



Effects of Trade Agreements and Foreign Direct Investment on Trade: Evidence from Vietnam

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ABSTRACT

In recent years, Vietnam has embarked on trade liberalisation leading to increased trade flows, as well as benefiting from increased foreign direct investment (FDI) inflows. This paper analyses the impacts of a range of trade agreements and FDI inflows on Vietnamese trade flows. We offer new insights through considering which of the key trade agreements have been more efficient in expanding Vietnamese trade, and how the sensitivity of trade to FDI has changed as a result. The estimation of gravity models over a 1996-2014 study period indicates that the bilateral trade agreements with the United States (US) and Japan have resulted in the most notable expansion of Vietnamese exports and imports, while the impacts from other regional trade agreements involving Vietnam are more mixed. We also find evidence of Vietnamese trade and FDI being complementary, with the positive relationship between FDI and exports becoming stronger following the bilateral trade agreements with the US and Japan.

Keywords: Trade liberalisation, Trade, Foreign direct investment

JEL Classifications: F13, F14, F15, F21

1. INTRODUCTION

In recent decades there has been a striking proliferation of regional trade agreements (RTAs). The world trade organization notes that 287 RTAs were in force as of May 2018: A dramatic increase from <10 agreements that were in force in the early 1990s (WTO, 2018). RTAs, along with encouraging foreign direct investment (FDI) inflows, have been important areas of policy focus for Vietnam; however, they can have complex and sometimes ambiguous effects on trade. In this paper, we assess the impact of trade liberalisation agreements and FDI on Vietnam's imports and exports.

Despite the current prevalence of RTAs, the impact this type of trade liberalisation has on trade remains inconclusive. While free trade agreements (FTAs) are generally expected to increase trade flows (Baier and Bergstrand, 2007; Lee and Park, 2007; Vanhnalat et al. 2015), there is also evidence of trade diversion when

evaluating specific RTAs (Carrere, 2006; Kahouli and Maktouf, 2014). Moreover, there are examples of RTAs that do not lead to increased export flows, such as for Bangladesh when there was restricted regionalism and high non-tariff barriers (Ullah and Inaba, 2012), or in the case of Jordan when the focus was on the short term impacts of limited liberalisation (Busse and Gröning, 2012).

In addition to negotiating RTAs, Vietnam has been implementing policies to encourage inflows of FDI. FDI is often regarded as a particularly important component of total investment due to its relative stability compared to portfolio capital flows and commercial lending (UNCTAD, 1999). As well as addressing the issue of capital shortages in host countries, FDI contributes to the development of technology, management and an increased understanding of international markets (Brooks et al. 2008). Due to its crucial importance to host countries, FDI has been widely studied, with special attention paid to the linkage between FDI and

trade. While some researchers find a complementary relationship between FDI and trade (Clausing, 2001; De Mello and Fukasaku, 2000; Jawaid et al. 2016), others find that FDI and exports are substitutes (Belderbos and Sleuwaegen, 1998; Beugelsdijk et al. 2008). Furthermore, mixed effects are found in the studies of Svensson (1996), Blonigen (2001) and Swenson (2004).

Despite their potentially ambiguous impacts, FTAs and inward FDI are considered to be key drivers of Vietnam's trade. Since Vietnam's "Doi Moi" or renovation policy¹ was launched in the mid-1980s to facilitate change from a centrally planned to a market-oriented economy, Vietnamese trade policy has been based on pursuing an export-led growth strategy (Nguyen and Xing, 2008), in which trade liberalisation, exports and FDI have been promoted (Chaponnière and Cling, 2009). Therefore, examining the effects of both trade liberalisation and FDI on Vietnam's trade is important, especially when foreign trade has become a primary factor driving economic growth (Kastelle and Liesch, 2013). Most developing countries are heavily dependent on imports of machinery, equipment and energy to support economic development, with imports being crucial for technology transfer (Acharya and Keller, 2009). Moreover, increased exports may result in higher labour productivity and the creation of well-paying jobs, thanks to greater competition with foreign firms (Mijiyawa, 2017).

From the start of the renovation policy, Vietnam experienced an expansion of foreign trade, with an annual growth rate of almost 18% over the period 1995-2017.² Likewise, there has been a surge of FDI inflows to Vietnam, increasing from United States (US)\$ 1.8 billion in 1995 to US\$ 14.1 billion in 2017 (UNCTAD, 2018). The acceleration of Vietnam's foreign trade has accompanied its deeper involvement in trade liberalisation, achieved through a series of trade agreements. With this general observation in mind, it is of interest to examine the extent to which various bilateral and FTAs have enhanced the impact from FDI inflows.

The current study investigates the extent to which trade agreements and FDI inflows stimulate Vietnamese exports and imports. We make a number of significant contributions to the literature. First, while most previous studies focus on analysing the impacts of either trade liberalisation or FDI on trade, we take into account the impacts of both factors, due to their mutual importance to trade in a transitional economy such as Vietnam. The second contribution of this paper is that we decompose the different effects of various FTAs and FDI on both exports and imports for Vietnam. Initial evidence confirms that both trade and FDI have increased in recent years, but there are two important questions that warrant further investigation in this paper. Of the trade agreements that Vietnam has entered into, which of these has been the more effective in terms of stimulating exports and imports? In addition, to what extent has Vietnamese trade become more sensitive to FDI as a result of the trade agreements?

The remainder of this paper is organized as follows. Section 2 briefly describes Vietnamese trade liberalisation, FDI and trade, followed by a discussion of the previous studies of relevance in Section 3. Section 4 outlines the model specification, data and methodology used to examine Vietnam over the 1996-2014 study period using random effects estimation. Section 5 discusses the empirical results, finding that there is significant variation in the impacts of the various trade agreements, and the sensitivity of imports and exports to FDI has also changed. Section 6 presents our concluding remarks.

