The Effect of Non-Tariff Measures on Vietnam Exports

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ABSTRACT

Although tariff rates have gradually decreased over time, non-tariff measures (NTMs) have proliferated both in quantity and diversification. The complex and multifaceted trade policies have an effect on international trade, especially for developing countries' trade since NTMs are mostly operated by developed countries. Vietnam, like other developing countries, needs to comply with NTM requirements and understand their effects. This paper, firstly, reviews the liberalization process of Vietnam through both traditional trade policies and NTMs. It, secondly, assesses the pattern of NTMs held by various income countries to identify the challenges in the process of integration to the global economy of Vietnam under the conditions of increasing more NTMs. Last but not least, by using technical barriers to trade (TBT) data (which sourced from WTO for the period 1995 to 2012) of ASEAN members, it is found that if ASEAN members increase the measures, TBT will have a negative lag impact on Vietnam's exports.

Keywords: *NTMs, TBT, Tariff rates, Vietnam export..*

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Highlights of this paper

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- It, secondly, assesses the pattern of NTMs held by various income countries to identify the challenges in the process of integration to the global economy of Vietnam under the conditions of increasing more NTMs.
- Last but not least, by using technical barriers to trade (TBT) data (which sourced from WTO for the period 1995 to 2012) of ASEAN members, it is found that if ASEAN members increase the measures, TBT will have a negative lag impact on Vietnam's exports.

1. INTRODUCTION

A nation decides either to liberalize or defend its domestic industries in the process of incorporation into the global economy. If a government as North Korea or Cuba, by implementing strong protectionism, restraints international trade, it brings the economy closer to autarky. By contrast, a government like Singapore or Hong Kong (now part of the People's Republic of China) will liberalize their economies extremely well. The other countries are lying between two models of economic integration into the global market.

A nation may impose tariffs / quotas, or increase NTMs or both to protect the domestic industry. Although tariff rates are lower and lower in terms of levels, the proliferation in the quantity and diversification of NTM types has been more common in trade policies. The increase of NTMs in particular is mainly undertaken by high-income countries. The total amount of NTMs maintained by high and upper-middle-income countries accounts for 82% of 90927 measures in 2018.

Understanding the effects of measures on market access and competition not only allows traders comply with NTMs' requirements but necessarily raises and implements these trade policy instruments in the negotiation process. Particularly for the developing countries, they need to pay more if they export their products to high-income countries. Consequently, raising the prices will potentially erode their comparative capacity. UNCTAD reports that "Unfortunately, the impacts of non-tariff measures on international trade, or more generally on social welfare, are not always well understood. In fact, the analysis related to nontariff measures has not kept pace with their increasing complexity, resulting in a knowledge gap" (UNCTAD, 2018).

Until 2008 Vietnam was a country with low incomes. Since 2009 by now it has been a low-middle-income economy. In World Trade Organization (WTO) reported TBT data from 1995-2012, Vietnam's first 15 initiatives were maintained in 2010 and 53 in 2011. By 2018, Vietnam maintained 122 TBT. Apart from TBT, Vietnam also retained other NTMs, and the total number of NTMs was 603 measures (UNCTAD, 2018). With that number, Vietnam maintained less NTMs than other ASEAN members such as Thailand, the Philippines, Indonesia, etc., and very small compared to the high-income countries[1] (see section 3 for more details).

On the other hand, Vietnam has changed its trading partners from concentrating on trade with countries with low income to dealing more with countries with high income. As shown in Figure 1, the number of Vietnam's exporting partners being low and low-middle-income countries during the period 1999-2005 was higher than the number of partners being high-middle and high-income countries. The situation, however, has been reversed since 2006. Vietnam has traded more with high-income countries and less with low-income countries. For instance, in 2011 and 2015 Vietnam traded with high-and upper-middle-income partners and low-and lower-middle-income partners were 92 and 72, and 98 and 66, respectively. Under this situation (the proliferation of the various non-tariff

[1] In 2018, the U.S. maintained 11342 NTMs. It was higher 18.8 times than the amount of NTMs Vietnam maintained.

rules and the change in trade partners), Vietnam would find it difficult to compete with domestic products of partners in situations where Vietnam is not adequately prepared to understand the implications of these trade policy instruments as well as their effects.

Firstly, the current paper analyses Vietnam's liberalization mechanism focused on both tariff and non-tariff measures. Secondly, it assesses a pattern of different income countries increasing the NTMs in amounts and diversification. Finally, it examines the effects of TBT (a form of NTMs) that ASEAN members maintained on Vietnam's export to them from 2001 to 2011. Estimated results show that Vietnam's export to them is not affected in the current year during which ASEAN members retained TBT. TBT still do not affect Vietnam's export after one year. Nevertheless, the negative effect of TBT on exports to Vietnam is noticed after they were retained by ASEAN for two years.

