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The Effects of ASEAN Expansion on ASEAN's Exports to Vietnam

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Abstract *- The free trade agreement (FTA) among ASEAN has been implemented since 1967. Up to now, ten countries have been ASEAN members. Besides owning one FTA among them, ASEAN has also strengthened their trade relation with other countries to promote trade and economic growth. ASEAN signed FTAs with six big countries, called ASEAN plus 6, from 2004 to 2010. The more expanding their FTA trade relation is, the more concentrating they export to Vietnam. However, not all countries increase its export to Vietnam, corresponding with each time ASEAN expansion. The fact is that the more ASEAN countries invest in Vietnam, the more they export to Vietnam and concentrate on some types of commodities. The export of ASEAN countries which invest less in Vietnam has been hardly impacted by ASEAN expansion.*

Keywords *- FTA, ASEAN expansion, Extensive and intensive margins.*

1. Introduction

Vietnam has a large population but a small area in the world. In 2017, Vietnam's population reached about 95 million, ranked the world's thirteenth largest country (World Bank). Vietnam transitioned from the command economic system to a market-oriented economy in 1986. With this right-shift trend, Vietnam has reaped success in many areas. Vietnam owned an annual impressive economic growth of 7.3%, and GDP per capita increased fivefold during 1990-2010 (Naraya and Nguyen, 2016), especially the openness increased from 20% to 170% from 1985 to 2015. Vietnam attracted foreign direct investments (FDI) worldwide with a total registered capital of 26,890.5 in 2017, increasing from 1,284.4 in 1991 ($ million).

One of the key turning points of how Vietnam did get impressive economic growth is that Vietnam pursued liberalization and integration, which was remarked on by the lifting of the U.S. trade embargo in 1994. In the following years, Vietnam promoted liberalization. The first FTA Vietnam joined was ASEAN in 1995. After that, along with ASEAN, Vietnam formed some FTAs with large partners such as China in 2004, South Korea (2006), Japan (2009), India (2010), Australia and New Zealand (2010). Vietnam also formed bilateral FTAs with Japan (2008) and Chile (2012). Moreover, in 2007, Vietnam became the 150th member of the WTO.

Vietnam joined ASEAN as the second expansion of ASEAN (after Brunei in 1984). The analysis of the effects of economic integration agreements (EIAs) expansion is known as answering the "dynamic-time path" question, which was introduced by Bhagwati (1993). To deal with the "dynamic-time path" question, the literature conducts two ways: whether or not the existing EIAs intend to expand or whether the EIAs are building blocks or stumbling ones. Adam et al. (2003) summarized how researchers have dealt with this question. Most analysts use the latter way to evaluate the effects of the expansion of the EIAs by comparing the net trade effect (the magnitude of trade creation minus one of trade diversion). If it is positive, the expansion of EIAs has a building block effect.

Moreover, if it is negative, it has a stumbling block effect. Two or three dummy variables are set up to capture the trade creation and trade diversion. Three dummy variables are included in the works to distinguish the exporting diversion and importing diversion. For example, Frankel (1997) adds two dummy variables to distinguish the effects of the formations of the EIAs on members and the third party's trade. Gilbert et al. (2001) use two dummy variables, regional trade agreements (RTAs) and OPEN, to separate the effects of the trade creation and trade diversion for each RTA (seven RTAs are included). Soloaga and Winters (2001) separate the effects of RTAs on intra-trade members, the import diversion, and the export diversion for nine RTAs by adding three dummy variables. Adam et al. (2003) also use three variables to capture the trade creation and importing and exporting trade diversion. However, they use the Member Liberalization Index to estimate the dynamic and antimonde EIA effects for 20 RTAs.

On the other hand, Carrère (2006) added 3 dummy variables, as Soloaga and Winters (2001) but using data for

130 countries during 1962-1996 and seven RTAs. Dai et al. (2014) also use three dummy ones like the above authors, but their study is carried out in a four-year interval from 1990-2002, and they add the internal trade in the gravity equation. Other authors also investigate the effect of trade agreements using the same specification as Eichengreen and Irwin (1995), Gugliemo et al. (2009), Nguyen (2017), Saggi et al. (2018), Nguyen and Duong (2019), Nguyen and Chen (2019), Nguyen and Phan (2020), Nguyen (2022), etc. Finding the effects of the trade creation and trade diversion from signing EIAs as a signal motivates non-members to join the EIAs, and expand their EIA relations to have the power to access more foreign markets. Those authors call this situation "domino EIA" effects.

However, investigating the dynamic effects of RTA expansion as conducted the former way is rare. Sapir (2001) uses sixteen EU countries' trade data from 1960 to 1992 to evaluate the effects of four times EU expansion on both new and old members' trade flows. He uses the gravity model for cross-section data (annual during that period) and finds that the trade diversion affects the countries that are not members of the European Community (EC) and the reduction of intra-EFTA trade corresponding with four times the EC expansions. The literature also suggests that the effects of EIAs on trade volumes and trade margins might differ for each EIA or each pattern of expansion. Adam et al. (2003) suggest that "Different patterns of expansion or amalgamation might have different implications" (p.57). Limão (2016) also recommends the different effects of specific trade agreements. He suggests, "To understand the economic mechanism and role of specific policy changes in PTAs, it is useful to consider specific agreements" (p.34). The same idea is also represented in Magee (2008): "The impacts on each country's trade flow differ greatly even within a common regional agreement" (p.350).