2. TRADE LIBERALISATION, FDI AND TRADE IN VIETNAM

2.1. Trade Liberalisation and Trade

Since the Renovation Policy was introduced in the mid-1980s, trade reforms focusing on liberalisation have been considered a primary focus of Vietnam's economic reform. Together with unilateral reforms, Vietnam has accelerated its trade liberalisation process through bilateral and RTAs. In particular, Vietnam became a member of the ASEAN free trade area (AFTA) in 1996. Foreign trade between Vietnam and its ASEAN partners increased considerably between 2002 and 2007, with an average growth rate of almost 27% for this period before the global financial crisis.³

Trade between Vietnam and the US has increased since the elimination of the US embargo in 1994. The bilateral trade agreement between Vietnam and the US bilateral trade agreement (USBTA) came into force in 2002 and is considered a milestone in Vietnam's trade liberalisation process. This was the most comprehensive trade agreement between the US and a developing country (Athukorala, 2006). According to the GSO (2018), Vietnam's exports to the US amounted to US\$ 2,453 million in 2002, which was more than double the previous year. This bilateral trade agreement also accommodated a dramatic increase in Vietnam's imports from the US, from US\$ 411 million in 2001 to US\$ 1,143 million in 2003 (GSO, 2018).

Due to the commitments of reforms, the USBTA was good preparation for Vietnam's negotiation to become a WTO member. With accession to the WTO in 2007, following 11 years of negotiation, Vietnam's exports have benefitted from most-favoured nation status. In particular, Vietnam's exports in 2008 were >57% above those in 2006 (GSO, 2018). Similarly, compared to the level reached before Vietnam's accession to the WTO, Vietnam's imports saw a 80% increase, surging from US\$ 44,891 million in 2006 to US\$ 80,714 million in 2008 (GSO, 2018).

As shown in Figure 1, Vietnam's foreign trade has increased substantially since the mid-1990s. While the global financial crisis caused a dip in this growth, the strong growth has resumed in more recent years.

In recent years, Vietnam has been involved in deeper trade liberalisation through its participation in a variety of bilateral and

1 The "Doi Moi" (Renovation) Policy was launched by the Vietnamese government at its sixth party congress in December 1986 with the goal of creating a market-oriented economy.

2 Calculated from the database of the Vietnam's general statistics office, accessed at www.gso.gov.vn.

3 Calculated from the database of Vietnam's general statistics office, accessed at www.gso.gov.vn.

RTAs which include the following: ASEAN-China Comprehensive Economic Cooperation Agreement (ACCECA) starting in 2005, ASEAN-India Comprehensive Economic Cooperation Agreement in 2010, ASEAN-Japan Comprehensive Economic Partnership (AJCEP) in 2008, ASEAN-Korea Comprehensive Economic Cooperation Agreement (AKCECA) in 2010, ASEAN-Australia and New Zealand FTA in 2010, Chile-Vietnam FTA in 2014 and the Japan-Vietnam Economic Partnership (JVEPA) in 2009.⁴ It appears these FTAs have largely contributed to the increase in Vietnam's exports and imports since the global financial crisis. However, compared with Singapore, Malaysia, Thailand and Indonesia, Vietnam is characterised by a much weaker global competitiveness ranking (Appendix 1), as well as through generally lower exports to China (Appendix 2). This points towards the need for increasing competitiveness being a key priority in Vietnam's trade liberalisation process.

2.2. FDI and Trade

Investment is a significant factor spurring economic development in Vietnam. To address the problem of capital deficiency, the Vietnamese government has been trying to improve access to investment, especially through FDI, which is regarded as more stable than portfolio capital and debt flows (Maher et al. 2001).

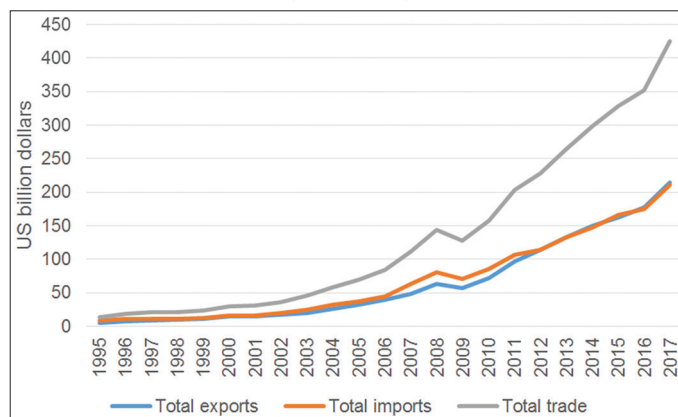
Figure 2 indicates that Vietnam has performed well in attracting FDI inflows, amounting to US\$ 14.1 billion in 2017 as opposed to the minimal level of US\$ 0.18 billion in 1990. As can be seen from Figure 2, Vietnam experienced significant decreases in FDI as a result of the Asian financial crisis, though even before this, the impact of policy backsliding was impacting the FDI boom (Athukorala and Tran, 2012). However, reforms implemented in response to this decline helped to reverse the downturn, particularly reforms implemented since 2003 (Athukorala and Tran, 2012). It is interesting to note that while most other ASEAN members saw a sharp decrease in FDI inflows in 2008 due to the global financial crisis, Vietnam continued to attract increased FDI inflows amounting to US\$ 9.6 billion, a 37% expansion relative to 2007, demonstrating Vietnam's capacity in sustaining FDI interest despite the crisis (ASEAN Secretariat, 2009).

Figure 3 indicates that from 1988 up to late 2017, >70% of the total registered FDI in Vietnam originated from Asia. Specifically, East Asian countries including Hong Kong, Taiwan, republic of Korea and China accounted for 37% of the total registered FDI in Vietnam, with Korea ranking first. Japan and Singapore were the second and 3rd largest investors in Vietnam.

As shown in Figure 4, FDI inflows to Vietnam have been highly concentrated, mostly surging to regions with better economic development. In particular, the South East region has been the largest FDI destination with 42.7% of the total registered FDI during the period 1988-2017, followed by the Red River Delta region (27.9%) and the North Central and Central coastal region (17.9%). In contrast, the three remaining areas have attracted limited FDI flows (11.4%) with Central Highlands receiving a minimal share (0.3%).

