CWS/WP/200/ 19

Trans Pacific Partnership Agreement (TPPA): Implications for Vietnam's Domestic Value-Added Trade

Working Paper
November 2014

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Abstract: *In the context of recent emergence of mega Free Trade Agreements (FTAs), the paper estimates the impact of TPPA on trade of small economies like Vietnam. It is argued that measuring gains from entering a FTA should not be based on predicted 'increase in exports' only. It is important to estimate the implications for domestic value-added in exports for assessing the production-linked gains. The 'spread' of costs and benefits across different sectors should also be taken into account. The paper estimates gravity model based on bilateral trade in value added (TiVA Gravity) to estimate the potential domestic value added exports (DVA exports) and the resulting balance of trade for Vietnam post TPPA. It also undertakes simulations at six-digit disaggregated product level to identify new imports (trade creation) post TPPA. An encouraging trend with respect to Vietnam is that its domestic value addition in its exports to TPPA partner countries has been increasing since 2005. However, with respect to big markets like USA, Malaysia and Australia there has been a decline in Vietnam's DVA in exports.*

The results of TiVA Gravity show that post TPPA DVA exports of Vietnam will decline reducing its DVA exports to TPPA member countries by 18%. Value-added balance of trade, i.e., DVA exports minus imports, is estimated to deteriorate by $ 7.8 billion per annum. However, the impact of tariff liberalisation on Vietnam's trade, estimated using SMART simulations show that TPPA will improve Vietnam's balance of trade by$ 525 million as its exports increase by $ 4.1 billion while imports rise by $ 3.2 billion. These results highlight the fact that rise in exports do not necessarily mean rise in domestic value-addition in exports, which is necessary for any production-linked gains from trade.

Analysis at the disaggregated level shows that the share of USA in the increased exports of $ 4.1 billion, is $ 3.2 billion (78% of total rise in exports) which mainly occurs in textiles and clothing sector and footwear products. These two industries together contribute $ 2.7 billion increase in exports, which is 87% of Vietnam's exports to USA and more than 66% of total increase in Vietnam's exports post TPPA. It is important to note that these simulations do not take into account the impact of yarn-forward provision of TPPA. While rise in exports are concentrated in two industries, post TPPA the estimated imports are spread across many industries. Further, of the $3.7 billion rise in imports, $ 2.6 billion (71%) will be 'new imports' into Vietnam, while $ 1 billion will be on account of trade diversion. Rise in 'new imports' is spread across 88 industries with 38 industries getting new imports of more than $ 10 million per annum. Maximum new imports are found to be in distilled mineral fuels, oils and mineral products; followed by electrical machinery and equipment; processed fish; manmade filaments and textiles; plastic articles; boilers; man made stable fibres; ships and boats; iron and steel and its articles; starches; organic chemicals; vehicles; vegetable oils and paper and paperboards. Important industries which may require safety nets post TPPA would be industries like processed fish, preparation of cereals, dairy products, plastic articles; starches; vegetable oils and meat and meat products, which employ large number of poor people.

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1. Introduction

The emergence of mega Free Trade Agreements (FTAs) in addition to bilateral, regional and not-yet concluded WTO multilateral FTA has further complicated the existing trading system. Most of the mega FTAs are led by some big developed countries engaging with small developing countries, including some least developed countries (LDCs). One such mega FTA is Trans Pacific Partnership Agreement (TPPA), which began as Trans-Pacific Strategic Economic Partnership Agreement in 2005, engaging 4 countries namely Brunei, Chile, New Zealand, and Singapore. In October 2014, the agreement was being negotiated between 12 countries of the Asia pacific region. These include along with the original members, Australia, Canada, Japan, Malaysia, Mexico, Peru, Vietnam and United States of America (USA). TPPA aims at expanding this initial group to include additional countries throughout the Asia-Pacific region[2]. Can joining such mega FTAs bring 'net gains' to small countries? To explore this issue, this paper estimates the impact of TPPA on Vietnam's exports, imports, balance of trade, domestic value-added in trade and extent of 'trade creation' and 'trade diversion'.

TPPA stands out from other regional trade agreements in terms of its nature and scope. It goes much beyond the existing trade agreements in the Asia pacific region and includes 29 chapters on traditional as well as new issues, which include investments, services, financial services, competition, government procurement, labor, intellectual property, environment etc. Further, all TPPA negotiating partners have entered into a confidentiality arrangement which makes any analysis of the implications of TPPA on member countries extremely challenging, until they release the text. While there exist a number of empirical studies that have examined the implications of TPPA on the member countries, given the confidentiality in the negotiations, most of the analyses have been limited to the impact of TPPA on trade.

[2] http://www.ustr.gov/about-us/press-office/fact-sheets/2011/november/united-states-trans-pacific-partnership

Most of the studies estimating the impact of TPPA on member countries' trade have used various versions of Computable General Equilibrium Models (CGE) with Global Trade Analysis Projects (GTAP) database of 2007. These studies simulate the impact of TPPA on exports and imports of partner countries, including trade diversion and trade creation, thereby estimating the impact on member countries' GDP, employment and welfare. Existing studies with respect to Vietnam have also used CGE models. These studies include Petri et al (2011), PIIE (2012), Cheong (2013), Williams (2013), Todsadee (2013) and Lukas (2013).

