, Indonesia, Thailand, and Philippines). Singapore and Brunei are not taken into consideration because their tariff rates are already set at zeros. Lao and Malaysia are not included due to the unavailability of tariff data.

animal and fishery products (HS01 to HS05), textile (HS 50 to HS 60), glass, ceramic and construction materials (HS 68 to HS 71), machinery and mechanical appliance (HS 84), and electrical machinery and equipment (HS 85), and other manufacturing products (HS 90 to HS 99). For processed food, garment, and footwear, tariff reductions have positive effects, but the effects are statistically insignificant.

<Table 9 is about here>

<Table 10 is about here>

To further investigate the impacts of tariff reductions for each trading partners, we estimated the gravity equation with the interaction between tariff reductions and trading partners. As can be seen in Table 10, the coefficients of tariff reductions vary with trading partners and product groups, but they tend to have more stimulating effects on exports in China, Japan, Korea, Australia, and New Zealand. By contrast, tariff reductions show no significant and positive impacts in the case of India. For the regression with total exports, tariff preferences have positive coefficients in the case of Philippines, Thailand, China, Japan, Australia and New Zealand, but they are not statistically significant in the case of New Zealand.

The effects of tariff reductions are rather limited for mineral, fuel, chemical, wood and paper, footwear, and transportation means. The positive effects of tariff preferences are most often observed for animal and fishery products, and electrical machinery and equipment. Tariff reductions have expanding effects on exports of animal and fishery products in the case of China, Japan, Australia, Korea, and Thailand, and on exports of electrical machinery and equipment in the case of Thailand, Japan, Korea, Australia, and New Zealand. Positive effects of tariff reductions are also observed for other manufacturing products and agricultural products, including fruits, vegetables, coffee, and tea (in Japan, Thailand, and Korea), processed food (China and Japan), garments (Cambodia, Indonesia, and Australia). textile (Indonesia, Japan, and New Zealand), glass, ceramic and construction materials (Indonesia, Philippines, Korea, Australia, and New Zealand), iron, steel and other metal (Indonesia, Japan, Australia, and New Zealand), and machinery and mechanical appliance (Thailand, Philippines, and Australia).

6. Concluding Remarks

In this paper, we have reviewed Vietnam's integration with the regional economies over the last two decades and analyzed the recent trends and development in Vietnam's trade with RCEP trading partners. We have employed a gravity model to estimate the impacts of tariff preferences in RCEP Trading partners on Vietnam's exports to regional markets.

Our analysis has showed that tariff liberalization under the AFTA and ASEAN+1 FTAs has produced positive effects on Vietnam's exports. Exports to regional markets have substantially increased over the last ten years

together with the formation of the free trade areas between ASEAN and its dialogue partners. There have been observed significant shifts in the composition of Vietnam's exports to regional markets, from fuel, mineral and raw material toward manufacturing products, and garments and electronics in particular. It is also evident from our analysis that tariff reductions under regional FTAs have positive effects on Vietnam's major exports, especially on the exports of agricultural products and electronics.

Over the last two decades, economic transformations in Vietnam and RCEP trading partners have brought about significant changes in the pattern of trade. The competitiveness of middle-income ASEAN countries has been eroding in labor-intensive industries, and indeed there is a low degree of export overlap between Vietnam and these countries in garment, footwear, and textile. Besides that, trade complementarity has been increasing between Vietnam and most of RCEP trading partners, including China and middle-income ASEAN countries. The increase in complementarity implies a greater potential for expanding trade when tariffs and non-tariff barriers continue to be reduced or removed under the ASEAN+1 FTAs and the RCEP.

The formation of a region-wide market under the RCEP would further open regional markets for Vietnam's exports. The RCEP is expected to further deepen the tariff liberalization and extend the coverage of tariff reductions toward sensitive and highly protected products in trading partners. The removal of non-tariff barriers, which have not effectively been addressed in the ASEAN+1 FTAs, is beneficial for Vietnam's exports, especially for the exports of agricultural products. The existence of different rules of origin under ASEAN+1 FTAs has significantly undermined the effects of tariff preferences. Firms cannot make use of preferential tariffs to export to regional markets if they fail to meet the rules of origin. Administrative costs and complying costs associated with the rules of origin have prevented exporting firms to take advantage of preferential tariffs. The consolidation of the rules of origin and the formation of cumulative rule of origin across the RCEP region can bring about significant benefits for Vietnam's exports. This is especially true because Vietnam's manufacturing exports heavily depend on imported materials and imported production inputs have been largely sourced from the regional countries.