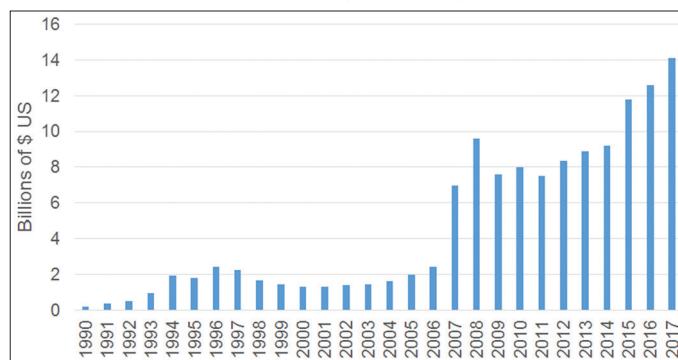
In addition to providing investment capital for Vietnam, FDI flows into Vietnam have an important role in stimulating Vietnam's

Figure 1: Vietnam's total exports and imports, 1995-2017 (US\$ billion)



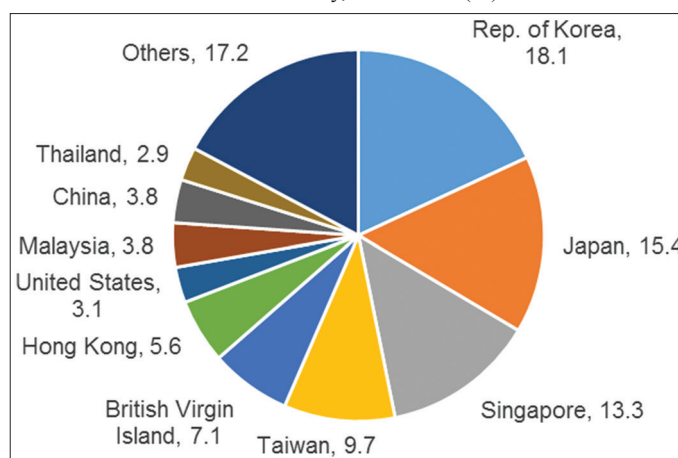
Source: GSO (2018)

Figure 2: Total foreign direct investment inflows to Vietnam, 1990-2017 (US\$ billion)



Source: UNCTAD (2018)

Figure 3: Foreign direct investment inflows to Vietnam, share by source country, 1988-2017 (%)



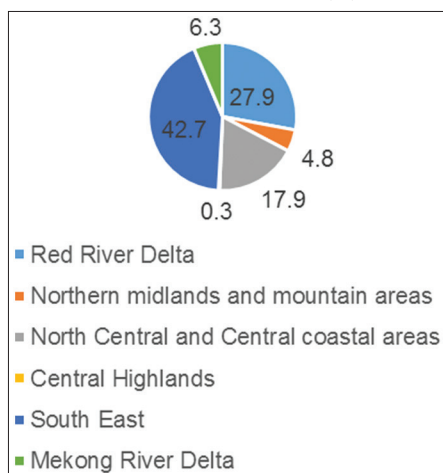
Source: Vietnam's Statistical Yearbook 2017

trade. As can be seen in Figure 5, the foreign invested sector⁵ has contributed greatly to Vietnam's total trade, with increasing shares

5 Total exports and imports of Vietnam are the combined values from the domestic economic sector and foreign invested sector. The foreign invested sector refers to enterprises in which foreign ownership accounts for at least a 51% threshold, as stated in the 2014 Law on investment in Vietnam, accessed at the website of ministry of justice of Vietnam: www.moj.gov.vn/vbpq/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=30315.

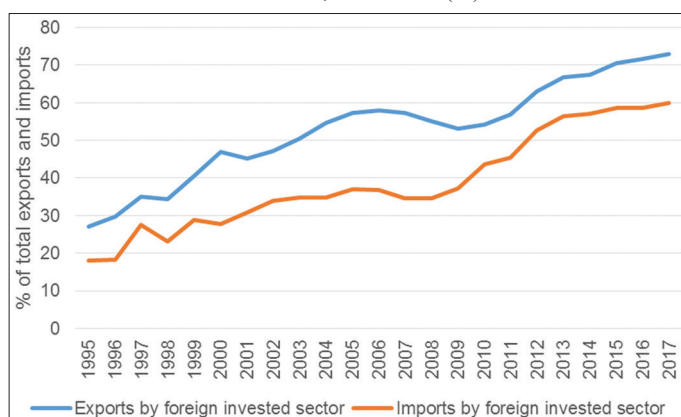
4 The entry into force years noted are WTO data, accessed at www.wto.org.

Figure 4: Foreign direct investment inflow shares to different regions in Vietnam, 1988-2017 (%)



Source: Vietnam’s Statistical Yearbook 2017

Figure 5: Foreign invested sector’s shares of total exports and imports in Vietnam, 1995-2017 (%)



Source: GSO (2018)

in total exports and total imports. Exports by the foreign invested sector accounted for half of total exports for the 1st time in 2003, as opposed to 27% in 1995. In 2017, the foreign-invested sector accounted for >70% of Vietnam’s total exports. Like exports, imports by the foreign invested sector have increased dramatically, from a relatively small share of total imports in 1995 (18%) to more than a half of total imports in 2017 (60%), more than tripling its share over this period.

3. PREVIOUS STUDIES

3.1. Trade Liberalisation and Trade Flows

Trade liberalisation is expected to increase welfare because both consumers and producers have access to a variety of cheaper products and intermediate goods respectively as a result of an RTA (Sheng et al. 2014) and exporters have improved access to international markets. However, Viner (2014) argues that in addition to welfare improvements, a RTA might reduce welfare, depending on trade creation or trade diversion effects. Trade creation involves replacing higher-cost domestic production of an FTA’s member with lower-cost imports from other member

countries. By contrast, trade diversion occurs when the removal of tariffs leads an FTA member to divert its import activities from non-members to other FTA members, even though imports from non-members would be cheaper if such countries were not discriminated against (Clausing, 2001; Deme and Ndrianasy, 2017; Viner, 2014).

