

Original Article

# The Effects of Free Trade Agreements on Export Diversification of Vietnam

Thi Hoang Oanh, Nguyen<sup>1</sup>; Thi Thanh Tam, Phan<sup>2</sup>

<sup>1,2</sup>The Department of Economics, Thainguyen university of Technology.

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**Abstract** - The product variety increases the consumers' surplus and producers' benefits and reduces the risks to obtain sustainable economic development. A country joins free trade agreements (FTAs) to gain advantages from its members to promote export and economic growth and obtain sustainable economic development. Joining FTAs, in general, Vietnam diversifies the products exported. However, the export behavior in terms of export diversification is different with different FTA members; with the small market sizes, Vietnam concentrates on some products to export. Conversely, Vietnam diversifies products exported to the larger FTA markets.

**Keywords** - ASEAN, FTA members, export and import diversification.

## I. INTRODUCTION

The "old" trade theories explain the exchange of goods among countries based on specialization. Each country specializes in one or some products, and the products exported by different countries are different. Therefore the old trade theories only explain the existence of inter-industry trade. However, intra-industry trade accounts for a large proportion of international trade. For instance, American still imports German or Japanese cars, even though domestic firms produce a lot of cars. This phenomenon is explained by the new trade theory known as Krugman's love-of-variety model (Krugman, 1980). The love-of-variety model explains why consumers love consuming more goods.

The love-of-variety model interprets not only the consumers' welfare but also the firms' productivity. Feenstra and Kee (2011) summarize both theories and empirical works relating to this matter. Firms' benefits can improve from both input and output varieties concerning minimizing the costs and increasing the revenue.

Feenstra (2010) analyzes the relationship between the gains from international trade and the product variety. Final varieties and input varieties benefit consumers and firms by

increasing the new imported varieties available to consumers, self-selection of more efficient firms (the less efficient firms' exit), and reducing the markup of firms due to the import competition. Variety is the source of gains from international trade, also is summarized in Feenstra (2018).

Human and Klenow (2005) investigate the export growth of larger economies is dominated by an extensive margin. Chen and Jacks (2012) estimate the effect of variety on immigration. A special point in their work is that they use the export flow between Canada and the U.S. stages to measure the variety of growth. They find out the positive relationship between international trade in a variety of growth and immigration flows.

In addition to increasing welfare for consumers and benefits for producers, diversification is known to diversify risks resulting in sustainable economic growth. Suppose you concentrate to export a or some products to a or some destinations. In that case, you might meet the risks if that market closes up to you or meets the difficult situations or the inputs of your products might be broken, your production process is also interrupted.

Economic liberalization based on joining the preferential trade agreements (PTAs) has increased since the 1990s. Joining PTAs members at least grant the reduction of tariff rates besides other advantages, such as the mobilizing of labor and capitals, the harmonization of fiscal and monetary policies, etc., to push the trade growth among members. The reduction of trade costs might increase the quantity of a product exported to a destination or increase the total number of products exported to a destination. The former effect might erode the terms of trade and potentially impact the social welfare, where the latter effect potentially increases the social welfare for the destination's welfare and producers' benefits in exporting countries as proved by Feenstra and Kee (2011). Therefore, the effects of PTAs on the product variety might be mixed. Analyzing the product variety effect of PTAs is done by many researchers, such as



Amurgo Pachego (2006), Gamberoni (2007), Feenstra and Kee (2007), Dutt et al. (2009), Baier et al. (2014) or Persson and Wilhelmsson (2016), etc. Baier et al. (2014) find the PTAs affecting intensive and extensive margins, but the effects occur at different periods. The former margin is impacted firstly, and the latter margin is impacted later. Persson and Wilhelmsson (2016) focus on the effect of GSPs on the product variety exported from their partners to E.U. They find that GSPs increase the GSP member's export diversification to E.U. However, as a suggestion from some researchers as Adam et al. (2003), Magee (2008), and Limão (2016), we should investigate the effect of a specific FTA because different FTAs create different impacts. Limão (2016) suggests that "To understand the economic mechanism and role of specific policy changes in PTAs, it is useful to consider specific agreements" (p.34).

We analyze Vietnam's case of joining the free trade agreements (FTAs) impacting its product variety. Because our sample from 1995 is also the time Vietnam became an ASEAN member, we evaluate FTA's effect separately for ASEAN and other FTA members. The second reason we separate the FTAs members into two groups is that ASEAN countries are small markets while the other FTA members are the large markets. The export behaviors might be different in the case of a different scale of markets.

From the estimated results, we find that by joining FTAs, Vietnam diversifies the products exported. However, the export behavior in terms of export diversification is different to different FTA members; with the small market sizes, Vietnam concentrates on some types of products to export, oppositely Vietnam diversifies products exported to the larger FTA markets.

The remaining parts of the current paper are as follows: Sector 2 is the brief characters of the growth of product variety; sector 3 is the description of data and estimate methods; sector 4 is the estimated result. The last part is the conclusion.

## II. DATA SOME CHARACTERISTICS OF THE PRODUCT VARIETY IN EXPORT AND IMPORT OF VIETNAM

Trade data Twenty years after opening the economy, Vietnam has gained a great success of economic development: the annual impressive economic growth is 7.3%; GDP per capita increased fivefold during 1990-2010 (Naraya and Nguyen, 2016); the openness of the economy increased from 20% to 170% during 1985-2017 (more details see Figure 1). The other impressive result is the attraction of foreign direct investments (FDI). The total registered capital reached 26,890.5 in 2017 from 1,284.4 in 1991 (US\$ million). Particularly, Vietnam has become a lower-middle-income from a low-income country since 2009. The balance of the current account, however, has been mostly deficit during 1995-2015. Only in some later years, the export value exceeded the import value (the difference in

value between export and import this period is provided in Figure 2).