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Table 1: Vietnam's Exports 2004-2013

	Export Value	Shares of Exports to RCEP Countries (%)												
	US$ Million	ASEAN	ASEAN+6	Indonesia	Malaysia	Philippines	Singapore	Thailand	Japan	Korea	China	India	Australia	New Zeland
VIETNAM'S EXPORTS 2004														
Total Exports	26485	15.3	49.5	1.7	2.4	1.9	5.6	2.0	13.4	2.3	10.9	0.3	7.1	0.2
Exports to Regional Countries by Commodities														
Agriculture	5589	11.8	42.3	0.6	3.2	3.6	2.6	0.9	15.8	3.5	7.7	0.8	2.6	0.1
Fuel and mineral	6385	32.0	91.8	5.5	4.3	0.1	17.6	2.1	7.5	1.0	26.9	0.2	24.1	0.0
Manufactures	14510	9.2	33.6	0.5	1.2	2.0	1.5	2.3	15.0	2.4	5.2	0.2	1.4	0.3
Of which: Garments and Textile	4785	2.9	19.2	0.2	0.9	0.3	0.3	0.3	12.2	2.6	0.8	0.0	0.6	0.1
Footwear	2829	0.9	6.9	0.1	0.2	0.1	0.3	0.1	3.0	0.8	0.8	0.1	1.0	0.1
Chemical	290	36.9	71.0	1.4	4.8	3.4	3.1	7.9	22.1	2.4	4.8	1.0	3.8	0.0
Metal	493	35.9	55.6	1.2	5.7	0.2	4.7	3.7	13.6	1.4	1.6	0.2	2.6	0.2
Machinery & rquiptment	2182	27.9	77.2	0.9	1.4	9.5	4.4	11.0	40.3	3.2	4.0	0.4	0.8	0.5
Transportation means	383	12.5	31.6	1.6	1.3	7.0	0.3	1.6	9.1	0.3	8.6	0.0	0.8	0.3
VIETNAM'S EXPORTS 2013														
Total Exports	132032	14.1	44.0	1.9	3.8	1.3	2.0	2.3	10.3	5.1	10.0	1.8	2.6	0.2
Exports to Regional Countries by Commodities														
Agriculture	19967	13.0	46.3	1.1	2.6	2.5	2.5	1.8	7.7	4.1	18.5	1.0	1.9	0.2
Fuel and mineral	10866	29.9	88.6	2.5	10.1	1.1	3.7	3.3	20.3	9.6	13.3	0.4	15.0	0.1
Manufactures	101199	12.6	38.8	2.0	3.3	1.1	1.8	2.3	9.7	4.8	7.9	2.1	1.5	0.2
Of which: Garments and Textile	21534	3.7	32.5	0.9	0.5	0.3	0.2	0.7	12.1	9.5	6.2	0.4	0.5	0.1
Footwear	8986	2.5	16.4	0.6	0.4	0.3	0.4	0.3	5.0	2.9	4.2	0.4	1.2	0.2
Chemical	2331	35.0	72.4	3.6	4.4	4.1	1.3	4.1	20.1	4.5	6.5	5.4	0.7	0.2
Metal	4782	41.6	63.0	7.9	5.4	4.4	2.0	7.0	9.2	5.5	2.1	2.0	2.5	0.1
Machinery & rquiptment	40518	14.0	36.9	2.2	4.8	1.2	2.5	2.8	7.3	2.3	7.7	3.5	1.8	0.3
Transportation means	2495	29.3	69.2	2.6	2.3	2.0	8.1	10.0	17.7	15.3	4.8	1.0	0.9	0.0

Source: COMTRADE database and the author’s calculation

Table 2: Vietnam's Imports 2004-2013

	Import Value	Shares of Impports from Regional Countries (%)												
	US$ Million	ASEAN	ASEAN+6	Indonesia	Malaysia	Philippines	Singapore	Thailand	Japan	Korea	China	India	Australia	New Zeland
Year 2004														
Total Imports	31969	24.3	63.9	2.1	3.8	0.6	11.3	5.8	11.1	10.5	14.4	1.9	1.4	0.3
Imports from Regional Countries by Commodities														
Agriculture	1947	33.0	70.3	5.6	10.9	1.6	6.0	7.2	2.6	0.6	9.9	9.9	10.5	3.7
Fuel and mineral	4253	53.4	81.9	0.5	1.2	0.8	39.7	11.0	0.5	8.0	19.5	0.4	0.1	0.0
Manufactures	25769	18.8	60.5	2.1	3.7	0.5	7.0	4.8	13.5	11.7	13.9	1.5	1.0	0.1
Of which: Garments and Textile	3713	6.4	56.0	1.6	1.6	0.1	0.6	2.4	8.6	23.3	16.9	0.6	0.1	0.0
Footwear	293	1.0	47.4	0.3	0.0	0.0	0.3	0.3	0.3	16.4	29.7	0.0	0.0	0.0
Chemical	3233	26.5	65.9	3.4	4.6	1.7	11.9	4.6	6.2	7.0	21.6	3.6	1.0	0.0
Metal	4194	16.6	63.7	1.8	5.5	0.4	4.9	3.9	17.6	8.8	15.0	2.4	3.1	0.1
Machinery & rquiptment	6546	19.6	64.6	1.4	3.1	0.2	10.3	4.6	21.6	9.7	12.8	0.4	0.5	0.0
Transportation means	2065	9.4	45.3	1.5	0.3	0.4	2.0	5.2	15.0	13.4	7.4	0.0	0.1	0.0
Year 2013														
Total Imports	132033	16.1	72.2	1.8	3.1	0.7	4.3	4.8	8.8	15.7	27.9	2.2	1.2	0.3
Imports from Regional Countries by Commodities														
Agriculture	11347	21.8	47.8	4.4	5.8	0.9	1.9	5.4	0.8	1.9	6.2	8.5	6.0	2.6
Fuel and mineral	10686	39.7	69.5	1.5	6.7	0.0	19.6	5.5	0.9	7.6	19.5	0.8	1.0	0.0
Manufactures	109998	13.3	75.0	1.6	2.5	0.8	3.1	4.6	10.3	17.9	31.0	1.7	0.7	0.1
Of which: Garments and Textile	12846	5.6	72.0	1.0	0.9	0.0	0.1	3.5	6.1	17.4	39.5	2.7	0.7	0.0
Footwear	492	4.1	70.7	1.2	0.4	0.0	0.0	2.2	0.4	11.6	54.5	0.2	0.0	0.0
Chemical	11223	13.2	85.0	0.8	2.9	1.1	4.8	3.6	10.1	22.3	38.8	0.4	0.1	0.0
Metal	15339	7.2	77.6	1.5	1.6	0.5	0.8	2.2	18.4	17.8	27.9	3.0	3.2	0.1
Machinery & rquiptment	46119	17.9	62.4	2.6	3.0	1.5	4.5	5.9	5.7	8.0	25.7	4.2	0.8	0.0
Transportation means	3211	16.7	53.3	2.6	0.7	0.3	0.2	12.8	12.0	11.4	12.0	1.2	0.1	0.0