Embedding with Sapir (2001), I estimate the effect of ASEAN expansion on its exports to its members (in this case, only Vietnam is an importer). Vietnam became one of the ASEAN members in 1995 (ASEAN was founded in 1967). After 2000, ASEAN extended its trade relation by forming five other FTAs with China, Korea, Japan, India, Australia, and New Zealand. While ASEAN consists of only small countries, its FTA partners are six large countries (those six countries above), this scenario raises two questions: How do ASEAN countries trade with other members after each time it enlarges? How do their trade margins change corresponding with each of its enlargements? I chose Vietnam as the destination to find the answers because Vietnam is known as a country successful in trade liberalization in the area and attracts FDI more from ASEAN than the late members of ASEAN. In addition, Vietnam's FDI inflows are more stable than all other ASEAN countries.

To investigate how ASEAN expansion impacts ASEAN export behavior to Vietnam, I use 6-digit level data of 104 countries that exported to Vietnam during 1990-2015 combined with the gravity model. On the one hand, signing FTA creates trade flow between Vietnam and its FTA partners. The intensive margin drives their export growth. On the other hand, all the sub-period ASEAN's export value increase significantly where the intensive margin is positively significant also, surprisingly, the extensive margin is negatively significant. Especially, the more ASEAN expands, the larger the trade volume and trade margins ASEAN members export to Vietnam (except the period from 2008-2010 when the global financial crisis occurred, the effects of ASEAN expansion are still significant and the same signs as other periods but the sizes of effect are reduced). Those outcomes are robusted in the count method. From these results, it is finding strong shreds of evidence for specialization in "export behaviors" from ASEAN members to Vietnam when they extend their FTA-trade markets together.

The remains of this paper are as follows: part 2 is data and variables; Part 3 is an empirical method and estimation results; Part 4 is the robustness check; and the last is the conclusion.

2. Data and Variables

2.1. Data

Trade data in the HS6-digit level of 104 countries exporting to Vietnam during 1990-2015 are downloaded from Comtrade data. It is merged into Standard International Trade Classification (SITC3) to have the sector data level, and each country has a maximum of eight observations. Vietnam's FTAs, her partners, and the year FTAs have been in force, and the years ASEAN's expansion were taken from the Vietnam Chamber of Commerce and Industry (VCCI) (more details are provided in Table 1).

The level of integration varies across sectors, such as some exclude or cooperate less in the agricultural sector. Baier and Bergstrand (2004) suggest that tariff rates and transport costs can differ across sectors, and the effects of FTAs on trade volume and margins might be different across sectors.

2.2. Variables

To evaluate the effects of ASEAN expansion on ASEAN export decisions to Vietnam, I use the gravity model and trade data, which are decomposed into extensive and intensive margins. To decompose the trade volume for each sector, the Hummel and Clenow (2005) (HK) method is applied for the country-sector level as Equations 1-3:

$$EM_j^h = \frac{\sum_{i \in I_j^h} p_k q_k}{\sum_{i \in I^h} p_k q_k} \quad (1)$$

$$IM_j^h = \frac{\sum_{i \in I_j^h} p_j q_j}{\sum_{i \in I_j^h} p_k q_k} \quad (2)$$

$$\frac{\sum_{i \in I_j^h} p_j q_j}{\sum_{i \in I_j^h} p_k q_k} = X_j^h = EM_j^h IM_j^h \quad (3)$$

Where EM_j^h is the extensive margin calculated for sector h (see Table 2 for the name of 8 sectors) that Vietnam imports from country j; I_j^h is a set of products in sector h, and I^h is a set of products in sector h that Vietnam imports from reference country k (the ROW). IM_j^h is the intensive margin of sector h. X_j^h is the ratio of the export value of country j to the export value of country k of sector h to Vietnam. To measure the extensive and intensive margins using the count method, where the extensive margin is defined as the number of products in sector h Vietnam imports from country j, and the intensive margin is defined as the average value of each product in sector h, respectively. The count method is used for the robustness check.

As Baier and Bergstrand (2007) suggested, endogenous bias is the main problem in estimating the effects of FTAs on trade flows. The endogenous bias arises from omitted variables (and selection), simultaneity, and measurement biases. They also suggested combining the panel data with fixed effects or the first difference specifications to get consistent and unbiased estimate results. The bilateral fixed effect (country-pair FE) accounts for the unobserved time-invariant variables between two countries, such as consumers' tastes, religions, or internal trade policies. The time-varying effects can be accounted for by including country-and-time fixed effects, as Anderson and van Vincope (2003) suggest. In the current work, Vietnam is an importer only by using panel data combined with fixed effects specifications, where country and time-fixed effects control unobserved variables and time-variant factors. In addition, sector fixed effects, as suggested in Baier and Bergstrand (2004), since transportation costs, tariff-eliminating schedules, etc., are different across sectors.

3. Empirical Models and Estimate Results

To identify the general effects of FTAs that Vietnam signed on her member exports to her, firstly, estimate the model in Equation 4.

$$X_{jt}^h = \alpha_0 + \beta_1 FTA_{jt} + \psi_t + \gamma_j + \lambda_h + \varepsilon_{jt}^h \quad (4)$$

Where the dependent variable X_{jt}^h is the Vietnamese partner j's share export value, the extensive and intensive margins of sector h (as defined in Eqs.1 –3) of sector h at time t; the binary FTA dummy variable takes unity at time t if the exporting country belongs to one of the eight FTAs in Table 1 (only Vietnam's FTAs being in force are included in this chapter), and equals zero otherwise; ψ_t ,γ_j, λ_h are year, exporting country, and sector fixed effects, respectively; α_0 is intercept; and ε_{jt}^h is the error term. The estimated results are provided in Table 3.