### A. The growth of the product variety

The total number of products that Vietnam exports and imports have risen over time, in general. During 1995-2015, the total number of products exported (imported) increased from 1701 (3813) to 4080 (4417) (the products are recorded in H.S. 6-digit level).

Comparing export and import flows, the total number of products imported is mostly higher than the one exported all years. However, the growth of product variety exported rises more rapidly than the one imported (except in 2009 and 2012). For example, the growth rate of the variety of products exported was about 18%, while imported about 1.8% in 1995; 21.8% and 6.3%, 3.3% and 1.6% in 2000 and 2013, respectively.

From 2007 to 2012 (except 2011), the variety of goods imported and exported was shrunk. The former dropped to lower than 0%, and the lowest growth rate was -2.06% and -1.6% in 2008 and 2012, respectively. In the same years (2008 and 2012), the latter tremendously declined to 1.03% and -3.65%, respectively. These are two years when the exported variety product growth fell off and lower than the imported ones. The reason that explains the decrease in the number of exported and imported products during 2007-2012 is the global crisis occurring in 2008 (for more details, find in Figure. 3).

### B. Vietnam trading partners

The expansion of the extensive margin can decompose to the number of products, firms, or destinations. And trading value increases if the extensive margin increases. When a country can exchange goods with more partners, it increases export growth, reduces the risks, and ensures sustainable economic development.

As showing in Figure 4, Vietnam's exporting and importing partners, in general, have increased during that period. However, in some given years, Vietnamese partners reduce both export and import sides. The most impressive increase in Vietnamese partners was in 2000. Exporting partners increase from 126 to 182, while importing partners also rise from 80 to 145. The greatest number of exporting partners reached 203 in 2002 while importing partners was 174 in 2003.

One interesting point in the growth of extensive margin during this period is that while the total number of products imported is higher than those exported, the number of exporting partners is higher than the importing partners. Therefore, the average number of products per importer is greater than the average number of products per exporter. That is one of the causes of the unbalance of the current account (deficit) from 1995 to 2015.

### C. Major trade partners

Major trade partners are evaluated based on two criteria: The number of products traded with and the average value per product. Each year, we keep twenty major partners Vietnam imports from or exports to mostly. Twelve partners are in both export and import lists. They are such countries as Australia, China, Germany, France, Canada, China, Hong Kong SAR, Korea, Japan, Malaysia, Singapore, the United Kingdom, and the United States of America. Some other countries, such as Taiwan and Cambodia, are lately on the list (Taiwan and Cambodia from 2000). Korea, China, the USA, Japan, and Malaysia are the first rankings (more details about the major trading partner are provided in Table 1).

Based on the second criterion, the average value per product (measured by the total exported (imported)-year-value in a destination dividing the number of products exported to that destination), five countries which are the top in the major export partner are China, Germany, Japan, the United Kingdom, and the United States. The average value export to the U.S. is the greatest and greater, nearly twice as its second order. We do the same procedure to order the top ranks of the major importers. The import partners list is more flexible than export partners (more details are provided in Table 2).

Vietnam has a trade relationship with both developing and developed countries. Based on the GNI per capita each year, World Bank classifies countries into four groups. Those groups include low, lower-middle, upper-middle, and high-income countries. The proportion of high and upper-middle-income partners in Vietnam partners has risen; oppositely, the low and lower-middle-income partners have declined. Since 2007, the number of high-income partners has been the greatest, and low-income partners have been the smallest. For instance, the former was 59, while the latter was 25 in 2015. In terms of developing countries, Vietnam trades more and more with developed countries, while developing countries less and less.

### D. Trade Liberalization

The milestone remarking Vietnam's development progress was in 1986, under the "Doi Moi" policy, the Vietnamese economy launched to reform. External trade increased extremely after 1986, openness index from 10% in 1987 increased to 80% in 1990 but fell off to 45% in 1991. After that, the upward trend has dominated, although some years have slightly reduced (the biggest reduction in 2009 at which the global crisis occurred). Achieving great successes partly based on has liberalized trade policy. The remarkable time was 1995, at which Vietnam started to become an ASEAN member. Joining ASEAN, Vietnam has received and offered preferential treatments in a wide range of trading products. The liberalization on trade and other aspects has been promoted since, along with ASEAN countries, Vietnam signed other free trade agreements (FTAs) with six major countries: China, Korea, Japan, India, Australia, and

New Zealand in 2004, 2006, 2008, and 2010, respectively. Besides the multilateral FTAs, Vietnam has two bilateral FTAs with Japan and Chile in 2009 and 2012. More recently, Vietnam and the European Union trade deal was officially signed (2020). Another milestone that cannot but mention promoting liberalization is that Vietnam became the 150th WTO member in 2007.

After Vietnam joined WTO, we construct the average-tariff rate from the World Integrated Trade Solution (WITS) data to clearer tariff reduction. WITS data include both the most favored nation (MFN) and preferential schemes. The product tariffs are recorded in the 6-digit level in H.O., H1, H2, H3, and H4 classifications for each year and each country. Here, we only construct the tariff average under the MFN scheme for four years: 1994, 2002, 2007, and 2010. Some reasons we choose those years are: first, each year represents each classification (H.O., H1, H2, and H3); second, more important reason, 1994 is the year before Vietnam became an ASEAN member (in 1995), 2007 is the year Vietnam started to join WTO, and 2010 some years after Vietnam joined WTO.