Source: COMTRADE database and the author’s calculation

Table 3: Vietnam's Revealed Comparative Advantage 2013[(i)]

Product Code	Product Description	RCA Indices											
		Vietnam	Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Japan	Korea	Australia	New Zealand	India
9	Coffee and tea	11.38	4.26	0.24	0.02	0.25	0.1	0.41	0.05	0.02	0.06	0.05	3.17
46	Manufactures of straw, esparto/other plating mat	9.34	3.03	0.03	6.72	0.03	0.31	5.29	0.01	0.01	0.01	0	0.05
64	Footwear, gaiters and the like	9.15	2.93	0.09	0.09	0.11	0.43	3.18	0.01	0.13	0.03	0.02	1.07
3	Fish & crustacean, mollusc	6.56	2.68	0.47	1.77	0.11	1.58	0.97	0.32	0.47	0.63	4.9	2.35
62	Art of apparel & clothing access	6.13	1.96	0.15	1.2	0.11	0.41	2.83	0.03	0.16	0.03	0.06	2.38
11	Prod.mill.indust; malt; starches;	5.49	0.45	0.35	0.23	0.08	5.34	0.25	0.1	0.1	2.67	0.44	0.87
61	Art of apparel & clothing access, knitted or croche	4.86	1.55	0.27	1.23	0.14	0.67	3.55	0.02	0.14	0.03	0.04	1.68
16	Prep of meat,fish or crustaceans, moluscs etc	4.18	1.86	0.33	4.35	0.07	10.66	1.39	0.3	0.14	0.17	2.15	0.12
65	Headgear and parts thereof.	3.48	0.38	0.2	0.52	0.06	0.58	4.15	0.33	0.5	0.1	0.52	0.26
42	Articles of leather; saddlery/harne	3.35	0.46	0.06	1.03	0.38	0.51	3.46	0.02	0.29	0.06	0.03	1.86
10	Cereals	3.24	0.01	0.01	0.02	0.02	2.95	0.03	0	0	4.64	0.09	4.7
14	Vegetable plaiting materials; vegetable products	3.07	4.87	5	1.37	0.89	0.55	0.94	0.06	0.01	0.02	1.18	4.46
25	Salt; sulphur; earth & ston; plaste	3.02	0.38	0.65	0.19	0.08	1.53	0.64	0.41	0.37	0.51	0.57	2.47
8	Edible fruit and nuts; peel of citrus	2.89	0.43	0.1	4.62	0.07	0.89	0.35	0.03	0.05	0.74	5.96	0.93
50	Silk.	2.7	0.02	0.01	0.02	0.09	0.31	4.07	0.74	0.85	0.07	0	2.69
63	Other made up textile articles; sets, worn clothing	2.47	0.51	0.24	0.32	0.12	0.44	3.37	0.1	0.33	0.13	0.22	3.89
94	Furniture; bedding, mattress, matt support	2.4	0.77	0.93	0.43	0.26	0.49	2.93	0.12	0.32	0.07	0.19	0.27
59	Impregnated, coated, cover/laminate textile fabric	2.34	0.43	0.19	0.04	0.18	0.51	2.27	0.87	1.63	0.07	0.19	0.48
52	Cotton.	2.28	1.18	0.45	0.01	0.06	0.89	2.07	0.24	0.37	2.61	0.01	8.75
40	Rubber and articles thereof.	2.07	4.3	3.03	0.37	0.26	6.2	0.88	1.57	1.24	0.07	0.08	0.74
44	Wood and articles of wood; wood charcoal.	2.07	2.68	2.57	8	0.04	1.28	0.78	0.02	0.02	0.54	11.19	0.14
85	Electrical mchy equip parts thereof	2.06	0.48	2.24	3.18	2.55	1.09	2.13	1.27	2.04	0.09	0.17	0.28
54	Man-made filaments.	2.05	2.46	1	0.01	0.19	1.25	2.59	1.11	2.22	0.03	0.03	2.84
55	Man-made staple fibres.	2.02	5.69	0.63	0.18	0.17	2.66	2.27	1.24	1.54	0.03	0.04	2.9
53	Other vegetable textile fibres; paper yarn & wove	1.27	0.22	0.1	2.42	0.01	0.39	2.84	0.16	0.09	0.01	0.01	4.75
96	Miscellaneous manufactured articles	1.23	0.79	0.63	0.78	0.3	0.89	2.99	1.35	0.58	0.07	0.11	0.82
69	Ceramic products.	1.2	0.63	0.48	0.12	0.06	1.12	2.92	0.68	0.12	0.07	0.03	0.56
41	Raw hides and skins (other than fu	1.14	0.42	0.06	0.02	0.19	1.34	0.11	0.21	0.97	2.56	6.96	2.17
60	Knitted or crocheted fabrics.	1.12	0.36	0.26	0.17	0.11	0.77	3.22	0.47	4.02	0.02	0.18	0.42
7	Edible vegetables and certain roots	1.08	0.16	0.23	0.13	0.02	1.86	0.95	0.01	0.08	1.05	2.35	1.1
56	Wadding, felt & nonwoven; yarns; twine, cordage	1.07	0.57	0.6	0.68	0.17	1.26	1.33	0.97	0.99	0.08	0.43	0.75
24	Tobacco and manufactured tobacco substitutes	1	2.2	0.72	2.67	0.94	0.19	0.26	0.14	0.43	0.09	0.74	1.38