Signing FTAs absolutely increases Vietnam's imports from her members by an amount of about 60% ($e^{0.469}$ -1 = 60%). Moreover, the intensive margin increases by about 181%, and the trade growth is driven by an intensive margin.

Table 3. The Effect of FTAS on Trade Flows to Vietnam

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
FTA	0.469***	-0.564***	1.034***
	(0.115)	(0.0843)	(0.100)
R^2	0.622	0.513	0.472
Observations	12,441	12,441	12,441

*Note: Standard errors are in parentheses; *** Significant at 1%. Coefficient estimates for country, sector, and time effects are not reported for brevity; X is export share; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*

The results are consistent with Baier et al. (2014), where joining EIAs is a factor that increases member's trade flows, and the intensive margin dominates the trade growth. Surprisingly, the extensive margin impacted by FTAs in the case of Vietnam decreased by about 76%.

Vietnam has owned both bilateral and multilateral FTAs. By 2015, eight FTAs had been signed and implemented. Where Vietnam-Chile signed in 2012, and Vietnam-Japan signed in 2009 are two bilateral FTAs; and six other FTAs are multilateral FTAs (ASEAN, ASEAN-China, ASEAN-Korea, ASEAN-Japan, ASEAN-India, and ASEAN-Australia and New Zealand). The ASEAN-Japan one was signed in 2008, and the Vietnam-Japan one was signed in 2009 and arranged for Japan as a multilateral-FTA member because the ASEAN-Japan one was signed before Vietnam-Japan. Japanese firms might use one of two schemes to make export decisions, but unfortunately, the data for which scheme Japanese firms choose are unavailable. The negative (positive) impacts of FTAs on extensive (intensive) margin possibly result in bilateral or multilateral or both types of FTAs, so I divide FTAs into two groups, bilateral FTAs (Vietnam-Chile FTA) and multilateral FTAs (the rest of FTAs). The estimated results of Equation 5 are provided in Table 4.

$$X_{jt}^h = \alpha_0 + \beta_1 Bil_{jt} + \beta_2 Mul_{jt} + \psi_t + \gamma_j + \lambda_h + \varepsilon_{jt}^h \quad (5)$$

Here the Bil dummy variable takes the value of one if country j belongs to bilateral FTA's at time t (bilateral FTAs are in force), and equals zero, otherwise; the Mul dummy variable takes unity if exporting country j belongs to one of the multilateral FTAs at time t (multilateral FTAs are in force), and equals zero otherwise. The other dependent and independent variables are the same in Equation 4.

Table 4. The export effect of bilateral and multilateral members to Vietnam

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
Bil	0.991**	0.651**	0.340
	(0.429)	(0.315)	(0.376)
Mul	0.433***	-0.648***	1.081***
	(0.118)	(0.0868)	(0.103)
No. observations	12,441	12,441	12,441
R^2	0.622	0.513	0.472

*Note: Standard errors are in parentheses; ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-sector-and-time effects are not reported for brevity; X is export share; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*

Bilateral and multilateral FTAs create trade between Vietnam and its FTA partners. Surprisingly, the contributions of margins in Vietnamese member's trade growth are opposite; the intensive margin dominates in the case of multilateral FTAs, whereas the extensive margin dominates the import growth in the case of bilateral FTAs Vietnam-Chile FTA is the bilateral and the "youngest" FTA among eight above FTAs (signed in 2012). As a finding of the timing effect of EIAs on trade margins from Baier et al. (2014), the intensive margin is impacted sooner than the extensive margin. However, Chile's exportation to Vietnam is driven by the diversification of its products. Chile is an FTA partner of Vietnam that is not on the top of the major trade partners and FDI, whereas other Vietnamese FTA partners, such as China, Japan, South Korea, India, Singapore, Malaysia, etc., are on the top of major trade partners and also FDI (more details are provided in Table 5). Vietnam-Chile FTA impacting the extensive margin and intensive margin in the robustness check part has been discussed.

The multilateral FTAs increased total trade to Vietnam by about 54%, where the intensive margin increased by about 195%, and the extensive margin decreased by about 91%—the diversification of products reduced much after Vietnam signed multilateral FTAs. Now to investigate how FTA members have changed their exports to Vietnam in more detail, the 0-1 dummy variables for each country j, which belongs to FTAs, is added in Equation 6.

$$X_{jt}^{h} = \alpha_0 + \beta_1 ASEAN_{jt} + \beta_2 CH_{jt} + \beta_3 KR_{jt} + \beta_4 JP_{jt} + \beta_5 ANZ_{jt} + \beta_6 IN_{jt} + \beta_7 CHL_{jt} + \psi_t + \gamma_j + \lambda_h + \varepsilon_{jt}^{h} \quad (6)$$

Where the ASEAN dummy variable takes unity for all ASEAN countries from 1995 and equals zero otherwise; the CH dummy variable takes unity for China from 2004 and equals zero otherwise; the KR dummy variable is unity for Korea from 2006, and equals zero otherwise; the JP dummy variable is unity for Japan from 2008, and equals zero otherwise; the ANZ dummy variable is unity for Australia and New Zealand from 2010, and equals zero otherwise; the IN dummy is unity for India from 2010, and equals zero otherwise; the CHL dummy variable is unity for Chile, and equals zero otherwise from 2012; the other dependent and independent variables are the same in Equation 5. The estimated results are provided in Table 6. The intensive margin has the opposite sign with the extensive margin in all multilateral FTA members (all of them are statistically significant, except the IN-extensive margin). The intensive margin drives all multilateral FTA members' export growth (except trading with Japan, where the effect of FTA on the extensive margin is larger than on the intensive margin). The extensive (intensive) margin is still positively significant (insignificant) in the case of the bilateral FTA.