From the tariff database recorded in four classifications, we sum up the total tariff rates for each sector and its number. Each sector corresponds to the data at a 1-digit level. We have ten sectors, after all. The sector-average-tariff rate equals the total value of the tariff rate and the total number of products for each sector. And the results are provided in Table 3 and Figure 5. From Figure 5, the change of the sector-average-tariff rate over time is represented in four lines. The change of the sector-average-tariff rate of those sectors overtime is identical: the average rate increased till 2007 but decreased largely after 2007. The biggest average rate reduction occurred in sectors 5 and 6, from 26.92% and 42.8% to 8.19% and 19.39%. The smallest average rate reduction belongs to sector 2 and 7. Although all sectors' tariff average rates shrunk after 2007, some sector's tariff average rates were slightly higher than that of the average tariff rates at 1994, such as sector 1, 7, and 8 (more detail about the change of tariff average rates see Figure 5 and Table 3).

## III. MEASURE THE PRODUCT VARIETY

In addition to improving productivity and reducing the markup, the gains from product variety for consumers are modeled in Feenstra (2010).

Supposed the relevant price of a new good before it is available is reservation price (an infinite price at which its demand is zero). Its price goes down at the market equilibrium after it appears on the market. Consumers' gains from the reduction (from the reservation to actual price) of that new good' price can be measure by an index number formula. The utility function is the concave and constant elasticity of substitution (CES),  $\sigma > 1$ , reservation price is infinite. The utility function of consumers is as follow (Equation 1):

$$U_t = U(q_t, I_t) = \left[ \sum_{i \in I_t} a_{it} q_{it}^{(\sigma-1)/\sigma} \right]^{\sigma/(\sigma-1)}, \sigma > 1 \quad (1) \quad \lambda_t(I) = \left( \frac{\sum_{i \in I} p_{it} q_{it}}{\sum_{i \in I_t} p_{it} q_{it}} \right) = 1 - \left( \frac{\sum_{i \in I, i \notin I_t} p_{it} q_{it}}{\sum_{i \in I_t} p_{it} q_{it}} \right), t=t-1, t \quad (5)$$

where  $a_{it}$ ,  $I_t$ , and  $q_{it}$  are the taste parameters and change over time, the set of products available in period  $t$  at the prices  $p_{it}$ , and the quantity of product  $i$  consuming at the time  $t$ .

To obtain one utility, consumers minimize their expenditure at:

$$e(p_t, I_t) = \left[ \sum_{i \in I_t} b_{it} p_{it}^{(1-\sigma)} \right]^{1/(1-\sigma)}, \sigma > 1, b_{it} = a_{it}^\sigma \quad (2)$$

The simplest case of Equation (2) is that there is no change in the set of products available and the tastes between two periods  $t-1$  and  $t$ ,  $I_t = I_{t-1} = I$  and  $b_{it-1} = b_{it}$ . At the optimal quantities, then the ratio of unit-expenditure can be measured as follow:

$$\frac{e(p_t, I)}{e(p_{t-1}, I)} = P_{SV}(p_{t-1}, p_t, q_{t-1}, q_t, I) \equiv \prod_{i \in I} \left( \frac{p_{it}}{p_{it-1}} \right)^{w_i(I)} \quad (3)$$

Where the weights  $w_i(I)$  are logarithmic means of the share  $s_{it}(I)$  and  $s_{it-1}(I)$

$$w_i(I) = \left( \frac{s_{it}(I) - s_{it-1}(I)}{\ln s_{it}(I) - \ln s_{it-1}(I)} \right) / \sum_{i \in I} \left( \frac{s_{it}(I) - s_{it-1}(I)}{\ln s_{it}(I) - \ln s_{it-1}(I)} \right)$$

$$s_{it}(I) = \frac{p_{it} q_{it}}{\sum_{i \in I} p_{it} q_{it}}$$

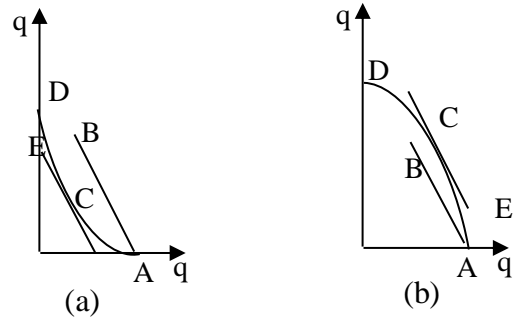
and

The other case at which  $I = I_t \cap I_{t-1} = \emptyset$  that means the set of goods consumed changes over time,  $I$  are the same goods between two periods  $t$  and  $t-1$ . Supposed the tastes still are no change overtime  $b_{it-1} = b_{it}$ , so the unit-expenditure ratio is measured at the optimal quantities and  $\sigma > 0$  as:

$$\frac{e(p_t, I_t)}{e(p_{t-1}, I_{t-1})} = P_{SV}(p_{t-1}, p_t, q_{t-1}, q_t, I) \left( \frac{\lambda_t(I)}{\lambda_{t-1}(I)} \right)^{1/(\sigma-1)} \quad (4a)$$

Where  $\lambda_t(I)$  is constructed as:

$\lambda_t(I)$  can be explained as the share of expenditure on the common goods and the total goods at  $I$ . From (4a), the unit-expenditure positively relates to the share of expenditure on the common goods and total goods. In turn,  $\lambda_t(I)$  it will increase if the numerator of (5) rises or its denominator reduces. The new goods appearing in consumed goods lead to lower  $\lambda_t(I)$  and vice versa. The consumers' gains from product varieties are proved in Figure 6. The curve A.D. is the indifference curve. A.B. and E.C. are the budget curves. In case only  $q_1$  in the market, to achieve the utility at A.D. level, consumers need to pay at the points lying on curve A.B. The budget shifts inward to E.C. with the same utility level in cases consumers can consume both  $q_1$  and  $q_2$ . The inward shift in the budget line measures the gains of consumers from the product variety.