Source: COMTRADE database and the author's calculation

Notes: (i) This table only lists the products that Vietnam has a comparative advantage

Table 4: Vietnam's Top Exports 2004

Product Code	Product Description	Vietnam's Exports		Ranks of Top Exports in RCEP Countries (i)								
		Value	Ranks	Malaysia	Singapore	Thailand	China	Japan	Korea	Australia	New Zealand	India
2709	Petroleum oils and oils obtained from bituminous min	5670.6	1	4	1175	22	85	965	1188	4	14	317
306	Crustaceans, whether in shell or not	1362.6	2	58	212	21	156	519	547	27	47	12
6404	Footwear with outer soles of rubber	1154.8	3	197	297	191	68	787	605	593	513	260
1006	Rice.	950.3	4	782	347	5	356	666	863	229	1090	6
6403	Footwear with outer soles of rubber	761.4	5	276	242	45	12	695	238	323	122	21
9403	Other furniture and parts thereof.	716.7	6	17	203	28	14	462	221	149	82	81
6203	Men's or boys' suits, ensembles, jacket	694.3	7	163	155	63	20	649	160	354	132	38
901	Coffee, whether or not roasted or decaffeinated;	642	8	691	320	463	831	876	919	390	690	99
6204	Women's or girls' suits, ensembles	634.5	9	112	147	48	6	423	80	278	166	9
4001	Natural rubber, balata, gutta-perch	480.7	10	18	86	4	1126	826	873	855	995	185
801	Coconuts, Brazil nuts and cashew nuts	436.7	11	463	344	493	1180	1180	1140	688	1090	27
8473	Parts and accessories suitable for use with machines o	433.1	12	3	4	3	2	4	5	31	127	52
8544	Insulated (including enamelled or a	389.8	13	41	62	32	35	70	37	107	89	157
6405	Other footwear.	381.9	14	185	232	455	138	933	630	503	524	370
2701	Coal; briquettes, ovoids and similar	354	15	742	1108	975	34	1023	834	1	34	198
6110	Jerseys, pullovers, cardigans	347.4	16	115	48	57	11	390	75	288	233	91
6205	Men's or boys' shirts.	330.6	17	108	270	119	61	833	110	539	354	17
6402	Other footwear with outer soles	316.2	18	151	418	99	17	676	419	714	488	640
304	Fish fillets and other fish meat	300.2	19	477	265	74	81	440	260	290	18	397
6104	Women's or girls' suits, ensembles	297.1	20	142	118	160	23	693	257	428	335	96
4202	Trunks, suit-cases, vanity-cases	273.1	21	392	169	91	13	509	239	334	258	29
307	Molluscs, whether in shell or not	269.5	22	153	313	50	161	328	108	73	16	105
6109	T-shirts, singlets and other vests	252.9	23	156	140	76	31	583	122	430	294	13
6201	Men's or boys' overcoats, car-coats	252.6	24	396	673	257	57	786	335	799	409	154
9401	Seats (other than those of heading 94.02), and parts th	250	25	39	428	43	27	131	156	226	168	850
6202	Women's or girls' overcoats, car-coats	244.1	26	391	565	243	51	634	336	867	537	239
8471	Automatic data processing machines	221.6	27	2	3	1	1	10	6	28	152	103
8712	Bicycles and other cycles, not motorised.	208.4	28	760	678	318	76	675	1026	712	568	263
2710	Petroleum oils and oils obtained from bituminous min	207.2	29	8	2	8	29	77	7	14	146	2
904	Pepper of the genus Piper; dried or crushed or ground	152.1	30	251	306	651	446	943	670	868	960	114

Source: COMTRADE database and the author's calculation

Notes: (i) Trade data is not available for Indonesia and Philippines at the HS classification