Table 6. Each FTA member's export to Vietnam

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
ASEAN	0.596***	-0.751***	1.347***
	(0.211)	(0.155)	(0.185)
CN	0.681**	-0.951***	1.632***
	(0.298)	(0.219)	(0.261)
KR	0.318	-0.605***	0.924***
	(0.299)	(0.220)	(0.262)
JP	-0.0567	-0.799***	0.742***
	(0.310)	(0.228)	(0.272)
ANZ	0.126	-0.513***	0.639***
	(0.249)	(0.183)	(0.218)
IN	0.996***	-0.0993	1.095***
	(0.342)	(0.251)	(0.299)
CHL	0.988**	0.656**	0.332
	(0.429)	(0.315)	(0.376)
No. observations	12,441	12,441	12,441
R^2	0.622	0.513	0.472

*Note: Standard errors are in parentheses; ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-sector-and-time effects are not reported for brevity; X is export share; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*

Interestingly, after signing FTAs, members specialize in exporting to Vietnam in their advantageous product

categories. They concentrate on some categories and reduce some others. Most multilateral FTA members are top sources of FDI in Vietnam, such as Korea, Japan, Singapore, China, Malaysia, and Thailand, during 1988-2015. Those results are likely to be a signal inferring that the import volume of Vietnam has increased due to the FDI sections and the advantages of preferential schemes accrue to them. Deeply identified this matter by estimating the effects of FTAs on trade based on the ASEAN countries' investment level in Vietnam and each sector in the next part.

One special characteristic of ASEAN is that members together sign other five FTAs besides ASEAN itself (so-called overlapping of FTAs). So ASEAN countries can choose one of six FTA regimes to trade with each other such as ASEAN, ASEAN-China, or ASEAN-Korea, etc. Signing ASEAN plus six ASEAN countries creates opportunities to access the six large markets easier. On the other hand, each member's economic size is quite small. When they expand their export markets to six large countries by signing FTAs, they specialize in exporting their products on which they have the highest comparative advantages. To estimate the effects of ASEAN expansion on ASEAN export to Vietnam, the ASEAN dummy variable is separated into five different periods, each corresponding to each expansion time. Equation 7 is used to capture the effects of each ASEAN's expansion:

$$X_{jt}^{h} = \alpha_0 + \delta_1 ASEAN_{95-03} + \delta_2 ASEAN_{j04-05} + \delta_3 ASEAN_{j06-07} + \delta_4 ASEAN_{j08-09} + \delta_5 ASEAN_{j10-15} + + \beta_2 CH_{jt} + \beta_3 KR_{jt} + \beta_4 JP_{jt} + \beta_5 ANZ_{jt} + \beta_6 IN_{jt} + \beta_7 CHL_{jt} + \psi_t + \gamma_j + \lambda_h + \varepsilon_{jt}^{h} \quad (7)$$

Where $ASEAN_{95-03}$ is the 0-1 dummy variable corresponding to Vietnam becoming an ASEAN member, and ASEAN did not expand their FTA relationships with six large countries; the 0-1 $ASEAN_{04-05}$, $ASEAN_{06-07}$ $ASEAN_{08-09}$, $ASEAN_{10-15}$ are dummy variables according to the year ASEAN extends its FTA-partners: the first time is only China (2004-2005); the second time is China and Korea (2006-2007); the third is China, Korea and Japan (2008-2009); and the last is China, Korea, Japan, India, Australia and New Zealand (2010-2015). The other dependent and independent variables are similar to those in Equation 6. Table 7 provides the estimated results of Equation 7.

The intensive margin effect is significantly positive, and the extensive margin effect is significantly negative. The results still hold across all multilateral FTAs (except the extensive margin in ASEAN-India FTAs is insignificantly negative). The main interesting results are ASEAN export decisions to Vietnam according to the years it extends its FTA relationships.

Table 7. The effects of ASEAN expansion on ASEAN Export to Vietnam

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
$ASEAN_{95-03}$	0.501**	-0.346**	0.848***
	(0.227)	(0.166)	(0.198)
$ASEAN_{04-05}$	0.673**	-0.768***	1.441***
	(0.297)	(0.218)	(0.260)
$ASEAN_{06-07}$	0.644**	-0.995***	1.639***
	(0.296)	(0.217)	(0.259)
$ASEAN_{08-09}$	0.575*	-1.216***	1.790***
	(0.299)	(0.219)	(0.261)
$ASEAN_{10-15}$	0.697***	-1.100***	1.797***
	(0.236)	(0.173)	(0.206)
CN	0.697**	-1.021***	1.718***
	(0.299)	(0.219)	(0.261)
KR	0.332	-0.673***	1.005***
	(0.299)	(0.219)	(0.261)
JP	-0.0441	-0.862***	0.818***
	(0.311)	(0.228)	(0.272)
IN	1.011***	-0.154	1.165***
	(0.342)	(0.251)	(0.299)
ANZ	0.140	-0.568***	0.708***
	(0.249)	(0.183)	(0.218)
CHL	1.000**	0.610*	0.391
	(0.429)	(0.315)	(0.375)
R^2	0.622	0.515	0.475
No. observations	12,441	12,441	12,441

*Note: Standard errors are in parentheses; * Significant at 10%, ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-sector-and-time effects are not reported for brevity; X is export share; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*