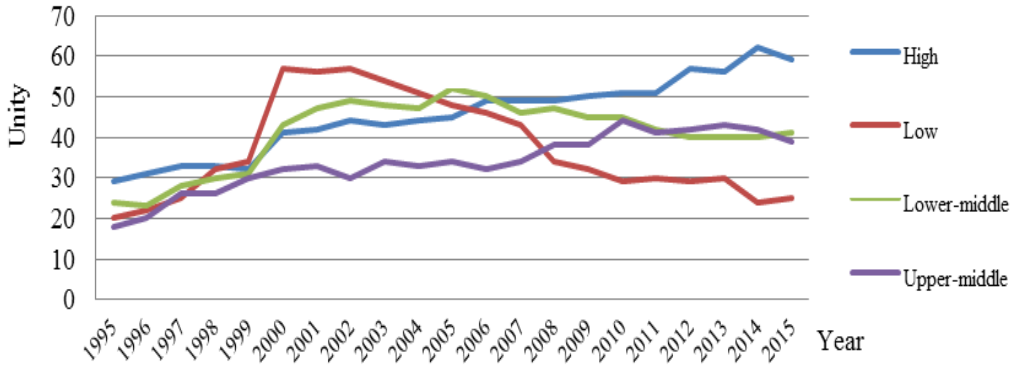

Figure-1. The proportion of Vietnam partners by income level during 1995-2015.

Source: World Bank.

The remaining parts of the current paper is as follows: section 2 is a briefly review of the change in tariff lines under MFN and preferential regimes; section 3 is a description of NTMs Vietnam maintaining and concerning; section 4 evaluates the effect of TBT raised by ASEAN members on Vietnam export; and the last section is conclusion.

2. THE TRADITIONAL TRADE POLICIES IN VIETNAM

Traditional trade policies such as tariffs and quotas no longer impact significantly on limiting market access in the integration process. The level of tariff rates, in general, is small because more countries have liberalized and deeply integrated their economies. Joining the WTO is a way of liberalizing the economies that many nations select. Members of the WTO receive and provide non-discriminatory treatment from and to members. The system is called Most-Favoured-Nation (MFN) scheme. The other policy, which lowers the tariff rates significantly and has proliferated since 1990, is preferential treatment. Preferential trade agreements (PTAs) are the trade deals between two or more countries, but limited in the number of members. There are some requirements for classifying PTAs such as membership numbers, degree of integration, etc. For example, PTAs can be divided into the deep and shallow PTAs based on integration level. PTA members can benefit more from market access for members than non-members do. However, tariffs are still a weapon for creating a trade war where importers increase tariff rates to delay the export flow from one source or from some sources. An indication of this is the US-China trade war beginning on 22 March 2018.

Since 1986, Vietnam has been restructuring the economy. Vietnam transited into the "socialist-oriented market economy" under the "Doi moi" scheme. Vietnam has achieved huge success in the development of society and

economy thanks to the right policy. Annual GDP growth achieves 7.3 per cent. In the period 1995-2018, GDP per capita grew from US$ 276 to 2566. Vietnam has developed from a low-income country since 2009 into a low-middle-income economy. Between 1985 and 2018, the index of openness increased from 10 percent to 208 percent. Vietnam has become an attractive destination for direct foreign investment (FDI). Impressively, in 2017 Vietnam gained the total reported capital of 26,890.5, up from 1,284.4 in 1991 (UD$ million).

Implementation of effective trade policies is one of the factors leading to that progress. The liberalization and integration of Vietnam into the world market has been promoted. The extraordinary moment when Vietnam became a member of the ASEAN was 1995. Vietnam, like other ASEAN members, has earned and provided advantages from and to members for trade and other economic conditions. Vietnam then signed the free trade agreements (FTAs) with major countries in the region, such as China, Korea, Japan, India, Australia, and New Zealand, along with other ASEAN nations, etc.

We cannot help but note, in the development process, the period when Vietnam became the 150th WTO member in 2007. This event created a new chapter for an opening up of the Vietnam economy. I review changes to tariff rates under MFN system during 1994-2015.

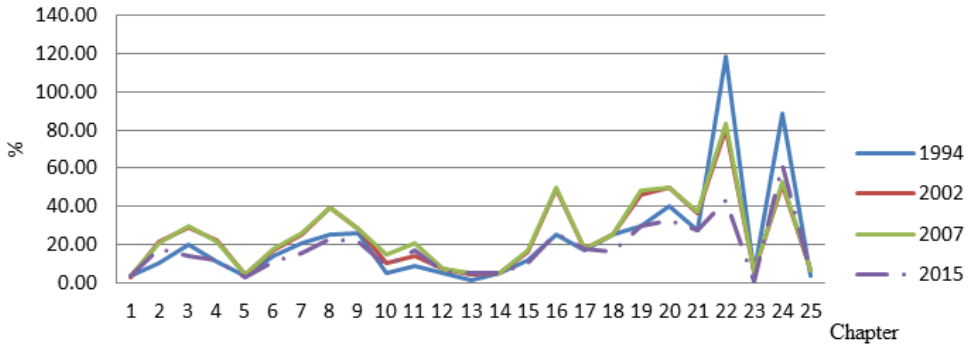

Figure-2. The change of tariff rates of Chapters 1-25 during 1994-2015.