Table 5: Vietnam's Top Exports 2013

Product Code	Product Description	Vietnam's Exports		The Ranks of Top Exports in RCEP Partners										
		Value	Rank	Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Japan	Korea	Australia	New Zeland	India
8525	Transmission apparatus for radio-telephony	19475.5	1	60	23	62	8	18	2	19	7	53	106	19
2709	Petroleum oils and oils obtained from bitumino	7375.4	2	4	5	10	1018	37	258	1166	1166	5	6	1193
8471	Automatic data processing machines	5787.2	3	21	6	2	3	1	1	44	16	43	132	163
6403	Footwear with outer soles of rubber	3639.2	4	8	343	461	234	115	34	665	354	276	479	24
9403	Other furniture and parts thereof.	2961.8	5	26	18	53	189	80	8	466	278	237	113	109
1006	Rice.	2926.3	6	751	651	318	284	9	518	638	845	59	759	5
6404	Footwear with outer soles of rubber	2865.1	7	33	458	213	280	246	43	764	543	506	601	311
0901	Coffee whether or not roasted	2551.4	8	27	596	705	346	812	645	738	717	346	383	104
8517	Electrical apparatus for line telephony	2527.1	9	143	11	33	12	21	4	43	8	55	87	46
8544	Insulated wire, cable	2516	10	28	37	6	76	48	22	73	31	130	81	75
6204	Women's or girls' suits ensembles	2440.9	11	34	385	39	276	219	24	513	251	332	282	18
4001	Natural rubber balata	2378.7	12	5	12	101	177	4	920	955	926	623	915	370
0304	Fish fillets and other fish meat	2262.1	13	84	357	79	436	130	98	383	216	496	26	267
8542	Electronic integrated circuits and micro assembl	2179.1	14	63	1	1	1	5	3	3	2	206	165	213
6110	Jerseys pullovers cardigans	2081.7	15	31	167	82	242	150	20	546	369	515	321	176
6203	Men's or boys' suits ensembles	2056.2	16	38	258	85	333	193	37	541	408	328	273	50
0306	Crustaceans whether in shell or not	2052.9	17	22	85	43	423	47	228	637	569	44	22	11
6402	Other footwear with outer soles	1729.5	18	55	300	424	312	172	17	699	478	475	670	226
4202	Trunks, suit-cases, vanity-cases	1687.1	19	122	332	60	99	126	12	569	122	255	354	43
0801	Coconuts, Brazil nuts and cashew nuts	1668.6	20	121	518	46	369	438	1131	1166	1071	801	637	55
9006	Photographic (other than cinematographic)	1511.4	21	441	120	29	141	147	406	382	424	329	508	567
6104	Women's or girls' suits, ensembles	1423.5	22	44	272	51	218	238	9	688	334	485	364	85
6109	T-shirts, singlets and other vests	1398.3	23	76	198	113	247	107	46	608	269	399	433	15
1605	Crustaceans, molluscs and other aquatic inverte	1178.5	24	51	320	149	366	29	109	206	313	224	114	369
2710	Petroleum oils and oils obtained from bituminou	1158.7	25	20	3	14	2	2	15	5	1	13	27	1
4401	Fuel wood	1125.6	26	140	234	694	681	123	1044	967	1038	37	99	1099
6201	Men's or boys' overcoats, car-coats	1035.9	27	94	664	227	724	399	68	701	542	584	614	600
8518	Microphones and stands therefor;	1024.9	28	82	45	142	98	131	27	262	103	180	261	313
9401	Seats (other than those of heading 94.02), and p	970.7	29	61	61	111	431	76	16	124	89	296	230	300
5205	Cotton yarn (other than sewing thread)	912.1	30	87	293	986	786	180	216	716	197	853	1113	7

Source: COMTRADE database and the author's calculation

Table 7: List of Trading Partners in the Gravity Model

Partner Name	Partner Code	Vietnam's Exports 2013	
		Million USD	%
Angola	AGO	125	0.1
United Arab Emirates	ARE	4138	3.1
Argentina	ARG	192	0.1
Australia	AUS	3488	2.6
Austria	AUT	1905	1.4
Belgium	BEL	1323	1.0
Bangladesh	BGD	486	0.4
Brazil	BRA	1105	0.8
Canada	CAN	1558	1.2
Switzerland	CHE	288	0.2
Chile	CHL	220	0.2
China	CHN	13178	10.0
Cote d'Ivoire	CIV	247	0.2
Czech Republic	CZE	180	0.1
Germany	DEU	4737	3.6
Denmark	DNK	267	0.2
Algeria	DZA	177	0.1
Egypt, Arab Rep.	EGY	220	0.2
Spain	ESP	2110	1.6
France	FRA	2203	1.7
United Kingdom	GBR	3696	2.8
Ghana	GHA	247	0.2
Greece	GRC	186	0.1
Hong Kong, China	HKG	4113	3.1
Indonesia	IDN	2502	1.9
India	IND	2355	1.8
Israel	ISR	405	0.3
Italy	ITA	2291	1.7
Japan	JPN	13544	10.3
Cambodia	KHM	2934	2.2
Korea,Rep.	KOR	6683	5.1
Lao PDR	LAO	423	0.3
Mexico	MEX	892	0.7
Malaysia	MYS	4984	3.8
Netherlands	NLD	2936	2.2
Norway	NOR	109	0.1
New Zealand	NZL	274	0.2
Pakistan	PAK	187	0.1
Panama	PAN	235	0.2
Philippines	PHL	1732	1.3
Poland	POL	351	0.3
Portugal	PRT	245	0.2
Russian Federation	RUS	1921	1.5
Saudi Arabia	SAU	471	0.4
Singapore	SGP	2691	2.0
Slovak Republic	SVK	392	0.3
Sweden	SWE	905	0.7
Thailand	THA	3070	2.3
Turkey	TUR	1174	0.9
Ukraine	UKR	257	0.2
United States	USA	23870	18.1
South Africa	ZAF	764	0.6
Sub-total		124986	94.7
Total Exports of Vietnam		132032	100.0