Before ASEAN signed its FTA relationship with China, its export growth to Vietnam increased by about 65%, where the intensive margin increased by about 133%, and the extensive margin decreased by about 41%. After ASEAN-China FTA was in force, its exports to Vietnam increased by about 96%, where 322% and minus (-) 116% are the changes in the intensive margin and extensive margin, respectively. That "export behavior" of ASEAN members to Vietnam still holds with respect to each time ASEAN-FTA relations expand. The more ASEAN's FTA expansion, the deeper its specializations of the products it exports to Vietnam, and the less diversification of products are exported (except $ASEAN_{08-09}$'s extensive margin coefficient is greater than $ASEAN_{10-15}$'s extensive margin coefficient. The reason for the negative spurring of extensive margin in

ASEAN08-09 might be the effect of the global financial crisis in 2008). From the estimated results, a conclusion can be made that enlarging FTA markets increase ASEAN members' specialization in their exports to Vietnam.

Singapore, Malaysia, and Thailand are the top sources of FDI in Vietnam, whereas the remaining ASEAN countries invest much less. For example, Singapore's registered capital was 35148.5 (Mil of USD) while Brunei's was 1904.5 (Mil of USD), and Indonesia's was 397 (Mil of USD) during 1988-2015 (more details are in Table 5). ASEAN is separated into two groups: group 1 consists of countries investing less in Vietnam. That includes Indonesia, Philippines, Myanmar, Cambodia, Brunei, and Lao (represented by subscription L). The rest countries are in Group 2, including Singapore, Thailand, and Malaysia, represent countries investing more (subscripted G). How do the differences between the two groups exports to Vietnam after Vietnam joined ASEAN, and how do their "export behaviors" change after ASEAN extends its FTA relationship? Equation 8 is used to find the answers. The estimated results are provided in Table 8.

$$X_{jt}^{h} = \alpha_0 + \delta_1 ASEAN_{95-03L} + \delta_2 ASEAN_{j04-05L} + \delta_3 ASEAN_{j06-07L} + \delta_4 ASEAN_{j08-09L} + \delta_5 ASEAN_{j10-15L} + \sigma_1 ASEAN_{95-03G} + \sigma_2 ASEAN_{j04-05G} + \sigma_3 ASEAN_{j06-07G} + \sigma_4 ASEAN_{j08-09G} + \sigma_5 ASEAN_{j10-15G} + \beta_2 CH_t + \beta_3 KR_t + \beta_4 JP_t + \beta_5 ANZ_{jt} + \beta_6 IN_{jt} + \beta_7 CHL_{jt} + \psi_t + \gamma_j + \lambda_h + \varepsilon_{jt}^{h} \quad (8)$$

Where subscription L represents ASEAN countries that invested less in Vietnam (group 1), and subscription G represents ASEAN countries that invested more in Vietnam (group 2) during 1988-2015.

Surprisingly, joining together in ASEAN and the expanding ASEAN-FTA relationships generate the opposite effects on the two groups exporting to Vietnam. Group 1, which invested less in Vietnam, has not changed their export growth to Vietnam before and after Vietnam joined ASEAN and times ASEAN expanded their EIA markets. All coefficients are insignificant except the trade margins corresponding with the last two times ASEAN expansions. Oppositely, trade creation is prevailing in group G for all sub-periods corresponding to the year Vietnam joined ASEAN, and the times ASEAN expanded its FTA market with six large countries.

Group 1 exports less to Vietnam in terms of both volume and two margins, while the rest countries do more, and their export growth is driven by the intensive margin. Under the same condition (getting the same advantages from ASEAN), the lower investment countries in Vietnam could not create opportunities to increase their exports to Vietnam. Although the opposite signs of effects between the two groups maintain all sub-period ASEAN expansion in export share, the changes in export margin signs across these two groups are quite similar.

Table 8. The different "export behaviors" to Vietnam between the less and more ASEAN countries investing in Vietnam

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
$ASEAN_{95\text{-}03L}$	-0.452	-0.141	-0.312
	(0.296)	(0.217)	(0.258)
$ASEAN_{04\text{-}05L}$	-0.193	-0.527*	0.334
	(0.395)	(0.290)	(0.345)
$ASEAN_{06\text{-}07L}$	-0.382	-0.804***	0.422
	(0.393)	(0.288)	(0.343)
$ASEAN_{08\text{-}09L}$	-0.277	-1.040***	0.763**
	(0.407)	(0.299)	(0.356)
$ASEAN_{10\text{-}15L}$	-0.204	-0.707***	0.504**
	(0.272)	(0.200)	(0.238)
$ASEAN_{95\text{-}03G}$	0.748***	-0.251	1.000***
	(0.265)	(0.195)	(0.232)
$ASEAN_{04\text{-}05G}$	0.839**	-0.689**	1.528***
	(0.375)	(0.275)	(0.327)
$ASEAN_{06\text{-}07G}$	0.969***	-0.865***	1.833***
	(0.374)	(0.275)	(0.327)
$ASEAN_{08\text{-}09G}$	0.722*	-1.106***	1.828***
	(0.374)	(0.274)	(0.327)
$ASEAN_{10\text{-}15G}$	0.868***	-0.958***	1.826***
	(0.294)	(0.215)	(0.257)
CN	0.692**	-1.015***	1.707***
	(0.299)	(0.219)	(0.261)
KR	0.325	-0.667***	0.992***
	(0.299)	(0.219)	(0.261)
JP	-0.0542	-0.855***	0.801***
	(0.311)	(0.228)	(0.272)
IN	1.002***	-0.146	1.148***
	(0.342)	(0.251)	(0.299)
ANZ	0.131	-0.560***	0.691***
	(0.249)	(0.183)	(0.218)
CHL	0.995**	0.616*	0.378
R^2	0.623	0.516	0.474
No. observations	12,441	12,441	12,441

*Note: Standard errors are in parentheses; * Significant at 10%, ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-sector-and-time effects are not reported for brevity; X is export share; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*

The increase in intensive margin and the decrease in the extensive margin in both groups are greater as ASEAN-FTA market is larger. The low-investment group significantly increases its export to Vietnam through the intensive margin after 2008. The estimated results give us a piece of stronger evidence to conclude the specializations in which categories are exported to dominate in ASEAN export behaviors to Vietnam.