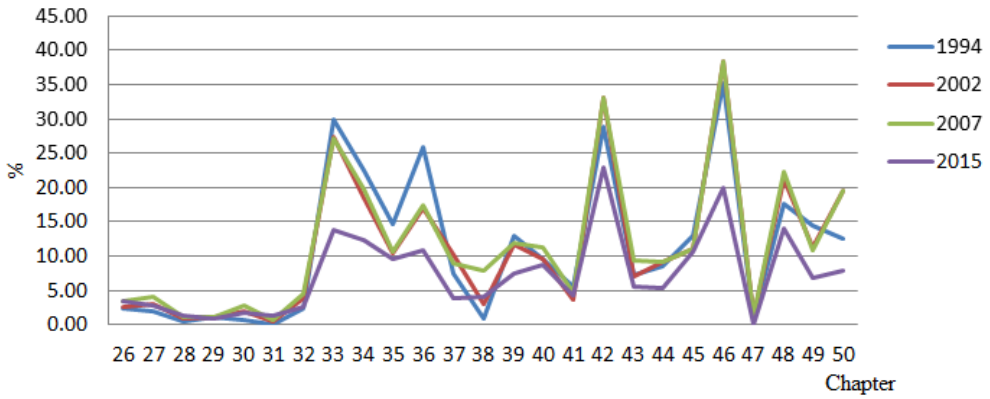

Figure-3. The change of tariff rates of Chapters 26-50 during 1994-2015.

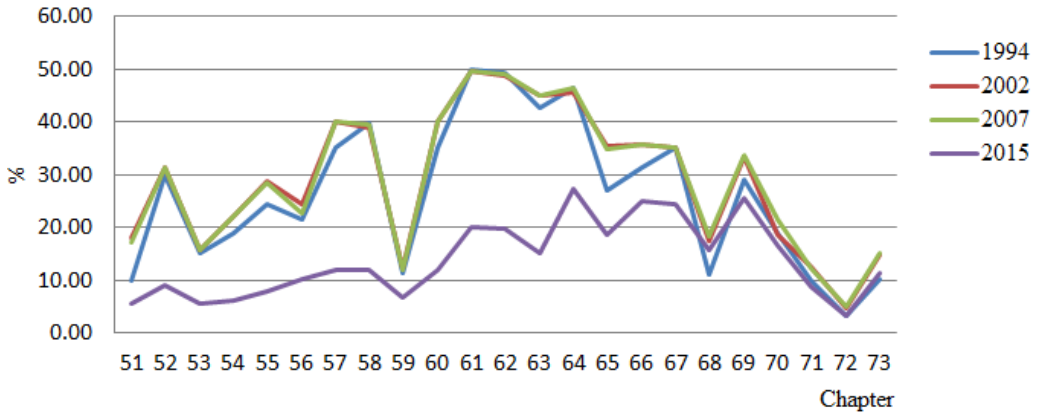

Figure-4. The change of tariff rates of Chapters 51-73 during 1994-2015.

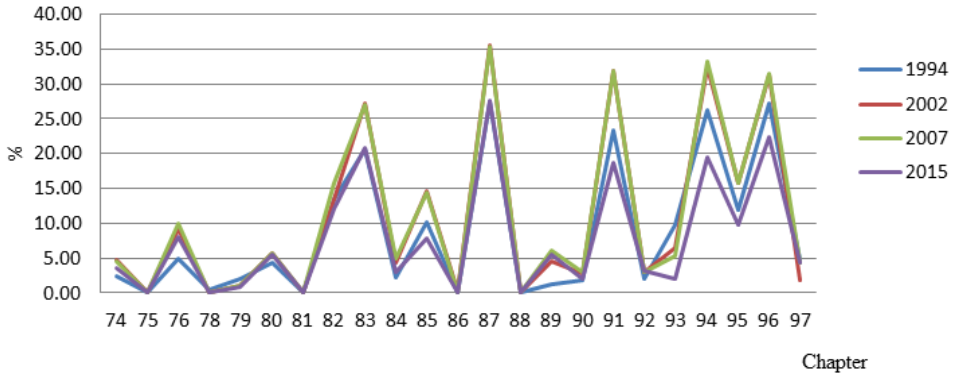

Figure-5. The change of tariff rates of Chapters 74-97 during 1994-2015.

The changes are shown in Figures 2-5. For some reasons we chose four years 1994, 2002, 2007 and 2015. Firstly, 1994 was the year before the accession of Vietnam to ASEAN. Even though the preferential system is completely different from the MFN scheme, it could have an indirect effect on all partners ' tariff concessions. Second, 2002 was the year Vietnam joined ASEAN for a number of years, and before Vietnam joined WTO. New members in PTAs typically lately impose the new tariff rates on other members, about three or five years. 2002 was a fair time to assess any initial impact of joining ASEAN on reducing tariffs. 2007 was the year Vietnam joined the WTO and 2015 was the year Vietnam joined other FTAs, including Japan-ASEAN, India-ASEAN and WTO. To analyze changes in tariffs in the liberalization process, we graph all chapters in the HS classification (from chapter 1 through 97).

Figures 1-4, respectively, reflect adjustments in tariff rates for Chapters 1-25, 26-50, 51-70, and 71-97. The tariff rates for each chapter are determined by summing up the tariff rates of all goods at the level of 6-digit divided by the total number of products in that Chapter. Between 2002 and 2007, the tariff rates were the same in levels. One interesting point is that the Vietnam tariff rates imposed in 1994 were similar to or lower than the Vietnam tariff levels levied through the chapters in 2002 and 2007. Nevertheless, the tariff rates were considerably lower compared with 2007 to 2015. Chapters 48-67 in particular, the difference between two years in tariff rates is very high. The tariff rates have decreased significantly since joining WTO. This is one of the major determinants helping to increase the value of imports during this period.