There is little research on the impact of trade liberalisation on exports and imports in Vietnam. The very limited research includes that of Pham (2011) who conducts a panel data analysis of Vietnam and its 17 partner countries between 1990 and 2008, focussing on the evaluation of Vietnam’s accession to the WTO affected Vietnam’s exports and imports. Her findings show that WTO accession has increased Vietnam’s imports because there was a considerable decrease in tariffs as a consequence of joining. By way of contrast, there was no conclusive evidence on whether Vietnam’s accession to the WTO affected exports (Pham, 2011). There is also some related literature on how trade liberalisation affects export quality and productivity in Vietnam, with Nguyen (2016) finding that trade liberalisation has been important for improving Vietnam’s export quality and suggesting that FDI inflows may help to raise the degree of export sophistication. However, Doan et al. (2016) find that exposure to competition from imports may lead to lower productivity for smaller firms in Vietnam, though the impact is small and there is some evidence of positive effects for larger firms.

Despite the limited extent of studies on the impact of FTAs in Vietnam, empirical studies of other countries have provided evidence of both trade creation and trade diversion effects of FTAs. For instance, in gravity models that include either one dummy FTA variable (Baier and Bergstrand, 2007) or two RTA dummy variables called RTA-Insider and RTA-Outsider to capture intra-bloc and extra-bloc trade respectively (Lee and Park, 2007), it was found that RTAs stimulate trade among members. These results are supported by Foster (2012), who finds that RTAs result in increasing imports between RTA partners. Moreover, when focusing on a specific RTA, findings by Garcia et al. (2013), Clausing (2001), Hassan (2001) and Sheng et al. (2014) identify trade creation effects on members’ trade of the Mercado Comun del Sur (MERCOSUR), the FTA between Canada and the US (CUSFTA), the South Asian Association for Regional Cooperation (SAARC) and the ASEAN-China FTA respectively. On the other hand, some studies on multiple RTAs have found mixed effects, including trade creation and trade diversion. For instance, Kahouli and Maktouf (2014) and Carrere (2006), adopt gravity models and apply panel data to a large sample of countries to examine the impact of multiple RTAs on trade flows. Their findings indicate that RTAs have generated an increase in intra-regional trade, benefiting members within RTAs at the cost of the rest of the world.

Empirical studies by Ullah and Inaba (2012) and Busse and Gröning (2012) apply gravity models to examine the impacts of various FTAs for particular countries and find that the effects on trade flows can be negative in some cases. In particular, Ullah and Inaba (2012) show that while the South AFTA and the Bay of Bengal Initiative for Multisectoral Technical and Economic Cooperation Free Trade Area (BIMSTEC FTA) have

no statistically significant impacts on Bangladesh’s exports, other RTAs such as the Asia Pacific Trade Agreement and SAARC have negative impacts. Moreover, Busse and Gröning (2012) find that with the exception of the FTA with the US, which has stimulated Jordan’s exports, other multilateral or preferential trade liberalisation have not resulted in statistically significant effects on exports and imports.

3.2. FDI and Trade

The Heckscher-Ohlin model was the first theoretical attempt at explaining FDI (Faeth, 2009) whereby movements of production factors including FDI across countries can be substituted by foreign trade. Based on the ‘public goods’ or ‘jointness’ of characterisation of firm-specific activities, Markusen (1984) supports the substitutionary relationship. Furthermore, the proximity-concentration trade-off has suggested that horizontal FDI, which duplicates an existing production facility in foreign markets, and trade are substitutes (Brainard, 1993; Helpman et al. 2003). In contrast to this, Lipsey and Weiss (1981) hypothesise a complementary relationship between trade and FDI whereby vertical FDI, which involves locating different stages of production in a variety of host countries, complements trade (Helpman, 1984).

There have been few studies examining the relationship between Vietnam’s trade and FDI. For instance, using panel data covering 19 major trading partners of Vietnam between 1990 and 2007, Anwar and Nguyen (2011) explore the link between FDI and trade in Vietnam before, during and after the Asian financial crisis. They show that a 1% increase in FDI would increase exports and imports of Vietnam by 0.45% and 0.23% respectively. Similarly, with an application of the gravity model, Nguyen and Xing (2008) also evaluate the impact of FDI inflows on Vietnam’s exports during the period of 1990-2004 and find that a 1% increase in FDI results in a 0.13% increase in exports of Vietnam. Pham (2012) examines the empirical relationship between FDI flows and trade for Vietnam from 1990-2007, finding a positive impact of FDI on exports and imports. Other studies such as Minor et al. (2018) have emphasised the impact of other potentially complementary reforms, such as reform of state-owned enterprises, which may also positively impact Vietnam’s trade flows.

Empirical studies of other countries that explore the impact of FDI on trade include De Mello and Fukasaku (2000), Bajo-Rubio and Montero-Muñoz (2001), Dritsaki et al. (2004), Waheed and Jawaid (2010), Hailu (2010), Jawaid et al. (2016) and Mijiyawa (2017). It is clear that FDI can have mixed effects on trade. In particular, Svensson (1996) reports that while production in Sweden’s foreign subsidiaries has a complementary effect on Sweden’s exports of intermediates, it has negative impacts on Sweden’s exports of finished goods. The findings of mixed effects have been supported by Blomstrom et al. (1988) and Blonigen (2001). Moreover, Swenson (2004) finds that FDI inflows into the US, which are disaggregated into product, industry and overall manufacturing components, have mixed effects on the US’s imports. Furthermore, the findings of Beugelsdijk et al. (2008) conclude that horizontal FDI and exports are substitutes. A more recent study by Tabassum et al. (2012) concludes that FDI has no significant relationship on Pakistan’s exports in both the short-run and the long-run.