The effects of FTAs might differ across sectors, as Baier and Bergstrand (2004) suggested, and here I find out which sector is specialized in ASEAN exports to Vietnam. Equation 6 is applied to each sector, and the outcomes are provided in Table 9. ASEAN specializes in exports to Vietnam on sectors 1, 2, 4 and 7; China concentrates on sectors 3 and 6-8; India focuses on 0, 2, and 7; Korea focuses on 3, 6, and 7; Japan focuses on sector 6, 7, and 8; while Chile specializes on sector 5, and 6. Sectors 6, 7, and 8 are manufacturing sectors that most FTA members concentrate on, especially ASEAN, China, Korea, and Japan.

These countries are at the top of FDI in Vietnam. That signal might infer that the FTA-member FDI get an advantage from Vietnam joining FTAs because FDI flows to Vietnam mostly accrue to manufacturing sectors.

4. Robustness Check

Baier et al. (2014) find that the effects of EIAs on the intensive margin are sooner than those on the extensive margin. Vietnam-Chile FTA has been the "youngest" FTA among those FTAs, signed in 2012. However, the outcomes of the estimate (Table 4) show that Vietnam-Chile FTA affecting Vietnam's import growth is driven by the extensive margin, and the intensive margin is positively insignificant. In more detail, the trade flow from Chile to Vietnam with the amount of transactions was only 1,127 observations, whereas the China-Vietnam was 68,617 transactions and the Singapore-Vietnam was 61,631 transactions during 1990-2015. On the other hand, the number of products these three countries exported to Vietnam in 2015 were 178, 3868, and 3129 products, respectively (for the other FTA members' number of products provided in Fig.1). The disadvantage of the HK method is that the extensive margin might be overestimated if their weight is high while the number of products they export is low. The count method measures the extensive and intensive margins to implement a robustness check for extending ASEAN-FTA markets on ASEAN export behaviors to Vietnam.

Equation 6 and Equation 7 are used to carry out the robustness check, and the outcomes are provided in Table 10 and Table 11. The trade creation remains in FTA members (three insignificant coefficients). Now the effects of the bilateral Vietnam-Chile FTA on Vietnam imports are driven by the intensive.

The multilateral FTA members' export behaviors to Vietnam are still the same as in the share method, specializing in their exports on some categories (except India, with an insignificant positive coefficient of extensive margin). Especially, the estimated results of the expanding ASEAN on ASEAN's export decisions to Vietnam still hold. That confirms the evidence of the estimated results I find above: the larger the ASEAN-FTA market is, the deeper specializations in the type of categories t ASEAN exports to Vietnam.

5. Conclusion

Joining FTAs creates opportunities for country pairs to increase their trade flows to each other. Small countries tend to find an FTA block because it helps them increase their "voice" in negotiations with big countries with more equality. Vietnam, as well as other ASEAN countries, are small markets; they corporate to help themselves to be stronger in the negotiation process with larger countries. ASEAN, along with Japan and China, take the role of the hub in the FTA relationship in the Asia area (Chong and Hur, 2008).

Participating in ASEAN and along with 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 a trade diversion between Vietnam and those ASEAN countries investing less in Vietnam.

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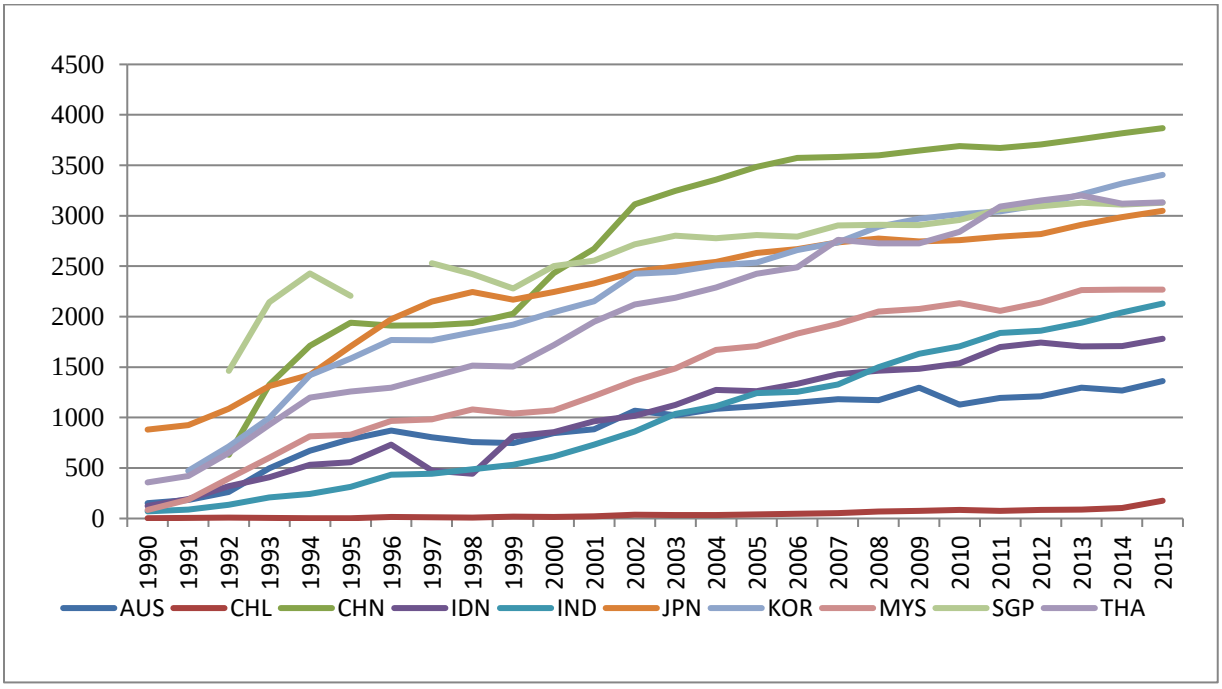