**Figure 6. The consumer's surplus and producers' benefits from product variety**

Product varieties might source from domestic producers producing more different products or importing more heterogeneous products.

Producers' gains from output variety also are proved. By increasing the revenue from A.B. to E.C. with the same iso-cost A.D., in cases of producing more types of products (Figure 6b), producers receive higher revenue.

Whether from a consumer perspective or producer perspective, product varieties are one source of gains. The ratio of unit-expenditure between two periods

$$R = \frac{\lambda_t(I)}{\lambda_{t-1}(I)} \quad (4b)$$

measures the difference in new goods appearing in the next period. Chen and Jacks (2012) also use this method to measure the product variety: "This ratio of lambdas is a measure of the change in variety weighted by the corresponding import revenue of each variety" (p.12).

Besides the Feenstra (2010) method, Straatof (2007) and Ghani and Sofyan (2014) (whereas the latter use logs base two instead of the natural logarithm).

$$TV_{it} = \sum_{j=1}^G p_{ijt} \ln \left( \frac{1}{p_{ijt}} \right) \quad (6)$$

Where  $p_{ijt}$  is the share of the product/sector  $j$  in total Vietnamese exports to the importer  $i$  at time  $t$ ,  $G$  is the total number of the product/sector Vietnam exports at time  $t$ , and  $TV_{it}$  is the total varieties Vietnam exports to the importer  $i$  at time  $t$ .

Turkcan (2014) or Person and Wilhelmsson (2016) use the simplest method to measure the product variety by counting the total number of products an exporter exports to its partner.

$$G_{ijt} = \sum_{k=1}^N n_{kt} \quad (7)$$

The product exported from exporter  $i$  to importer  $j$  at time  $t$ ;  $n_{kt}$  takes unity if product's export value is positive, and zero otherwise at  $t$ ;  $N$  is the number of products potentially exported from country  $i$  to country  $j$  at  $t$ .

We use all three methods to measure the product variety, where the last method assumes equal weights across products and two former methods weight the products by their exporting product values.

#### IV. DATA AND ESTIMATE METHODS

##### A. Data

Bilateral trade between Vietnam and her partners are stemmed from BACI data BACI data records at the 6-digit level in H.S. classification. H.S. classification includes some versions such as H0, H1, or H2. The sample is from 1995 to 2015, so data was recorded in H0 classification, and those products were classified into 10 chapters at the 1-digit level. The total number of products is 5040.

At the time of Vietnam, they joined FTAs sources from the Chamber of Commerce and Industry of Vietnam. During 1995-2015 besides other FTAs that were not in force by 2015, Vietnam implemented eight FTAs, two bilateral FTAs, and six multilateral FTAs. Two bilateral FTAs are Vietnam-Japan FTA and Vietnam-Chile FTA, where the former signed in 2009 and the latter signed in 2012. Six multilateral FTAs are the FTAs Vietnam along with ASEAN members signing with other countries. In 1995 Vietnam became a member of ASEAN. After that, in 2004, 2006, 2008, and 2010 ASEAN signed the trade deal with China, Korea, Japan, India, Australia, and New Zealand.

To proxy the supply available and consumption capacity, the GDP of Vietnam and its partners is used. The data is stemmed from CEPII.

##### B. Estimate methods

Vietnam became an ASEAN member in 1995; this is the oldest FTAs Vietnam has joined. We also estimate the effect of other PTAs on Vietnam's product variety exported during 1995-2015. Therefore we separate ASEAN members as a group and the other FTA members as another group. The other reason explaining why we separate ASEAN as a group is that ASEAN members are small countries and have an economic structure similar to Vietnam's economic structure (except Singapore and Malaysia, those countries specialize in products differently from other members). In contrast, the other FTA members are large income countries, such as China, India, Japan, and Korea.

To investigate the joining FTAs impacts on her export varieties, model 8 is used.

$$\ln X_{it} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 OFTA_{it} + \beta_3 ASEAN_{it} + \eta_t + \gamma_i + \nu_k + \varepsilon_{it} \quad (8)$$

The notations in Equations (8) are as follows: the dependent  $X_{it}$  is product varieties Vietnam exports to the country  $i$  at year  $t$  measured by Equations 4b, 6, and 7;  $GDP_{it}$  are the gross domestic products of the importer  $i$  at the year  $t$ , and  $ASEAN_{it}$  are both these dummy variables.  $ASEAN_{it}$  Variable takes unity if the importer  $i$  is the ASEAN member at the year  $t$ , and zero otherwise. And  $OFTA_{it}$  also takes unity if the importer  $i$  is another FTA member of Vietnam at year  $t$ .  $\eta_t$  is the year-fixed effect accounting for the macroeconomic shocks such as the global crisis in 2009;  $\gamma_i$  is importer-fixed effect accounting for the time-invariant variables in the importers, the distance between Vietnam and her partners therefore also is accounted in  $\gamma_i$ ;  $\nu_k$  is the sector-fixed effect, and  $\varepsilon_{it}$  is the error term. Excepting the dummy variables, other variables are taken the natural logarithm.