In this paper, we analyse how particular trade agreements and FDI impact on Vietnamese trade, which facilitates insights well beyond existing studies that focus on the effects of either trade liberalisation or FDI on trade in a particular country. By doing so, it is possible for us to examine the efficiency of key trade agreements Vietnam has entered into in terms of expanding exports and imports, as well as the sensitivity of Vietnamese trade to FDI following the trade agreements.

4. MODEL SPECIFICATION, DATA AND METHODOLOGY

To examine the impact of trade agreements and FDI inflows on Vietnam’s trade, we use gravity models which have been widely employed for international trade analysis. We begin by summarising a basic gravity model before presenting extended gravity models.

4.1. Gravity Model and Model Specification

Gravity models were so named due to the use of gravitational force to explain bilateral trade flows. Tinbergen and Poyhonen are considered as the first authors using these models in international trade analysis (Kahouli and Maktouf, 2014) in the 1960s. The theoretical foundations of the gravity model have been improved over time, particularly due to the contributions of Anderson (1979), Bergstrand (1985), Helpman and Krugman (1985) and Anderson and Van Wincoop (2003).

The basic gravity model is as follows:

$$\ln X_{ij} = \alpha_0 + \alpha_1 \ln Y_i + \alpha_2 \ln Y_j + \alpha_3 \ln t_{ij} + e_{ij} \quad (1)$$

where X_{ij} indicates trade flows between the two countries; Y_i and Y_j is GDP of country i and country j respectively; and t_{ij} is trade costs between two countries such as distance, adjacency and institutions. With the increasing number of studies applying gravity models to international trade analysis, more explanatory variables have been added to the gravity model to reduce potential omitted variable bias. Following Baier and Bergstrand (2007), Carrere (2006) and Kahouli and Maktouf (2014), the current study includes various dummy variables for trade agreements.

Extended gravity models may be respectively defined for exports and imports as follows:

$$\begin{aligned} \ln EX_{vit} = & \alpha_0 + \alpha_1 \ln GDP_{vit} + \alpha_2 \ln GDP_{it} + \alpha_3 \ln DIS_{vit} + \alpha_4 BOR_{vit} + \alpha_5 \ln \\ & RER_{vit} + \alpha_6 \ln FDI_{vit-1} + \alpha_7 \ln DGDPPC_{vit} + \alpha_8 CRISA_{vit} + \alpha_9 \\ & CRISG_{vit} + \alpha_{10} AFTA_{vit} + \alpha_{11} ACCECA_{vit} + \alpha_{12} AJCEP_{vit} \\ & + \alpha_{13} AKCECA_{vit} + \alpha_{14} JVEPA_{vit} + \alpha_{15} USBTA_{vit} + \epsilon_{ijt} \quad (2) \end{aligned}$$

$$\begin{aligned} \ln IM_{vit} = & \alpha_0 + \alpha_1 \ln GDP_{vit} + \alpha_2 \ln GDP_{it} + \alpha_3 \ln DIS_{vit} + \alpha_4 BOR_{vit} + \alpha_5 \\ & \ln RER_{vit} + \alpha_6 \ln FDI_{vit-1} + \alpha_7 \ln DGDPPC_{vit} + \alpha_8 CRISA_{vit} \\ & + \alpha_9 CRISG_{vit} + \alpha_{10} AFTA_{vit} + \alpha_{11} ACCECA_{vit} + \alpha_{12} AJCEP_{vit} \\ & + \alpha_{13} AKCECA_{vit} + \alpha_{14} JVEPA_{vit} + \alpha_{15} USBTA_{vit} + \epsilon_{ijt} \quad (3) \end{aligned}$$

where v denotes Vietnam and i is the country partner of Vietnam. EX_{vit} is real exports from Vietnam to country i . IMP_{vit} is real

imports into Vietnam from country *i*. GDP_{vt} and GDP_{it} represent real GDP of Vietnam and country *i*, respectively. DIS_{vni} is the distance between the capital of Vietnam and that of country *i*. BOR_{vni} is a dummy variable that takes the value of 1 if Vietnam and country *i* share a common border. RER_{vit} is the real exchange rate between the currency of Vietnam (VND) and that of country *i*. $CRIS^G$ and $CRIS^A$ represent the global financial crisis and the Asian financial crisis respectively. $CRIS^G$ gets the value of 1 for the period 2008-2009 (Shelburne, 2010) while $CRIS^A$ takes the value of 1 during the period 1997-1998 if Vietnam's partners were really struck by the crisis (Cuyvers et al. 2011). FDI_{ivt-1} represents real FDI flows from country partner *i* to Vietnam and is in lagged form to address the possibility of endogeneity due to the dual causality between FDI and GDP (Nguyen and Xing, 2008). $DGDPPC_{vit}$ represents the absolute value difference in GDP per capita between Vietnam and its partners. While the positive sign on $DGDPPC_{vit}$ might lend support to the H-O framework, a negative sign might reflect support for the Linder hypothesis (Antonucci and Manzocchi, 2006; Kahouli and Maktouf, 2014). In terms of trade agreements, AFTA, ACCECA, AJCEP, AKCECA, JVEPA, and USBTA_AS_ dummy variables. The dummy variables used here take the value of 1 if Vietnam and the country partner have participated in an FTA and 0 otherwise, based on the FTA's entry into force (Bae and Jang, 2013). Finally, $\varepsilon_{ijt} = \alpha_{ij} + v_{ijt}$. While α_{ij} denotes the specific country-pair effect that accounts for the unobservable and time-invariant characteristics that are specific to each pair of countries, v_{ijt} represents the error term that is assumed to be log normally distributed.

4.2. Data

This study employs panel data covering Vietnam and its 17 country partners over the period 1996-2014. Based on Vietnam's main FDI and trading partners as well as the availability of the data, 17 partners are selected, namely: Indonesia, Malaysia, Singapore, Thailand, China, Japan, Korea, Canada, United States, Hong Kong, Taiwan, France, Germany, Italy, Netherland, United Kingdom, and Sweden. During the last 2 decades, from 1995 to 2014, these 17 partners have accounted for more than 84% of Vietnam's total FDI inflows, 74% of Vietnam's exports and 84% of Vietnam's imports. In 2014, FDI flows to Vietnam from these partners comprised 91%⁶ of Vietnam's total FDI inflows while these countries accounted for almost 80% of Vietnam's total trade.