Fig. 1 The number of products some FTA members export to VN

Table 1. The list of FTAS used in this paper

Name of FTA	Vietnam became the member	Type of FTA	Members
ASEAN (AFTA)	1995	Multilateral	Brunei Darussalam Cambodia Singapore Thailand Malaysia Philippines Myanmar Indonesia Lao People's Dem. Rep. Vietnam
ASEAN-China (ACFTA)	2004	Multilateral	ASEAN-China
ASEAN-Korea (AKFTA)	2006	Multilateral	ASEAN-Rep. of Korea
ASEAN-Japan (AJFTA)	2008	Multilateral	ASEAN-Japan
Vietnam-Japan (VJFTA)	2009	Bilateral	Vietnam-Japan
ASEAN-India (AIFTA)	2010	Multilateral	ASEAN-India
ASEAN-Australia-New Zealand (AANZFTA)	2010	Multilateral	ASEAN-Australia-New Zealand
Vietnam-Chile (VCFTA)	2012	Bilateral	Vietnam-Chile

Source: VCCI[1]

Table 2. SITC, REV.3

Sector	Name of sector	Sector	Name of sector
0	Food and live animals	5	Chemicals and related products, n.e.s.
1	Beverages and tobacco	6	Manufactured goods are classified chiefly by material
2	Crude materials, inedible, except fuels	7	Machinery and transport equipment
3	Mineral fuels, lubricants and related materials	8	Miscellaneous manufactured articles
4	Animal and vegetable oils, fats and waxes		

Table 5. Total registered capitals of fdi by main counterparts (accumulation statistics–mill-usd)

No.	Country	1988-2005	No.	Country	1988-2012	No.	Country	1988-2015
1	Singapore	8684.9	1	Japan	28699.6	1	Rep. of Korea	45191.1
2	Taiwan	8303.6	2	Taiwan	27129.1	2	Japan	38973.6
3	Japan	6454.7	3	Singapore	24875.3	3	Singapore	35148.5
4	Rep. of Korea	5774.9	4	Rep. of Korea	24816.0	4	Taiwan	30997.4
5	British Virgin Islands	4479.6	5	British Virgin Islands	15386.4	5	British Virgin Islands	19275.3
6	Hong Kong SAR (China)	4283.4	6	Hong Kong SAR (China)	11966.7	6	Hong Kong SAR (China)	15546.8
7	France	2604.7	7	United States	10507.2	7	Malaysia	13420.1
8	Netherlands	2331.3	8	Malaysia	10196.4	8	United States	11301.8
9	United States	2124.1	9	Cayman Islands	7506.0	9	China, PR	10174.2
10	United Kingdom	1859	10	Thailand	6063.7	10	Netherlands	8264.5
11	Malaysia	1646.1	11	China, PR	4697.2	11	Thailand	7727.9
12	Thailand	1502.8	12	France	3142.7	12	Cayman Islands	6392.3
13	Fed. Russian	1336	13	United Kingdom	2617.3	13	Samoa	5771.7
14	Australia	1310.1	14	Australia	1313.2	14	Canada	5252.7
15	Switzerland	882.3	15	Fed. Russian	1056.0	15	United Kingdom	4739.3
16	Samoa	830.7	16	F.R Germany	1053.7	16	France	3423
17	Luxembourg	816.5	17	Finland	336.2	17	Fed. Russian	2080.1
18	Cayman Islands	746.4	18	Indonesia	285.1	18	Switzerland	2045.1
19	China	741.7	19	Italy	257.2	19	Brunei	1904.5
20	Panama	678	20	India	251.4	20	Luxembourg	1857.4

(General Statistics Office of Vietnam)