#### V. ESTIMATED RESULTS

Firstly, we estimate model 8 but do not separate the FTA-members into two groups to know the general effect of signing FTAs on Vietnam's export. The estimated results are provided in Table 4.

Columns (1), (2), and (3) in Table 4 represent the exported product variety measured by Equations (4b), (6), and (7). The difference in measurement of the product variety between Equations (4b), (6), and (7) is that where the value of the former increases, the diversifying products

exported decreases, the values of the two latter increases the one increases. The estimated results in Table 4 show that the importers' market sizes (measured by GDP) significantly affect the export diversification. If the importer's GDP increases by 1%, the exported product variety increases by 0.21%, 0.53%, and 0.48%, corresponding with columns 1-3. That is why Vietnam exports more and more to high-income countries and less and less to lower-income countries.

More interesting relating to the FTA variable's coefficient, it measures the effect of joining FTAs on Vietnam's export diversification. The outcome shows that signing FTAs is a factor increasing the export diversification for Vietnam. The sign of the FTA variable in all methods get the same conclusion. However, only the result estimated Equation 4b is significant. The ones of the two other methods are insignificant. The estimated results in Column (1) show that after joining FTAs (trading with FTA members), Vietnam diversifies the products to export more highly than non-FTA members, about 7,4%.

**VI. TABLE IV THE EFFECT OF FTAS ON VIETNAM'S DIVERSIFICATION EXPORT**

VARIABLES	(1) lnR	(2) lnTV	(3) lnG
lnGDP <sub>it</sub>	0.214*** (0.0178)	0.525** (0.238)	0.475*** (0.0304)
FTA	-0.0713*** (0.0250)	0.441 (0.334)	0.0597 (0.0426)
Constant	-2.990*** (0.434)	-8.357 (5.795)	-8.030*** (0.740)
Observations	1,927	1,927	1,927
R-squared	0.855	0.429	0.938
Year-fixed effects	YES	YES	YES
Importer-fixed effect	YES	YES	YES
Sector-fixed effect	YES	YES	YES

*Note: Standard errors are in parentheses; \*\*\*, \*\*, and \* are significant at 1%, 5%, and 10%, respectively; R is the exported product variety measured by Equation 4b; T.V. is the exported product variety measured by Equation 6; G is the exported product variety measured by Equation 7; excepting the dummy variables, other variables are taken the natural logarithm; the coefficients of year-fixed effects, importer-fixed effect, and sector-fixed effect are omitted for briefly.*

Now, separate FTA members into two groups and estimate Equation 8 again. The estimated results are provided in Table 5. Columns (1), (2), and (3) in Table 5 represent the exported product variety measured by Equations (4b), (6), and (7).

**VII. TABLE V THE EFFECT OF ASEAN AND OTHER FTA MEMBERS ON VIETNAM'S DIVERSIFICATION EXPORT**

VARIABLES	(2) lnR	(4) lnTV	(5) lnG
OFTA	-0.132*** (0.0287)	0.695* (0.385)	-0.0420 (0.0490)
ASEAN	0.102** (0.0480)	-0.283 (0.643)	0.350*** (0.0818)
lnGDP <sub>it</sub>	0.204*** (0.0179)	0.565** (0.240)	0.459*** (0.0305)
Constant	-2.779*** (0.435)	-9.241 (5.832)	-7.676*** (0.742)
Observations	1,927	1,927	1,927
R-squared	0.857	0.430	0.938
Year-fixed effects	YES	YES	YES
Importer-fixed effect	YES	YES	YES
Sector-fixed effect	YES	YES	YES

*Note: Standard errors are in parentheses; \*\*\*, \*\*, and \* are significant at 1%, 5%, and 10%, respectively; R is the exported product variety measured by Equation 4b; T.V. is the exported product variety measured by Equation 6; G is the exported product variety measured by Equation 7; excepting the dummy variables, other variables are taken the natural logarithm; the coefficients of year-fixed effects, importer-fixed effect, and sector-fixed effect are omitted for briefly.*

The market size of an importer is still significantly positive across methods. Interestingly, we find that Vietnam exports differently in terms of the diversification to different FTA members. With the ASEAN countries, Vietnam concentrates on exporting some products, while other FTA members Vietnam diversifies the products to export. This outcome is held across if we measure export diversification by Equation 4b and 6, but is not hold if we measure export diversification by Equation 7. In export diversification measured by Equation 4b, Vietnam concentrates export to ASEAN members more than other non-FTA members, about 10,4%.

In comparison, it diversifies export to other FTA members more than other non-FTA members, about 14,11%. In the case of product variety measured by Equation 6, the estimated results correspond to the ones measured by Equation 4b, although the estimated result of the ASEAN variable is insignificant. However, the estimated results in Column (3) is the opposite of the ones in Columns (1) and (2). As in part II, when we rank the major trading partners of Vietnam, we use two criteria: average value of a product and the number of products exported and imported because of the disadvantage of the count method (the number of products). The count method only counts the number of products. It is not based on the value of Vietnam exported or imported products, which means all products have the same weight. The fact that Vietnam exports one unit for two

goods, their values are so different. Therefore many researchers usually measure the product variety by weighting the products in terms of value.