Data for bilateral exports and imports between Vietnam and its partners are collected from the General Statistics Office of Vietnam (GSO), while inward FDI into Vietnam by source countries are obtained from the ASEAN Secretariat. The data are then scaled by the consumer price index of the United States to generate real values.

The bilateral real exchange rate data between Vietnam and its partners are not directly available. Therefore, they are measured as follows, using US\$ exchange rates:

$$RER_{vni} = (CPI_{it}/CPI_{vt}) * (nER_{vt/\$}/nER_{it/\$})$$

6 The remaining 9% of FDI is primarily sourced from Virgin Islands, Cayman Islands, Cyprus, Samoa, Bermuda and other regions.

where CPI_{it} and CPI_{vt} are the annual consumer price index of country *i* and Vietnam at year *t* respectively. $nER_{vt/\$}$ and $nER_{it/\$}$ are the nominal exchange rates, indicating the amount of each country's currency per 1 US\$ at year *t*. The data are sourced from the world development indicators with the exception of Taiwan, for which CPI and nominal exchange rate data are obtained from the national statistics republic of China and the federal reserve bank of St. Louis respectively. Taiwan's nominal GDP, GDP deflator and population data are obtained from the IMF, while real GDP and population data for other countries are sourced from the world bank's world development indicators. $DGDPPC_{vit}$ is calculated as the absolute value of the difference between Vietnam's GDP per capita and its partners' GDP per capita:

$$DGDPPC_{vit} = \ln \left| \frac{GDP_{vt}}{POP_{vt}} - \frac{GDP_{it}}{POP_{it}} \right|$$

Information on Vietnam's different FTAs is available from the website of world trade organization whereas data on distance and border are from Centre d'Études Prospectives et d'Informations Internationales (CEPII).

4.3. Methodology

The available panel estimators include ordinary least squares (OLS), fixed effects (FE) and random effects (RE) techniques. According to Goh and Tham (2013) and others, the disadvantage of pooled OLS is the assumption of homogeneity for all countries, which can result in biased estimates because of the relationship between the explanatory variables and unobservable effects. A key benefit attached to FE is the provision of consistent estimates (Goh and Tham, 2013; Martínez et al. 2012). Unobserved time-invariant specific factors such as distance, border, language and colonial history, which might affect trade flows, are controlled for by FE. However, important time-invariant variables of gravity models, such as border and distance, cannot be easily estimated separately in a FE model. RE, on the other hand, can provide estimates for specific time-invariant variables. Despite this advantage, Kahouli and Maktouf (2014) note that FE by country is not accounted for in RE models. Recent empirical studies such as (Mijiyawa, 2017) and (Kahouli and Omri, 2017) have applied the system-GMM technique to panel data due to its superior efficiency in dealing with the issue of endogeneity. However, the authors state that the technique is more appropriate for dynamic panel data with a short time dimension. Due to the characteristics of our dataset and other econometric issues, RE is used in this paper.

5. EMPIRICAL RESULTS

Table 1 reports the results for the gravity models based on estimation using random-effects regressions. Breusch-Pagan LM tests (RE vs. OLS) were carried out and the LM statistics are statistically significant at 1%, indicating that RE models are statistically preferable to OLS for both the export and import gravity equations. The Wald tests for groupwise heteroscedasticity reject the null hypothesis that the variance of the disturbance term in each gravity model is constant over time. Therefore, the White robust standard error is used to address the problem.

Table 1: Estimation results from gravity models (random effects)

Independent variables	Dependent variables	
	ln EX _{vit}	ln IM _{ivt}
ln GDP _{vt}	1.993*** (0.187)	1.510*** (0.179)
ln GDP _{it}	0.515** (0.229)	0.452* (0.233)
ln DIS _{vi}	-0.693*** (0.249)	-1.444*** (0.459)
BOR _{vi}	0.088 (0.504)	0.678 (0.669)
ln RER _{vit}	0.043** (0.020)	0.003 (0.041)
ln FDI _{ivt-1}	0.038* (0.021)	0.048*** (0.010)
ln DGDPPC _{vit}	-0.051 (0.097)	0.173 (0.272)
CRIS ^A	0.214 (0.142)	-0.036 (0.047)
CRIS ^G	-0.108* (0.063)	0.067 (0.062)
AFTA	0.201 (0.272)	0.034 (0.125)
ACCECA	0.062 (0.096)	0.441*** (0.152)
AJCEP	-0.490** (0.192)	-0.424* (0.228)
AKCECA	0.341** (0.171)	0.067 (0.209)
JVEPA	0.394* (0.218)	0.538** (0.264)
USBTA	1.544*** (0.105)	0.528*** (0.113)
Constant	-37.604*** (5.169)	-19.679*** (5.134)
Wooldridge test, F	86.78***	24.62***
Breusch-Pagan LM test	344.17***	866.81***
Wald test statistics	589.60***	5180.83***
Number of observations	323	323

Robust standard errors are in parentheses. ***** and * denote significance at the 1, 5 and 10% levels

We begin our discussion with analysis of the impacts of trade agreements and FDI on Vietnam's exports and imports, which is the main focus of this paper. We then analyse the effects of other factors on trade.

5.1. Impacts of Trade agreements And Fdi on Trade

Our econometric results are reported in Table 1. As expected, the trade agreements have different effects on Vietnam's trade. The bilateral trade agreements considered, including both the JVEPA and Vietnam-USBTA generate trade creation. Specifically, JVEPA increases Vietnam's exports to Japan by 48% (computed as $\exp(0.394)-1$) and Vietnam's imports from Japan by 71% ($\exp(0.538)-1$). Using the same method of calculation, the USBTA has a stronger expansion impact on trade between Vietnam and the US, with Vietnam's exports and imports increasing by 368% and 70% respectively. There is also evidence of trade creation effects in the AKCECA, which stimulates Vietnam's exports by 41%.