Tariff rates are not only reduced in the MFN definition, but are also enormously reduced in the principle of preferences. Here, we can only compare the tariff rates levied on ASEAN members during 1994-2015 between the MFN and PTA concepts. That is given in Figures 6 and 7.

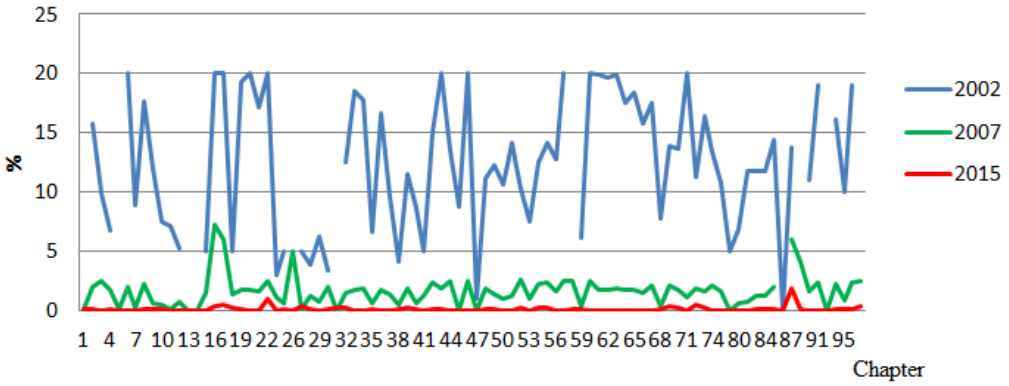

Figure-6. The change of tariff rates of Chapters 1-97 during 2002-2015 under Preferential regime for ASEAN.

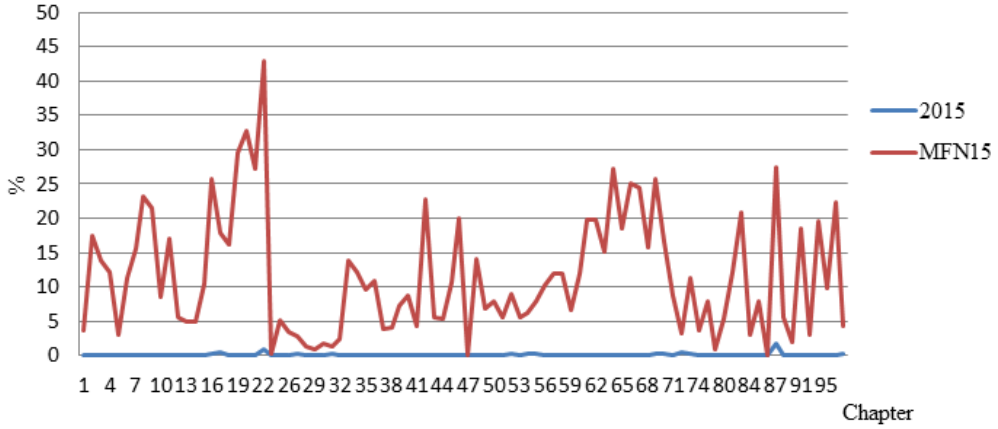

Figure-7. The change of tariff rates of Chapters 1-97 in 2015 between MFN and PTA regimes for ASEAN.

In Figure 6, we compare the level of preferential tariffs provided to ASEAN members by Vietnam in 2002, 2007 and 2015. The reduction of Vietnam's tariff rates imposed on ASEAN members after 5 years was very growing. In 2002, tariff rates for most chapters exceeded 5%, and tariff rates for some chapters exceeded 20%, but tariff rates for few chapters exceeded 5% in 2007 (as chapters 16, 26, and 87). Tariff barriers between Vietnam and ASEAN members seem likely to be eliminated in 2015, as none of them reached 5% and many of them were 0 percent (45 chapters). The different treatments related to tariff enforcement between PTA and WTO members can be easily compared via Figure 6. Although Vietnam's tariff rates imposed on the ASEAN members were very low (none were higher than 5%), the tariff rates imposed on WTO members were still quite high. Most of them were higher than 5%, many were higher than 10%, and the tariff rate for Chapter 22 was 42%[2].

The disparity between the two regimes in tariff rates is not insignificant. Taking these benefits will drive the growth of exports and increase the surplus for consumers. However, members need to comply with the rules of origin (RoOs) to obtain the discriminant treatment. RoOs guarantee that only eligible goods (originating from members) receive tariff exemptions or other incentives, or both, and that trade deflection is prevented. Trade deflection happens when a commodity produced in a third country (non-members in agreements) is exported indirectly to members to avoid customs duties. In cases where goods are produced entirely in a country, it is easy to receive a RoOs certificate, but more complicated in cases where goods are encountered some stages in several

[2]The tariff rates in all chapters (2-digit level) is the simple average tariff rates of all 6-digit products. The average tariff rate is calculated as totaling tariff rates for all products in each chapter divided by the number of products in that chapter.

countries before completion (substantial transformation). Three main factors are the sum of value-added, the adjustment in tariff lines and different manufacturing processes to locate the product origin.