The bottom line from estimated results is that joining FTAs Vietnam increases the export diversification to reduce the risks in the development process. However, the export behaviors differ with different FTA members, ASEAN Vietnam concentrates export, but other FTA members Vietnam diversifies its export products.

Participating ASEAN and ASEAN expanding FTA markets, Vietnam's trade growth has increased tremendously, especially from FTA partners. The interesting point in trading with all multilateral-FTA partners is that they specialize in exports to Vietnam and focus on some categories. In particular, the enlargement of ASEAN's FTA markets has generated a change in ASEAN's export behavior to Vietnam. The more ASEAN FTA partners, the deeper specialization, and the less diversification of products exported to Vietnam. However, the increasing export to Vietnam from ASEAN does not hold for all ASEAN members. Even it creates trade diversion between Vietnam and those ASEAN countries investing less in Vietnam.

### VIII. CONCLUSION

Hummels and Klenow (2005) find the extensive margin accounting for around 60 percent of larger economies' greater exports. Intra-industry trade increases the consumer's surplus and producer's benefits and reduces the risks in cases of concentration on some destinations and some products to obtain sustainable economic development.

Vietnam has gotten great success in economic development, where export growth is one of the successful aspects. One of the contributing factors to the success might be from the liberalization of the economy by joining the WTO and many FTAs with ASEAN countries and owning bilateral FTAs to expand the destinations and the number of products exported. From 89 partners in 1995, Vietnam exported to 203 destinations in 2003 and 167 destinations in 2015. The number of products exported rose from 1701 in 1995 to 4080 in 2015, where Japan and China are two destinations importing most in terms of the number of products.

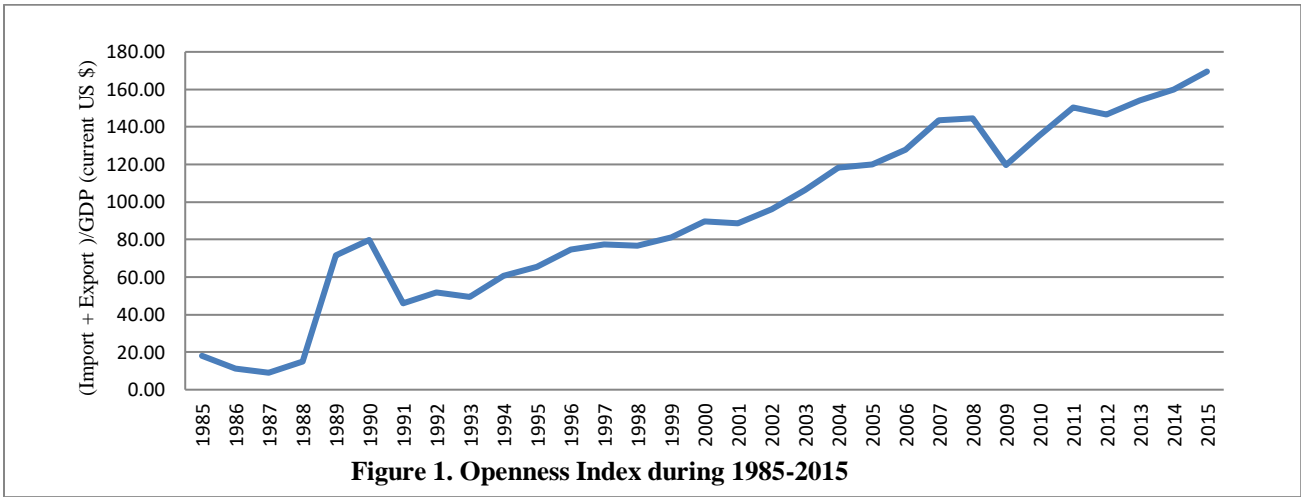
However, the export behaviors in terms of diversifying products exported are quite different across FTA members. Vietnam concentrates some types of products to export to the small market sizes (ASEAN countries), but Vietnam diversifies its products to export the larger market ones.

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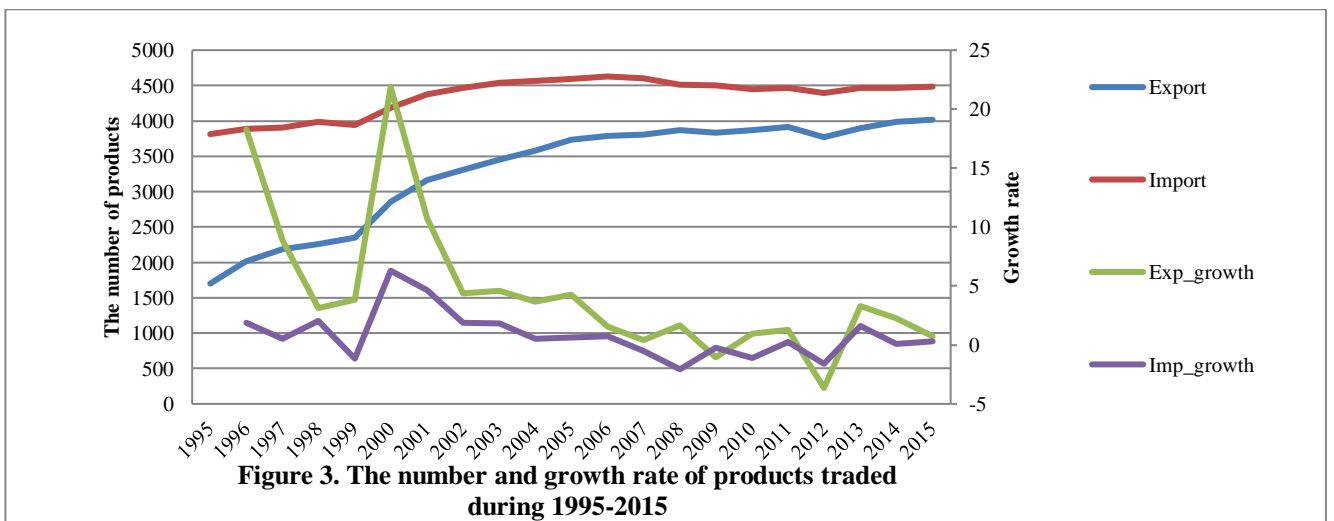
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Source: World Bank