Source: COMTRADE database and the author's calculation

Table 8: List of Product Groups in the Gravity Model

Product Name	HS Code	Description
Tot	Total	Total trade
Anim	HS 01 HS 05	Animal, fish, eggs and dairy products
Veget	HS 06 to HS 15	Fruits and vegetables, coffee and tea, cereal, animal and vegetable fats and oils
Foodp	HS 16 to HS 24	Processed fish and meat, processed vegetables and fruits, sugar, cocoa, tabacco and beverage
Miner	HS 25 to HS 26	Salt, sulfur, Earth and stone, ores, slag and ash
Fuel	HS 27	mineral fuel, oil and products
Chem	HS 28 to HS 38	Organic chemical, pharmaceutical products, fertilizers Tanning/dyeing extract
Plast	HS 39 to HS 40	Plastic and rubber thereof
Skin	HS 41 to HS 43	Raw hides and skins, and articles of leather, furskins and artificial furs
Wood	HS 44 to HS 49	Wood and article of wood, charcoal, pulp of wood paper, paperboard, printed books
Textile	HS 50 to HS 60	Silk, wool, cotton, fibres, carpet, fabrics
Garment	HS 61 HS 63	Apperal and clothong access
Footw	HS 64 to HS 67	Footwear, gaiters, umbrella
Glass	HS 68 to HS 71	Glass and glasswear, ceramic products, stine, cement
Metal	HS 72 HS 83	Iron and steel, copper, and other metal
Machin	HS 84	Machinery and mechanical appliance
Electr	HS 85	Electrical machinery and equipment
Transport	HS 86 HS 89	Trans portation means, Automobile, mootorcycles, bycycles
Misc	HS 90 to HS 99	Other manufacturing products

Source: COMTRADE database and the author’s calculation

Table 9: Impacts of Tariff Reductions on Vietnam's Exports

	Tot	Anim	Veget	Foodp	Miner	Fuel	Chem	Plast	Skin	Wood	Textile	Garment	Footw	Glass	Metal	Machin	Electr	Transport	Misc
Log of ($GDP_{Vietnam}GDP_{Partner}$)	0.48**	-0.32	0.20	-0.41	3.79***	1.83**	-0.23	0.46	0.36	2.42***	1.28***	0.76**	2.22***	2.88***	1.69***	-1.63***	0.21	3.57***	1.09***
	(0.191)	(0.542)	(0.260)	(0.346)	(1.248)	(0.925)	(0.532)	(0.307)	(0.490)	(0.355)	(0.461)	(0.352)	(0.333)	(0.361)	(0.551)	(0.562)	(0.566)	(0.708)	(0.390)
Log of ($POP_{Vietnam}POP_{Partner}$)	0.86***	1.16**	0.56***	1.81**	1.02	-0.74	0.91*	2.31***	0.22	1.71***	0.50	1.12***	-0.57	2.87***	0.45	0.21	-2.73***	-1.74*	0.12
	(0.278)	(0.477)	(0.205)	(0.831)	(2.913)	(2.132)	(0.542)	(0.405)	(0.557)	(0.296)	(0.466)	(0.344)	(0.374)	(0.374)	(0.484)	(0.628)	(0.721)	(0.983)	(0.321)
Differernce in per capita income	-0.17*	0.29*	-0.22**	0.21***	0.18	-0.31	0.08	0.10	0.50**	0.27**	0.13	0.02	0.00	-0.08	-0.07	0.01	-0.68***	0.23	0.06
	(0.086)	(0.163)	(0.084)	(0.075)	(0.585)	(0.471)	(0.083)	(0.089)	(0.198)	(0.127)	(0.118)	(0.145)	(0.135)	(0.143)	(0.219)	(0.255)	(0.188)	(0.176)	(0.139)
Real Exchange Rate	0.32*	2.69***	-0.27	0.58*	2.10**	-0.98	0.65	0.03	-0.10	-0.64**	-0.77*	-0.12	0.66**	0.39	1.62***	1.47***	0.34	-0.12	0.27
	(0.177)	(0.479)	(0.274)	(0.338)	(1.029)	(0.630)	(0.505)	(0.272)	(0.350)	(0.282)	(0.430)	(0.262)	(0.292)	(0.312)	(0.418)	(0.507)	(0.488)	(0.670)	(0.308)
Tariff Reductions	0.04**	0.14***	0.00	0.01	0.04	-0.08**	0.00	-0.03	-0.03	-0.11***	0.03	0.00	0.00	0.11***	0.04	0.13**	0.21***	-0.11	0.05*
	(0.018)	(0.026)	(0.016)	(0.019)	(0.052)	(0.035)	(0.027)	(0.033)	(0.047)	(0.024)	(0.022)	(0.024)	(0.026)	(0.031)	(0.036)	(0.053)	(0.038)	(0.072)	(0.025)
Constant	-25.17***	-25.10	-5.97	-22.90	-162.42***	-40.10	-8.58	-61.47***	-19.04	-113.92***	-49.14***	-41.16***	-64.74***	-158.46***	-71.68***	47.99**	56.68***	-85.02***	-37.16***
	(7.865)	(17.453)	(8.370)	(16.091)	(55.381)	(42.379)	(19.569)	(11.400)	(18.941)	(12.991)	(17.175)	(10.898)	(12.255)	(12.421)	(17.531)	(19.591)	(19.828)	(26.997)	(13.434)
Adjusted R-squarred	0.930	0.830	0.885	0.877	0.685	0.844	0.762	0.879	0.880	0.895	0.831	0.907	0.921	0.879	0.810	0.782	0.819	0.696	0.907
Number of Observations	728	659	724	702	451	430	681	721	677	712	699	715	717	698	697	696	687	665	721