A unit of value-added is the sum of a unit of profit, a unit of labor cost, and a unit of depreciation cost. A commodity shall be certificated from a country if at least a percentage of its value-added is equal to a specified percent. Two methods will evaluate the value-added contributed by a member. Firstly, it applies to goods by deciding the required amount of profits, labour costs and depreciation costs. Secondly, the manufactured products only are allowed to use the maximum percentage of the imported inputs. The condition for modifying the tariff classifications specifies that producers in members who use imported non-originating inputs to produce a final product must change the tariff classifications (the Harmonized Commodity Definition and Coding System, HS) to ensure the origin of the products. And the criteria for the particular manufacturing process consists of two tests, positive and negative tests, where the former are specifically applied for each product or product category of origin identified and the latter do not specify the origins for those. RoOs serves as a shield to protect the rights of members. RoOs, however, is also regarded as trade policy tools to curtail international trade. Limiting materials used to manufacture clothes exported to the EU, for example, is preventing Cambodia from using preferential schemes to export its goods to the EU. RoOs differ across preferential trade deals and in many countries often create custom service costs. Many producers do not apply the preferential schemes in shipment, because it is difficult to get RoOs, and cost of RoOs[3] might sometime be over benefits that producers get (Hayakawa, Hiratsuka, Shiino, & Sukegawa, 2009).

3. CHALLENGES FOR VIETNAM'S EXPORTS FROM NON-TARIFF POLICIES

While traditional trade policies have no significant impact on the trade in goods and services, NTMs are becoming more common. Their effects not only restrict trade as traditional trade policies but also enhance product quality, consumer safety, environmental protection, and etc. UNCTACD defines the NTMs as follows: "NTMs are policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both" (UNCTAD, 2018). From the definition, NTMs are any trade policy that has an economic effect, other than ordinary customs tariffs. The effect on the economy can be positive or negative. On the one hand, NTMs limit the exchange of goods because more costs are incurred for the producers. On the other hand, they urge producers to improve the quality of their products to meet the importing countries' requirements. Higher quality is a crucial factor to compete in the global market.

NTMs are of very different styles and do not belong to a particular document. The classification of NTMs, as in UNCTAD's report in 2018, can be categorized technical measures, non-technical measures and export measures. The technical measures include three measures: sanitary and phytosanitary (SPS), technical barriers to trade (TBT), and pre-shipment inspection and other formalities. The non-technical measures comprise contingent trade-protective measures, non-automatic licensing, quotas, prohibitions and quantity-control measures other than for SPS or TBT reasons; price-control measures (including additional taxes and charges), finance measures, measures affecting competition, trade-related investment measures, distribution restrictions, restrictions on post-sales services, subsidies, government procurement restrictions, intellectual property, and rules of origin. And export measures include export-related measures. Collecting data of NTMs is very difficult and expensive, since these regulations spread over multiple documents, laws, etc. UNCTAD tracks the NTMs in eight forms of measures

[3]More information about RoOs is provided in Cadot, Estevadeordal, Suwa-Eisenmann, and Verdier (2006) and Cadot, Melo, and Portugal-Pérez (2007); Chauffour and Maur (2011).

including contingent trade protections (CTPM), export-related measures (EXM), pre-shipment inspection (INSP), price control measures (PC), quantity control measure (QC), sanitary and phytosanitary (SPS), technical barriers to trade (TBT), and other measures. This data is country-level data. UNCTAD reports the countries implement the NTMs and the countries concerned for each form of NTM. The effect of NTMs on bilateral or all members might be in force. For example, Argentina maintained 311 TBT on all members in force, and 8 TBTs on bilateral partners in force in 2018. Two basic methods that can be used to determine the impact of NTMs are: the frequency index and the coverage ratio. The frequency index measures the presence or absence of an NTM and reports the percentage of items being affected by one or more NTMs. While the index of coverage ratio measures the ratio of trade subject to NTMs to total imports in a country. To get an overview of the NTMs used by countries with different rates of income, I use the former index to measure the proportion of NTMs maintained. I summarize all types of enforced NTMs for each country. The result is the number of imposed NTMs of each form by a country. Then, I merge with the nation income classification. The results are provided in Table 1.

Table-1. The NTMs maintained by different income countries in 2018.

Country_Classification	CTPM	EXM	INSP	PC	QC	SPS	TBT	others	Total
L	1	1913	33	87	59	507	745	33	3378
LM	72	7280	194	241	253	2478	2902	69	13489
UM	387	14473	355	187	424	7171	5011	62	28070
H	12	23962	405	464	378	11287	9431	51	45990
total	472	47628	987	979	1114	21443	18089	215	90927

Notes: L, LM, UM H represent the low, lower-middle, upper-middle, and high-income countries

The total number of NTMs recorded by UNCTAD in 2018 was 90927, where EXM, SPS, and TBT dominate. They accounted for 96% of NTMs maintained, and the proportion of EXM, SPS, and TBT was 52%, 24%, 20%, respectively. If categorizing the NTMs based on income countries, the high-income countries imposed about 51%, the upper-middle imposed 31%, lower-middle did 15%, and the low-income countries did only 4%. If gathering both high and upper-middle countries' NTM maintained, they accounted for 82%. Overall, the most common NTMs recently maintained are EXM, SPS, and TBT; the higher income countries achieve the more NTMs are maintained.