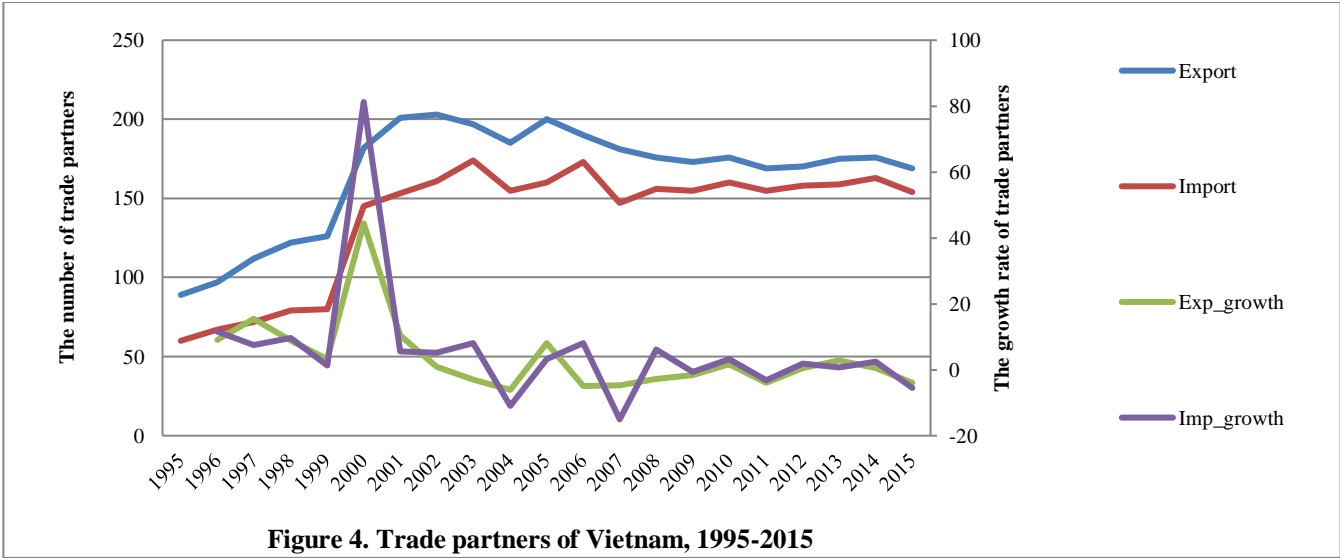
Source: World Bank



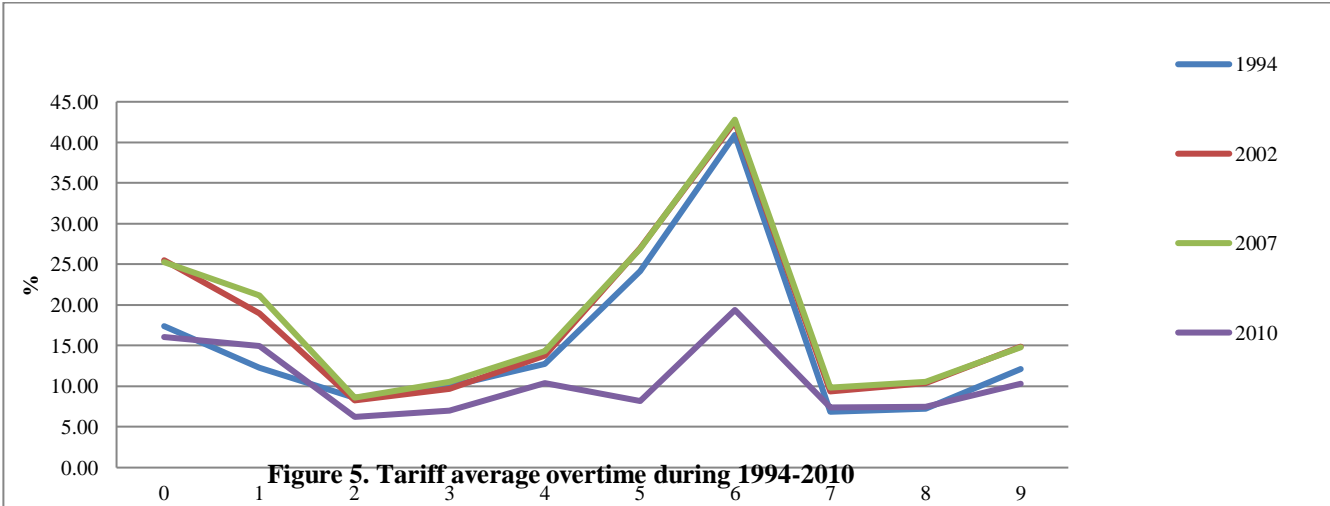
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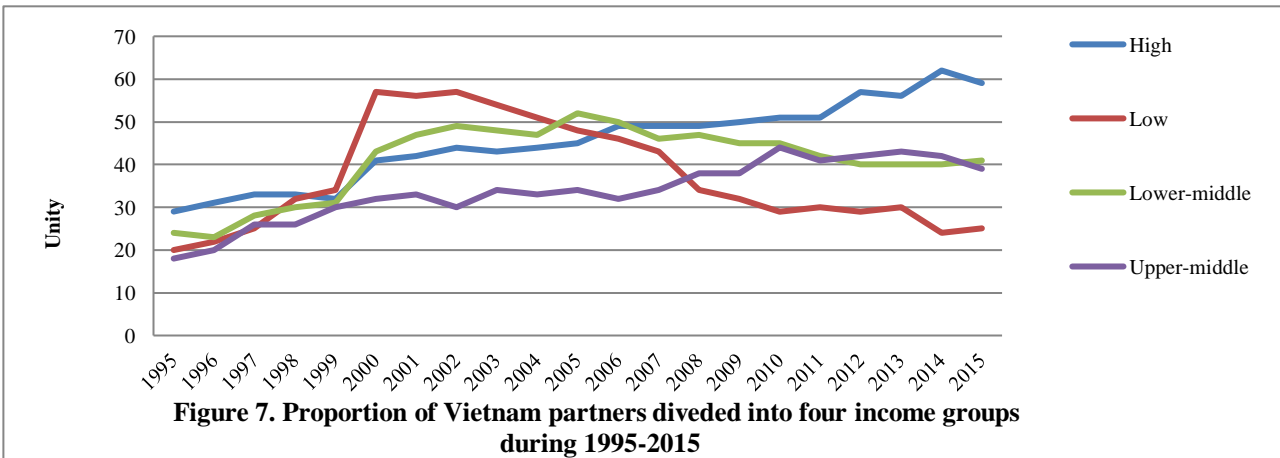