Table 9. The specialization of FTA-members exports to Vietnam in each sector

Sector	**0**			**1**			**2**			**3**			*Note: * Significant at 10%, ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-and-time effects and standard error of FTAs' coefficients are not reported for brevity; X is export share; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*
Variable	**lnX**	**lnEM**	**lnIM**	**lnX**	**lnEM**	**lnIM**	**lnX**	**lnEM**	**lnIM**	**lnX**	**lnEM**	**lnIM**	
ASEAN	-1.244***	-1.772***	0.528	1.595***	-0.115	1.710***	0.679*	-0.365	1.045***	0.53	-1.888**	2.418***	
CN	-0.334	-1.360***	1.026**	-2.281***	-1.457***	-0.824	-0.269	-1.272**	1.004*	1.665**	-1.256	2.921***	
KR	-0.505	-0.993**	0.488	1.530***	0.184	1.346**	-1.204**	-1.528***	0.324	0.807	-1.124	1.931**	
JP	-1.187**	-1.577***	0.39	0.648	0.677	-0.0293	-1.007*	-1.717***	0.71	-0.26	-0.986	0.726	
IN	0.611	-0.387	0.997*	0.745	0.215	0.53	1.179*	-0.988*	2.167***	1.609*	0.922	0.687	
ANZ	-0.837**	-1.356***	0.52	1.501***	-0.0912	1.592***	-0.307	-0.835**	0.528	0.89	-0.161	1.051	
CHL	-0.101	-0.558	0.457	1.511*	-0.22	1.731**	0.839	0.121	0.718				
Observations	1,577	1,577	1,577	1,069	1,069	1,069	1,650	1,650	1,650	841	841	841	
R^2	0.839	0.661	0.684	0.821	0.636	0.68	0.798	0.68	0.611	0.866	0.535	0.781	
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	

Sector	4			5			6			7			8		
Variable	lnX	lnEM	lnIM	lnX	lnEM	lnIM	lnX	lnEM	lnIM	lnX	lnEM	lnIM	lnX	lnEM	lnIM
ASEAN	1.381**	-0.144	1.526**	0.207	-0.730**	0.937***	0.223	-1.182***	1.405***	0.639*	-0.930***	1.569***	0.0427	-0.661**	0.704*
CN	0.341	-0.588	0.928	0.686	-0.708*	1.394***	1.280**	-1.061**	2.342***	1.574***	-0.942**	2.516***	1.466***	-1.100**	2.566***
KR	0.876	1.110*	-0.235	-0.214	-0.770*	0.556	-0.441	-1.310***	0.869*	0.509	-1.056**	1.565***	-0.347	-1.124**	0.777
JP	0.637	0.516	0.122	-0.278	-0.891**	0.613	-0.176	-1.284***	1.108**	-0.158	-1.228***	1.070*	-0.125	-1.369***	1.244**
IN	0.573	-0.211	0.783	0.178	-0.319	0.497	0.318	-0.429	0.747	0.845	-0.37	1.216*	0.298	-0.116	0.414
ANZ	-0.367	-1.036*	0.669	0.0735	-0.303	0.376	-0.193	-0.508	0.314	-0.575	-0.292	-0.283	-0.959**	-0.701*	-0.258
CHL	1.108	0.133	0.976	1.986***	3.553***	-1.567**	2.427***	0.771	1.656**	-0.637	-0.596	-0.0418	-0.924	1.015	-1.939**
Observations	728	728	728	1,587	1,587	1,587	1,760	1,760	1,760	1,623	1,623	1,623	1,606	1,606	1,606
R^2	0.733	0.628	0.602	0.883	0.775	0.739	0.86	0.793	0.679	0.892	0.795	0.714	0.883	0.741	0.714
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES			
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES			

Table 10. The export effect of FTAS to Vietnam –count method

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
ASEAN	0.656***	-0.249***	0.905***
	(0.212)	(0.0814)	(0.176)
CN	0.659**	-0.429***	1.088***
	(0.299)	(0.115)	(0.248)
KR	0.302	-0.194*	0.496**
	(0.300)	(0.115)	(0.249)
JP	-0.0435	-0.472***	0.428*
	(0.312)	(0.120)	(0.259)
IN	0.948***	0.190	0.758***
	(0.343)	(0.132)	(0.285)
ANZ	0.112	-0.265***	0.377*
	(0.250)	(0.0960)	(0.207)
CHL	1.022**	0.252	0.770**
	(0.430)	(0.166)	(0.357)
R^2	0.622	0.812	0.398
No. observations	12,441	12,441	12,441

*Note: Standard errors are in parentheses; * Significant at 10%, ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-sector-and-time effects are not reported for brevity X is export value; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*

Table 11. The effect of ASEAN expansion on ASEAN exports to Vietnam - count method

	(1)	(2)	(3)
VARIABLES	**lnX**	**lnEM**	**lnIM**
ASEAN95-03	0.574**	-0.0570	0.631***
	(0.227)	(0.0873)	(0.189)
ASEAN04-05	0.726**	-0.142	0.868***
	(0.298)	(0.114)	(0.247)
ASEAN06-07	0.724**	-0.258**	0.982***
	(0.297)	(0.114)	(0.246)
ASEAN08-09	0.648**	-0.396***	1.044***
	(0.300)	(0.115)	(0.248)
ASEAN10-15	0.731***	-0.512***	1.243***
	(0.237)	(0.0909)	(0.196)
CN	0.673**	-0.462***	1.136***
	(0.300)	(0.115)	(0.249)
KR	0.314	-0.230**	0.544**
	(0.300)	(0.115)	(0.249)
JP	-0.0336	-0.510***	0.476*
	(0.312)	(0.120)	(0.259)
IN	0.960***	0.152	0.808***
	(0.343)	(0.132)	(0.285)
ANZ	0.124	-0.303***	0.426**
	(0.250)	(0.0960)	(0.207)
CHL	1.031**	0.218	0.813**
	(0.431)	(0.165)	(0.357)
R2	0.622	0.812	0.399
No. observations	12,441	12,441	12,441

*Note: Standard errors are in parentheses; ** Significant at 5%; *** Significant at 1%. Coefficient estimates for country-sector-and-time effects are not reported for brevity X is export value; EM is extensive margin; IM is intensive margin; ln is the natural logarithm.*