As already mentioned, the effects of NTMs may involve both positive and negative effects on trade. The negative effect actually results in restriction of trade from developing countries because the production process and the certification bodies are not always sufficient for those countries. In addition, NTMs cost lower-income countries more to meet their requirements. The impacts of SPS and TBT in terms of labor costs and preferential access will erode the competitive advantage of developing countries. Understanding the impact and developments in the use of these steps for developing countries is important. In 2018, ASEAN countries represented 12% of total NTMs. Also, they raised more EXM, SPS and TBT than other NTM types. These three forms accounted for 95% of NTMs. Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam were four countries that raise the lowest number of NTMs. Just 16% of NTMs were held by four nations. The total number of NTMs maintained by four countries was less than 1.64 times that held by Thailand. In particular, only Thailand raised CTPM, and the total number was also very low, 6 CTPMs were maintained in 2018. Vietnam maintained 603 NTMs, which amount was higher than Cambodia, the Democratic People's Republic, and Myanmar retained, but less than 5 times the number of NTMs that Thailand did. Three types of NTMs which are EXM, SPS, and TBT also accounted for 95% of NTMs Vietnam raised. More detail about the NTMs maintained by ASEAN members in 2018 see Table 2.

Table-2. The NTMs maintained by ASEAN members in 2018.

ASEAN members	CTPM	EXM	INSP	PC	QC	SPS	TBT	others	Total
Brunei Darussalam		516	1	18	2	161	288		986
Cambodia		243	1	12	3	36	121		416
Indonesia		586	52	5	8	125	318	4	1098
Lao People's Democratic Republic		291	14	48	26	38	82	1	500
Malaysia		689	5	12	9	260	331		1306
Myanmar		172	2	13	5	75	41	1	309
Philippines		854	24	23	56	233	360	12	1562
Singapore		514	2	35	1	127	300		979
Thailand	6	1566	44	21	40	762	562	3	3004
Viet Nam		330	5	7	7	121	122	11	603
Total	6	5761	150	194	157	1938	2525	32	10763

While tariff barriers have shrunk in both MFN and preferential regimes, in trade policies, Vietnam has maintained more NTMs. NTMs totaled 262 in 2016, which increased to 603 in 2018 and 773 in 2019. Nevertheless, as opposed to high-income countries, the amount of NTMs generated in Vietnam is very small.

Condition for changing trading partners and changing trade policies for countries, Vietnam may face more challenges in international trade. Knowing the impact and pattern of trading partners raising NTMs will enable Vietnam to resolve challenges and exploit opportunities for improving goods quality.

4. VIETNAM EXPORT EFFECT OF TBT MAINTAINED BY ASEAN COUNTRIES

4.1. Literature Review

Vietnam and other ASEAN countries have been providing and benefitting from the FTAs they joined. Tariff cuts are one of the biggest benefits that members receive (many goods are 0% imposed). As shown in Fig.6, the gap between two regimes in degree of tariff levels is very significant. And, if members can take advantage of it, they can further accelerate their trade. Like many other nations, ASEAN members are raising the NTMs as well. The number of NTMs maintained by ASEAN members is also growing further. For example, the number of NTMs maintained by Thailand and the Philippines in 2016 was 550 and 106 respectively, but that was 3004 and 1562 respectively in 2018. ASEAN is one of the largest Vietnamese markets. The volume of exports to ASEAN is only less than that of exports to the US and China. In 2017, for example, the export value to the United States, China, and ASEAN was 41530.8, 35394.3, and 21680.2 (US$ million), respectively. In that year, the export value to ASEAN represented 10.17%.

Besides tariffs, NTMs potentially restrict trade among members of ASEAN. In this section, I only examine the effect of TBT on Vietnam export that is maintained by ASEAN members. Because TBT is quite new but becomes one of the more important measures. Its effect is multifaceted and complex. In cases of proper setting, this measure may facilitate trade but limit trade in cases of setting very high standards.

Bao and Qiu (2012) estimate the economic impact of TBT on 105 countries during 1995-2008. They find that the probability of exported goods decreases while the volume of exports increases if TBT notifications grow. They use the interaction term between countries ' level of development and TBT in the gravity model to investigate the difference in TBT's trade impact notified by developing and developed countries. The estimated results show that while the TBT of developing countries only has a significant effect on the export of developing countries, the TBT of developed countries has a significant impact on both the export of developing and developed countries. Finding the same impact of TBT on the export of developing countries is also substantial and more important than the developed countries, Disdier, Fontagn´e, and Mimouni (2008) distinguish the trade effect of TBT between the export of developing countries to the OECD and among OECD members by using the gravity model and section