Source: The author calculation

Notes: Robust standard errors in parentheses

*, **, *** indicate the significant levels at 10%, 5%, and 1% respectively.

Table 10: Impacts of Tariff Reductions on Vietnam's Exports by Trading Partners

	Tot	Anim	Veget	Foodp	Miner	Fuel	Chem	Plast	Skin	Wood	Textile	Garment	Footw	Glass	Metal	Machin	Electr	Transport	Misc
Log of ($GDP_{Vietnam}GDP_{Partner}$)	0.34	-0.09	0.14	-0.29	4.90***	2.56**	-0.41	0.36	-0.32	2.52***	0.99*	0.37	2.11***	2.73***	1.38**	-1.84***	-0.39	3.70***	1.11***
	(0.209)	(0.605)	(0.305)	(0.394)	(1.381)	(1.051)	(0.617)	(0.326)	(0.496)	(0.418)	(0.542)	(0.360)	(0.368)	(0.395)	(0.595)	(0.565)	(0.603)	(0.763)	(0.412)
Log of ($POP_{Vietnam}POP_{Partner}$)	0.89***	0.86*	0.54***	1.71**	-0.04	-1.67	0.92*	2.29***	0.38	1.61***	0.56	1.32***	-0.53	3.18***	0.51	0.37	-2.64***	-1.79*	0.08
	(0.279)	(0.482)	(0.210)	(0.846)	(3.186)	(2.465)	(0.553)	(0.417)	(0.495)	(0.299)	(0.486)	(0.339)	(0.370)	(0.394)	(0.493)	(0.584)	(0.711)	(0.993)	(0.317)
Differernce in per capita income	-0.22**	0.21	-0.22**	0.17**	0.11	-0.21	0.05	0.03	0.38**	0.24*	0.11	0.01	-0.03	-0.09	-0.12	-0.14	-0.78***	0.20	0.04
	(0.088)	(0.172)	(0.087)	(0.074)	(0.682)	(0.531)	(0.084)	(0.085)	(0.167)	(0.132)	(0.124)	(0.148)	(0.140)	(0.146)	(0.223)	(0.262)	(0.196)	(0.169)	(0.145)
Real Exchange Rate	0.41**	2.59***	-0.26	0.50	2.41**	-1.06	0.80	0.03	0.05	-0.68**	-0.74*	-0.03	0.71**	0.39	1.80***	1.56***	0.44	-0.22	0.30
	(0.179)	(0.498)	(0.292)	(0.354)	(1.078)	(0.658)	(0.533)	(0.279)	(0.335)	(0.294)	(0.446)	(0.268)	(0.302)	(0.325)	(0.434)	(0.521)	(0.510)	(0.712)	(0.316)
Tariff Reduction																			
Cambodia	-0.03	-0.20	-0.06	0.05	-0.17	0.08	-0.14	-0.02	-0.34*	-0.28**	-0.10	0.22***	-0.16	0.12	0.14	-0.45**	0.37	0.14	0.10
	(0.055)	(0.278)	(0.058)	(0.034)	(0.365)	(0.109)	(0.098)	(0.063)	(0.184)	(0.113)	(0.136)	(0.044)	(0.184)	(0.129)	(0.148)	(0.190)	(0.341)	(0.165)	(0.082)
Indonesia	-0.05	0.15*	-0.12	0.03	-0.13	-0.06	0.05	-0.62	-0.83***	-0.53**	0.52***	0.46***	0.16	0.56**	0.68***	-0.39***	-0.24	0.81***	0.12
	(0.078)	(0.086)	(0.092)	(0.072)	(0.357)	(0.089)	(0.093)	(0.403)	(0.251)	(0.223)	(0.107)	(0.060)	(0.100)	(0.252)	(0.138)	(0.116)	(0.146)	(0.151)	(0.214)
Philippines	0.17***	-0.27	-0.09	0.15	0.18**	-0.07	-0.17*	0.10	-0.06	0.05	-0.18***	-0.08	-0.00	0.62***	-0.09	0.90***	0.18	-0.37	-0.09
	(0.061)	(0.186)	(0.073)	(0.144)	(0.090)	(0.085)	(0.099)	(0.116)	(0.229)	(0.059)	(0.070)	(0.146)	(0.111)	(0.089)	(0.163)	(0.182)	(0.152)	(0.429)	(0.079)
Thailand	0.13***	0.29***	0.01	-0.09	0.00	0.01	-0.01	-0.15***	0.07	-0.04	-0.19***	0.02	0.19	-0.03	0.03	0.57**	0.35***	-0.65***	-0.04