It is noteworthy that the ACCECA has supported Vietnam's imports by 55%. According to GSO (2018), China has traditionally been

the largest import partner for Vietnam, thus it is understandable that Vietnam's imports from China went up sharply as a result of the FTA. However, our results indicate that this FTA has not stimulated Vietnam's exports to China. This may be due to the very strong competition Vietnam faces from other ASEAN exporting countries, with China regarded as a key export market for all ASEAN members.

The AFTA has no significant impact on Vietnam's trade, due in part to the delay and only small decrease in tariffs in the 1st years of AFTA implementation (Vanhlat et al. 2015). Our results suggest that the AJCEP has negative effects on Vietnam's trade. This is in line with Busse and Gröning (2012) and Ullah and Inaba (2012) who find evidence of negative impacts of particular FTAs on trade for Jordan and Bangladesh respectively. This result is also consistent with increased competition occurring among members as a result of the AJCEP, leading to trade diversion among its members. However, we note our dataset is only able to examine the first six years during which this RTA has been in force; future studies might throw more light on its trade effects during the next stages of implementation.

Regarding the impacts of FDI on trade, our results show that FDI inflows have increased Vietnam's exports by 0.04% over the period of 1996-2014, which supports the findings of Nguyen and Xing (2008), Anwar and Nguyen (2011) and Pham (2012). The positive impact of FDI inflows on Vietnam's exports can be explained as follows. Firstly, the export capacity of domestic firms in Vietnam has increased on account of FDI spill-over effects in terms of superior technology and management from multinational enterprises (Brooks et al. 2008). Moreover, Vietnam's domestic firms have improved their technology due to increased competition with multinational enterprises (Mijiyawa, 2017). Secondly, the complementary relationship between FDI inflows and exports in Vietnam might be partly explained by the exports of foreign affiliates constructed by vertical FDI to their home countries, due to fragmentation of various production stages across countries (Helpman, 1984). Thirdly, the rapidly increased shares of the foreign invested sector in Vietnam's total exports suggest there is a high possibility that Vietnam is becoming an increasingly important 'export platform' by many multinational enterprises (MNEs). Through MNEs, a source country would launch FDI in a host country and consider the foreign country as a production platform for exports to its other partners (Ekholm et al. 2007; Faeth, 2009; Kneller and Pisu, 2004).

The results reported in Table 1 also suggest that FDI inflows have stimulated Vietnam's imports from partners, which is consistent with Anwar and Nguyen (2011) and Pham (2012). The positive impact of FDI inflows on imports is also found in some other ASEAN countries, such as Indonesia, Malaysia and Thailand between 1970 and 1994 (De Mello and Fukasaku, 2000) and Pakistan (Waheed and Jawaid, 2010). The expansion effects of inward FDI on Vietnam's imports might be attributable to different types of FDI. Firstly, when a firm engages in vertical FDI in a variety of host countries to take advantage of relatively cheap and abundant factor endowments, firm-specific assets would be applied in all of its production plants in addition to the one located

in the home country (Helpman, 1984). This suggests that inward FDI increases imports into the host country due to the demand for the principal components of these affiliates from their home countries. Secondly, horizontal FDI also results in an increase in a host country's imports, due to foreign affiliates' demand for intermediate inputs from their home countries. This is consistent with the finding that a higher level of production for a US firm in a host country is associated with the host country's increased imports from the US firm (Lipsey and Weiss, 1984).

In terms of the control variables, Vietnam's exports and imports depend on the GDP of both Vietnam and Vietnam's partners, with much stronger dependence on the economic growth of Vietnam. Distance has a significantly negative effect on both Vietnam's exports and imports. The significantly positive coefficient of the real exchange rate between Vietnam and country partners suggests that a depreciation of the Vietnamese dong would increase the competitiveness of Vietnamese products which, in turn, has an expansion impact on Vietnam's exports. The dummy variable for the Global Financial Crisis is negative and statistically significant, indicating an adverse impact on Vietnam's exports. This supports the conclusion of Kahouli and Maktouf (2014) that the crisis reduced exports among countries.

5.2. The Trade-FDI Relationship Following Particular Trade Agreements

As discussed above and shown in Table 1, we find that FDI and trade are complementary. Among the key six trade agreements, only USBTA and JVEPA are found to stimulate both Vietnam's exports and imports. Vietnam's exports are also stimulated by AKCECA and imports by ACCECA. Therefore, it is of interest to consider whether the trade agreements have had any impacts on the trade-FDI relationship. Following Hejazi and Safarian (2005), multiplicative dummies between FDI and the particular trade agreements are included in the estimation. In particular, $\ln FDI_{ivt-1} * USBTA$, $\ln FDI_{ivt-1} * JVEPA$ and $\ln FDI_{ivt-1} * AKCECA$ are included in the exports model and $\ln FDI_{ivt-1} * USBTA$, $\ln FDI_{ivt-1} * JVEPA$ and $\ln FDI_{ivt-1} * ACCECA$ are included in the imports model. The regression results with these interactive terms are reported in Table 2.

All the independent variables maintain the same sign as those reported in Table 1. Therefore, we focus on the impact of the interactive terms.

For exports, there is no significant change in FDI slope with the inception of AKCECA. In contrast, the slope on FDI increases from 0.040 to 0.074 (0.040+0.034) as a result of USBTA. Following JVEPA, the FDI slope more than doubles, increasing from 0.040 to 0.095 (0.040+0.055). The dramatic increase in FDI slopes implies that Vietnam's exports have become more sensitive to FDI as a result of USBTA and JVEPA. This suggests that the complementary relationship between FDI and exports has become more salient as a result of the two trade agreements. For imports, JVEPA and ACCECA appear not to result in a significant change of slope on FDI. However, the slope on FDI decreases from 0.061 to 0.030 (0.061-0.031) following USBTA. This suggests that USBTA has reduced the complementary relationship between FDI and imports.