data. They also examine the impact of TBT on the flow of imports to the other OECD and Euro, where the former are less negatively influenced by SPS and TBTs than the latter. Bao (2014) also estimates the impact of TBT on China's imports, where China raises the measure. Using data from 1998-2006, he finds that the one TBT lag decreases the probability of China's importation with potential exporters but raises the value of current partners' imports. The effects of NTMs in the PTA condition is analyzed by Puig and Dalke (2016). Canada has joined eleven PTAs where North American Free Trade Agreement (NAFTA) between Canada, Mexico, and the United States which was replaced by the United States-Mexico-Canada Agreement (USMCA) in 2017 was signed before the establishment of WTO. They find that in practice, SPS and TBT provisions in Canada's PTAs are still in development. Only half of Canada's PTAs contain the SPS and TBT provisions and these regulations are related to the cooperation of institutions and information exchange arrangements but weaken in harmonization and enforcement. Other than those studies in methods doing the research, Bratt (2017) estimate the bilateral trade effect of NTMs for 81 countries. The author deals with the heteroskedasticity and zero trade flows by using the Poisson pseudo-maximum likelihood method. He finds that the effect of NTMs on bilateral trade has different, and even opposite across countries, but the higher income the more capacity exporting countries address NTMs. To analyze more the effect of NTMs on trade, Timini and Conesa (2018) investigate separately the effect of technical barriers and non-technical barriers. They focus on Chinese exports only. Interestingly, they find technical measures have positive effects while non-technical measures do not have clears on Chinese exports. Ghodsi, Jokubauskaite, and Stehrer (2015) estimate the effect of TBT and SPS on the improvement of product quality. They use the gravity model and eleven variables proxing for product quality. They include trade values, quantities, unit values, quality, quality adjusted prices, and quality adjusted quantities. TBT has a positive effect on most of variables measuring product quality. The results suggest that TBT can potentially restrict low-quality products imported to the importing countries[4]. Those studies mostly estimate the effect of TBT in the current year, some estimate in the lag of one year. However, the effect of TBT might be lately. This paper investigates not only the effect of TBT in the current but also after some lags of years they maintained. I use the case of Vietnam exporting to ASEAN members for the purposes.

4.2. Data

Trade data collected from BACI data at 6-digit level, covering over 200 countries from 1995 to 2016. The benefits of this data are its feature-level (more than 5,000 product codes), its geographic scope, and its unit values compared to other similar databases.

TBT data is sourced from WTO for the period 1995 to 2012. The information contained in this data includes maintaining countries, HS code, countries concerned, years in which TBT are raised, and other information. During this period Thailand, Indonesia, Malaysia, Philippines, and Vietnam maintained the TBT measure, where Philippines only maintained TBT with 10 product categories in 2006. Vietnam is the exporter, then we suppose its export is not affected by Vietnam's TBT. To determine the TBT impact on Vietnam's export maitained by ASEAN members, we select Thailand, Indonesia, and Malaysia as the destinations to which Vietnam's products are exported. And as shown in Table 3 ASEAN members have retained TBT since 2001, so the study is also started in 2001 and ended in 2011.

[4]More details about the studies relating to the empirical work find in Ronen (2017) and Reprt of UNCTAD (2018)

Table-3. TBT are maintained by ASEAN members from 2011 to 2011.

No of TBT	Year	Country maintaining
15	2001	Indonesia
4	2005	Indonesia
27	2008	Indonesia
220	2009	Indonesia
343	2010	Indonesia
2	2011	Indonesia
19	2005	Malaysia
32	2009	Malaysia
14	2011	Malaysia
10	2006	Philippines
3	1997	Thailand
2	2001	Thailand
6	2007	Thailand
1	2009	Thailand
17	2010	Thailand
15	2010	Viet Nam
53	2011	Viet Nam

Note: HS code includes both products recorded in 4- and 6-digit level, where there are 197 products recorded in 4 and 585 in 6-digit level.
Source: WTO.

Tariff data is extracted from WITS which records 6-digit tariff rates at both MFN and preferential-scheme levels. In our case Vietnam is the exporter and importers are other ASEAN members. I therefore construct the tariff data for the importers Thailand, Indonesia and Malaysia. Members of Vietnam and ASEAN can select one of the regimes (MFNs and preferences) in exchange for goods. The lower tariff rates are more accurate at which exporters use to compete with the domestic products. Industries need to prove the RoOs, though, to extend the preferential services that take the expense of more industries.

Second, it's hard to know which regimes companies request for their export products (Thailand is a rare country that tracks which regimes used in trade goods). Last but not least, although Indonesia's preferential tariff lines are very adequate in the period, the Thai preferential tariff lines are omitted for seven years. Therefore, I decide to use the MFN scheme to construct the tariff lines for all products. Thailand, Indonesia, Malaysia, and Vietnam source GDPs from World Bank.

4.3. Model

The TBT is a form of technological barriers to trade which importers are increasingly using to protect consumers, the environment. It's also creating trade distortion, though. ASEAN is one of the main markets that imports goods from Vietnam. Under the discriminant treatment, ASEAN members can trade by very low tariff rates for most products. The ASEAN members also implement the NTMs to ensure consumer safety and protect the environment. Here we examine the effect of the TBT raised by ASEAN member on Vietnam trade instead other NTMs. The model is as follow Equation 1:

$$\ln m_{sit} = \beta_0 + \beta_1 \ln(1+tar_{sit}) + \beta_2 TBT_{sit} + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GDP_{vnt} + fe_i + fe_t + \varepsilon_{sit} \quad (1)$$