	(0.028)	(0.074)	(0.064)	(0.053)	(0.062)	(0.059)	(0.076)	(0.041)	(0.084)	(0.026)	(0.072)	(0.051)	(0.158)	(0.050)	(0.055)	(0.260)	(0.092)	(0.103)	(0.096)
China	0.08**	0.84***	-0.03	0.27***	0.56***	0.23***	0.05	0.04	-0.67***	-0.04	-0.03	-0.33**	-0.10	-0.16	0.16	-0.10	-0.19*	0.29*	0.20
	(0.033)	(0.191)	(0.083)	(0.071)	(0.191)	(0.082)	(0.066)	(0.056)	(0.110)	(0.049)	(0.083)	(0.154)	(0.100)	(0.117)	(0.110)	(0.095)	(0.111)	(0.153)	(0.166)
Japan	0.11***	0.25***	0.06***	0.10***	-0.08	-0.06	0.05	-0.03	0.14**	-0.13***	0.17***	0.05	-0.13**	-0.15***	0.09**		0.38***	-0.13**	0.01
	(0.016)	(0.033)	(0.021)	(0.023)	(0.088)	(0.084)	(0.035)	(0.021)	(0.060)	(0.025)	(0.039)	(0.053)	(0.052)	(0.043)	(0.037)		(0.057)	(0.050)	(0.031)
Korea	-0.05***	0.10***	0.04**	-0.03	-0.19**	-0.22***	-0.08***	0.06***	0.08***	-0.08**	0.04	-0.03	0.03	0.13***	-0.18***	0.05	0.31***	-0.39***	0.02
	(0.016)	(0.034)	(0.017)	(0.025)	(0.082)	(0.064)	(0.029)	(0.019)	(0.023)	(0.031)	(0.025)	(0.055)	(0.033)	(0.027)	(0.036)	(0.097)	(0.054)	(0.133)	(0.028)
Australia	0.31***	0.24***	0.05**	-0.06	0.27	0.02	0.24***	0.12***	0.10***	-0.13***	0.07	0.11**	0.08***	0.20***	0.30***	0.31***	0.27***	-0.19***	0.07***
	(0.050)	(0.034)	(0.022)	(0.046)	(0.168)	(0.054)	(0.063)	(0.043)	(0.030)	(0.028)	(0.042)	(0.043)	(0.029)	(0.052)	(0.059)	(0.080)	(0.056)	(0.054)	(0.025)
New Zealand	0.02	0.01	-0.02	-0.05		-0.27*	0.01	0.07*	0.12***	-0.13***	0.09***	-0.00	0.01	0.16***	0.20***	0.10	0.19***	-0.08	0.16***
	(0.016)	(0.028)	(0.023)	(0.042)		(0.140)	(0.051)	(0.034)	(0.038)	(0.019)	(0.024)	(0.019)	(0.027)	(0.043)	(0.036)	(0.067)	(0.067)	(0.153)	(0.036)
India	-0.41***	-0.73***	-0.10*	-0.40**	-0.08	0.07	-0.37***	-0.62***	-0.41***	-0.24**	-0.32***	-0.25**	-0.23***	0.10	-0.64***	-0.58***	-0.49***	-0.82***	-0.17*
	(0.052)	(0.182)	(0.060)	(0.157)	(0.247)	(0.205)	(0.102)	(0.128)	(0.148)	(0.094)	(0.095)	(0.112)	(0.081)	(0.149)	(0.179)	(0.107)	(0.130)	(0.217)	(0.091)
Constant	-21.34***	-25.62	-3.63	-24.41	-180.31***	-46.39	-3.22	-57.11***	1.33	-114.94***	-40.18**	-32.12***	-61.67***	-159.76***	-62.68***	52.68***	76.04***	-87.77***	-36.83**
	(8.163)	(19.151)	(9.383)	(16.432)	(60.644)	(47.881)	(21.578)	(11.547)	(19.304)	(14.745)	(18.898)	(11.139)	(13.167)	(13.106)	(18.617)	(19.811)	(20.209)	(28.277)	(14.441)
Adjusted R-squarred	0.935	0.837	0.884	0.878	0.687	0.843	0.762	0.885	0.887	0.897	0.832	0.908	0.921	0.884	0.816	0.791	0.822	0.706	0.906
Number of Observations	728	659	724	702	451	430	681	721	677	712	699	715	717	698	697	696	687	665	721

Source: The author calculation

Notes: Robust standard errors in parentheses

*, **, *** indicate the significant levels at 10%, 5%, and 1% respectively.