Source: BACI



Source: World Integrated Trade Solution (WITS)



Source: World Bank

**I. TABLE I TRADE PARTNERS THAT VIETNAM EXPORTS MOST NUMBER OF PRODUCTS**

Year	Korea	China	USA	Japan	Malaysia
1995	364	235	190	576	178
1996	472	258	252	688	239
1997	499	314	314	797	379
1998	419	323	320	851	356
1999	576	368	368	895	448
2000	777	455	536	1132	591
2001	1033	818	739	1585	865
2002	1228	938	1209	1691	987
2003	1287	1052	1376	1740	1107
2004	1327	1183	1494	1744	1211
2005	1412	1254	1569	1847	1266
2006	1494	1402	1670	1983	1412
2007	1556	1468	1644	1939	1438
2008	1603	1526	1634	1884	1567
2009	1627	1610	1711	1895	1614
2010	1694	1734	1703	1911	1664
2011	1782	1767	1745	1967	1739
2012	1732	1495	1496	1659	1677
2013	1928	1845	1780	2066	1867
2014	2040	1938	1846	2115	1956
2015	2193	2022	1979	2262	1992

Source: BACI

**II. TABLE II THE AVERAGE EXPORT VALUE A PRODUCT OF FIVE VIETNAM PARTNERS**

Year	United Kingdom	China	Germany	Japan	USA
1995	602.21	1288.65	1210.67	2818.08	1032.97
1996	759.83	1095.74	1162.03	2783.56	1244.39
1997		1032.47	1414.49	2622.91	1226.17
1998	914.21		1506.56	1979.96	1717.45
1999	1053.90	871.54	1501.23	2100.43	1642.12
2000	1237.20	2672.65	1429.22	2589.34	1631.32
2001	983.62	1508.29	1167.69	1770.72	1630.01
2002	966.95	1373.72	1077.73	1585.82	2199.89
2003	1196.32	1534.09	1227.98	1849.21	3620.82
2004	1546.12	2135.20	1427.53	2315.13	3819.69
2005	1407.42	2173.91	1463.37	2510.20	4516.67
2006	1502.93	1779.84	1741.54	2752.12	5495.32
2007	1662.76	2188.77	2225.46	3351.67	7003.69
2008	1727.42	2759.26	2522.61	4746.32	8307.25
2009	1463.95	2866.47	2156.92	3662.02	7491.42
2010	1722.07	3855.08	2802.76	4230.53	9145.47
2011	2399.56	6039.45	4064.79	5723.22	10418.77
2012	3689.65	9444.42	4822.27	8466.35	12959.84
2013	3719.94	8221.21	4709.91	6723.70	13486.81
2014	3211.67	9023.61	4962.57	7184.46	16491.45
2015	3650.82	9396.83	5520.74	6543.34	17757.21

Note: unit (US\$)

Source: BACI

**III. TABLE III TRADE LIBERALIZATION OF VIETNAM SHOWN ON THE TARIFF CHANGES**

Unit: %

Sector	1994	2002	2007	2010
0	17.42	25.49	25.27	16.03
1	12.28	18.98	21.15	14.99
2	8.61	8.27	8.61	6.24
3	10.01	9.70	10.55	7.03
4	12.74	13.76	14.31	10.41
5	24.20	27.03	26.92	8.19
6	40.93	42.54	42.80	19.39
7	6.87	9.34	9.81	7.40
8	7.24	10.37	10.55	7.47
9	12.15	14.91	14.76	10.30

Source: WITS