Where $\ln m_{sit}$ is the natural logarithm of value of product s Vietnam exports to i at time t (i are ASEAN countries). tar_{sit} is the tariff rate of product s Vietnam exports to i at time t imposed by country i under the MFN regime. TBT_{sit} is the dummy variable taking unity if product s is imposed the TBT at time t by country i,

and zero otherwise. GDP_{it} and GDP_{vnt} are GDP of importer i and Vietnam at time t. fe_i, fe_t, and ε_{sit} are the importer-fixed effect, year-fixed effect, and error term, respectively. fe_i accounts for the time-invariant variables in the exporter, such as the distance between country i and Vietnam, or religious; fe_t accounts for the macroeconomic shocks. The effect of the TBT on trade, however, can lag several years after they are raised. Hence, we add the lag of TBT to the model 1 instead of the current year, then we have model 2 as follow:

$$\ln m_{sit} = \beta_0 + \beta_1 \ln(1+tar_{sit}) + \beta_2 TBT_{sit-j} + \alpha_1 \ln GDP_{it} + \alpha_2 \ln GDP_{vnt} + fe_i + fe_t + \varepsilon_{sit} \text{ where } j=1;2 \quad (2)$$

where all other notations are the same as in the Equation 1. The interesting variable in Equation 2 is the lags of the TBT, where j takes the value of one and two (i.e. we investigate the effect of the TBT on Vietnam export after a year and two years they are raised).

4.4. Estimate Results

Table 4 presents the impact of current and lags TBT posed by ASEAN members on Vietnam's export. The column (1) is for the present TBT effect, column (2) is for the TBT effect one year lag and column (3) is for the TBT effect two years lag.

The capacity of the producer is proxied by Vietnam GDP, and the expenditure of consumers is proxied by the GDP of the importer. Tariff rates are proxy for conventional cost of trade. The ability of the exporter has a significantly positive effect on its production. If its GDP increases by 1%, exports will grow by 0.45% (0.58%, and 0.57%, respectively, in cases of TBT delay of one year and two years). Although in all cases the GDP of the importer is positive but insignificant. The tariffs affect Vietnam's export to ASEAN members significantly. If tariff rates increase, the rate of growth of exports decreases. The outputs are held all scenarios.

Table-4. The effect of current and lag TBT on Vietnam export to ASEAN members.

Variables	(1) lnexport	(2) lnexport	(3)lnexport
$\ln(1+tar_{sit})$	-0.806***	-1.275***	-1.366***
	(0.129)	(0.170)	(0.188)
TBT_{sit}	0.0128		
	(0.110)		
TBT_{sit-1}		-0.228	
		(0.143)	
TBT_{sit-2}			-0.370***
			(0.139)
$\ln GDP_{vnt}$	0.449***	0.580**	0.573*
	(0.161)	(0.243)	(0.304)
$\ln GDP_{it}$	0.262	0.0609	0.137
	(0.171)	(0.271)	(0.364)
Constant	-1.159***	0.360	0.239
	(0.415)	(0.709)	(0.939)
Observations	33,776	19,542	16,039
R-squared	0.019	0.015	0.021

Note: Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

More interesting is the TBT's impact on exporting Vietnam to members of ASEAN. In the first scenario, the current year raises TBT, we find no evidence to indicate the negative effect of the TBT on Vietnam export (the approximate result is insignificantly statistical but the positive sign).

In the second scenario, the TBT's one-year lag, the TBT coefficient now turns to negative sign but remains insignificantly statistical. In the third scenario, the lag of two years of TBT, the TBT's impact on Vietnam's export is significantly negative. After two years of maintaining the TBT, imports from Vietnam by ASEAN members are reduced by 3.7%. Instead of incurring the traditional costs of trade, the importers lift the other NTMs (our case is the TBT), the exporter have to follow the legislation or requirements. To meet the requirements of the importers, it must pay more costs which erode the benefits of the exporters.

TBT presented by members of ASEAN have no immediate effect. It takes time to affect and the time this non-tariff policy starts to reduce Vietnam exports to ASEAN countries is two years.

5. CONCLUSION

When countries integrate into the global market, the conventional trade barriers are gradually reduced. Vietnam also pursues the process of liberalizing its economy. In addition to joining the WTO in receiving and providing non-discriminatory treatment, Vietnam has joined bilateral FTAs and along with ASEAN signed other multilateral FTAs. Most tariff lines dropped the point under the MFN scheme since entering WTO. Tariff rates for some chapters dropped significantly. The tariff rates that Vietnam provides to FTA members are especially low. Many of the tariff rates in chapters are zero percent. And the tariff rates for certain chapters in the preferential system are lower than those in the MFN scheme.

Parallel to the tariffs, importers are now relying more on the NTMs to directly and indirectly interfere with trade flows, especially the higher income classes. The countries with higher incomes levy more than 80 percent NTMs on all countries that imposed in 2018. Understanding how its impact on trade and how such steps are to be met is an important issue for achieving sustainable growth in exports.

Vietnam and ASEAN countries also arise the NTMs for consumers' safety, protection environment, etc. However, the amount of NTMs they use is very small. Comparing with other ASEAN countries, Vietnam also impose the measures less. ASEAN members maintain the TBT, Vietnam exports to them do not affect immediately, but after two years Vietnam exports to them reduces 3.7%.

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