Table 2: Regression results with multiplicative dummies (random effects)

Independent variables	Dependent variable	
	$\ln EX_{vit}$	$\ln IM_{ivt}$
$\ln GDP_{vt}$	1.998*** (0.189)	1.488*** (0.173)
$\ln GDP_{it}$	0.507** (0.233)	0.477** (0.218)
$\ln DIS_{vi}$	-0.701*** (0.253)	-1.480*** (0.457)
BOR_{vi}	0.164 (0.531)	0.799 (0.761)
$\ln RER_{vit}$	0.041** (0.021)	-0.001 (0.044)
$\ln FDI_{ivt-1}$	0.040* (0.024)	0.061*** (0.014)
$\ln DGDPPC_{vit}$	-0.027 (0.108)	0.212 (0.297)
CRIS ^A	0.213 (0.143)	-0.024 (0.047)
CRIS ^G	-0.118* (0.064)	0.063 (0.062)
AFTA	0.207 (0.267)	0.062 (0.107)
ACCECA	0.050 (0.100)	1.991 (1.619)
AJCEP	-0.635** (0.265)	-0.407** (0.194)
AKCECA	3.086 (2.105)	0.086 (0.185)
JVEPA	-0.619 (0.566)	0.802* (0.421)
USBTA	0.901** (0.367)	1.110*** (0.288)
$\ln FDI_{ivt-1} * USBTA$	0.034* (0.020)	-0.031* (0.016)
$\ln FDI_{ivt-1} * JVEPA$	0.055** (0.024)	-0.014 (0.022)
$\ln FDI_{ivt-1} * AKCECA$	-0.139 (0.111)	
$\ln FDI_{ivt-1} * ACCECA$		-0.087 (0.091)
Constant	-37.733*** (5.107)	-20.052*** (5.013)
Wooldridge test, F	83.99***	24.17***
Breusch-Pagan LM test	351.59***	855.09***
Wald test statistics	503.49***	4649.70***
Number of observation	323	323

Robust standard errors are in parentheses, ***, ** and * denote significance at the 1, 5 and 10% levels

The changes in sensitivity of Vietnam's trade to FDI following the particular trade agreements are consistent with a change in the foreign investment behaviour of multinational firms. For instance, Buckley et al. (2007) point out that US multinational firms' foreign investment decisions in Canada, which were mainly dependent on market size and exchange rate factors prior to the North American FTAs, were driven by the Canadian market and financial market factors following the FTA. Vietnam has become an attractive destination for FDI due to the advantages brought about by the particular FTAs, which could affect Vietnam's trade. The reduction in trade cost due to particular trade agreements could also affect the type of FDI flows in Vietnam, which in turn impacts on Vietnam's trade as well.

6. CONCLUSION

While Vietnam has participated in numerous bilateral and FTAs, we find that the bilateral trade agreements with the US and Japan have led to the most noticeable expansion in Vietnamese exports and imports. The impacts from other RTAs are more mixed, due in part to increasing competition among members and the long tariff reduction process. In terms of FDI inflows, there is strong evidence of FDI inflows stimulating Vietnam's exports and imports. However, the impact on Vietnamese trade from FDI inflows is not as strong as that from some of the trade agreements. Furthermore, our findings suggest that Vietnam's exports (imports) have become more (less) sensitive to FDI as a result of the bilateral trade agreement with the US and exports have become more sensitive to FDI following the FTA with Japan.

These findings have important implications for Vietnam's policy makers. Firstly, to continue building growth in trade it is important that Vietnam continues its trade liberalization process, including through FTAs. Furthermore, to take advantage of a number of RTAs Vietnam is participating in, Vietnam needs to increase its competitive ability, including with ASEAN member countries. Secondly, in addition to addressing the problem of capital deficiency, FDI inflows to Vietnam can help to increase trade. Therefore, intensifying policies that help to attract FDI are expected to be useful in promoting trade.

It seems that certain types of agreements work better than others in terms of stimulating Vietnamese trade. In particular, policymakers may benefit from looking closely at the trade agreements with Japan and the US when it comes to future trade deals. Given that government policy is interested in stimulating FDI, closer trading ties with Japan and the US may confer most benefit in terms of Vietnamese exports. Therefore, a useful avenue for future research might be to more closely explore the nature of these agreements and whether or not lessons are available for trade agreements involving other countries. In terms of the changed sensitivities of trade to FDI, further research might also explore more closely the particular forms of FDI that have the most impact on this.

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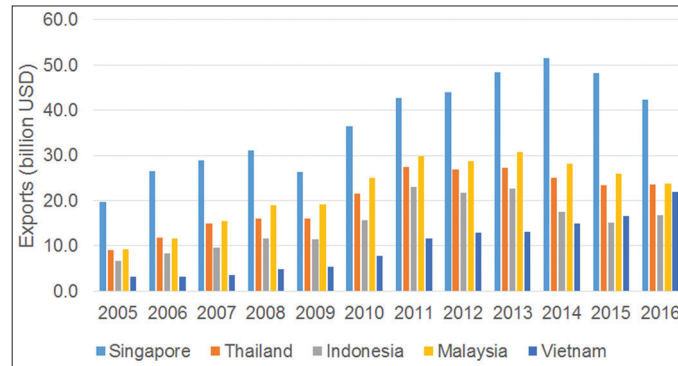
APPENDICES

Appendix 1: Global Competitiveness Index rankings

Country	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Singapore	8	7	5	3	3	2	2	2	2	2	2	2
Malaysia	19	21	21	24	26	21	25	24	20	20	18	25
Thailand	28	28	34	36	38	39	38	37	31	31	32	34
Indonesia	54	54	55	54	44	46	50	38	34	34	37	41
Philippines	75	71	70	75	85	76	65	59	52	52	47	57
Vietnam	64	68	71	87	59	65	75	70	68	68	56	60

Source: Created from world economic forum's global competitiveness reports 2006-2007 to 2017-2018.⁷

Appendix 2: Exports from ASEAN-5 to China



Source: IMF (2017)

⁷ <http://www.weforum.org/>