Petri et al (2011) estimate that Vietnam would gain US$33.5 billion from the TPP as against the US$15.2 billion from the Asian track by the end of 2025. It is estimated that TPPA will lead to a rise of 14.3% in GDP while Asian tracks will increase it by only 6.3%. The overall results show that compared to all other partners, the welfare gain for Vietnam would be the highest in percentage terms in both the TPP and the Asian tracks. Cheong (2013), using CGE model and Release 8 of GTAP (2007 database), estimates Vietnam's gains in GDP as 0.18% in TPP12. Deardrof (2013) argues that Vietnam has FTAs with its major trading partners except with Chile and USA. Since, Vietnam exports most to the US market and imports very little from the USA, it would benefit from TPPA. Further, Lukas (2013) using CGE model estimates that Vietnam would gain US$26.2 billion (7.7 % growth) in income and US$47.2 billion (19.8 % growth) in exports under TPPA.

Banga (October 2014), drawing from the existing critique of CGE models, argues that these models use unrealistic and inconsistent assumptions which invariably lead to 'over-estimation' of gains, especially for small developing countries. These assumptions include (i) fixed or 'full' employment of labour and capital is maintained everywhere in the world (ii) each country's trade deficit (or surplus) stays constant after liberalisation; and (iii) completely flexible taxes on households enable each country's internal economy to adjust smoothly. Further, the Armington assumption used in CGE models implies that home and foreign goods are imperfect substitutes so that if the price of one goes down, more of it will be consumed (and less of the other product will be consumed) but there will never be complete substitution. This will imply that CGE models underestimate the extent of domestic displacement that can take place due to imports of cheaper products.

In addition, one of the major limitations of CGE models is that they take into account the change in horizontal intra-industry trade across countries but fail to take into account the

change in vertical intra-industry trade. These assumptions imply that producers can decide whether to sell their products in domestic markets or exports and consumers can similarly decide whether to use domestic products or imported products. However, these do not take into account the 'imports of intermediate products' that may be needed for 'increased exports' in each sector, especially post FTA. Given the rising importance of Global Value Chains, studies using CGE models grossly overestimate the related results of rise in exports with respect to change in GDP and resulting change in employment.

With the rising importance of the global value chains (GVCs) and trade in intermediate products almost 70% of the total trade (UNCTAD 2013), many countries have large proportion of exports comprising of imports of intermediate products. In fact, in many countries, linking into GVCs has actually declined the 'domestic value-added content' in their exports (Banga 2014). Mega FTAs like TPPA, with liberal provisions on foreign direct investments and trade in services, are more likely to increase the imports of inputs which are used in the exports of member countries. This would imply that an estimated "rise in exports" by models like CGE, may not be translated into rise in output and employment but may actually be fed by imports from the partner countries, reducing the existing domestic value-added content of exports of some member countries. This can have adverse implications for domestic production and employment for some of the countries engaged in TPPA. This aspect has been completely ignored by the existing literature.

However, unlike many developing countries including Malaysia, Vietnam has experienced a rise in its domestic value addition (DVA) in exports in the post 2005 period with respect to TPPA members as a group. The DVA in exports increased from 78% in 2005 to 84% in 2009. This increase has been particularly led by rise in DVA in exports of Vietnam to New Zealand, Chile and Canada. But with USA, Malaysia and Australia, there has been a substantial decline in Vietnam's DVA in exports. With Singapore and Japan there has been a marginal change. In this scenario, it becomes important to estimate the relative changes in trade of Vietnam with its partner countries under TPPA as that can have far reaching implications for its overall DVA in exports. Rise in DVA exports is important for a country in order to get the commensurate domestic production-linked gains from exports. The gains from any regional trade agreement to a country will come not from increased 'exports' per se, but from increased 'domestic value-added exports' (see Banga October 2014).

In this context, the analysis in this paper is based not only on 'trade' but also on 'trade in domestic value-added content'. The paper estimates the impact of the TPPA entering into force for 12 countries (TPPA12) on its member countries, focusing on DVA exports. To measure the net domestic value-added created by trade in TPPA, a new dataset is used which has been made available by WTO-OECD. This database uses harmonized input-output (I/O) tables of different countries. Analyses based on input-output tables provide a useful alternative to trade data. An important advantage of I-O tables is that they classify goods according to their use (as input into another sector's production or as final demand); and include information on inputs of/in services sectors, allowing for the analysis to include services trade. This database, released in 2013 on Trade in value-added (TiVA), covers 58 countries (including all OECD countries; BRICS countries; Newly Industrialised Countries Tier-1 (NICs1); NICs2, Cambodia, Brunei Darussalam and 'Rest of the world' for the years 1995, 2000, 2005, 2008 and 2009 using harmonized input-output tables of these countries.

To undertake this analysis, the paper deviates from the existing literature using CGE for impact analysis of TPPA and estimates a dynamic gravity model, using existing bilateral domestic value-added trade of member countries and gravity variables. Gravity models are being increasingly used for estimating the impact of regional FTAs[3]. Given the various provisions of TPPA, which aim at removing various restrictions and regulations among the TPPA member countries, predicted bilateral trade in domestic value-added based on gravity model, will be much closer to post TPPA reality as compared to the other trade models. Further, the paper estimates the impact of tariff liberalisation on different sectors of Vietnam.

The rest of the paper is organised as follows: section 2 briefly examines the provisions of TPPA; section 3 reports the existing tariff profiles in TPPA member countries, focusing on Vietnam; section 4 examines the existing trends in Vietnam's domestic value added trade with TPPA partner countries; section 5 discusses the methodology and data used for estimating Trade-in-Value-Added Gravity Model (TiVA-Gravity) and presents the results of for all TPPA member countries; section 6 estimates the impact of tariff liberalisation on Vietnam's trade with TPPA member countries including sectoral estimations based on partial equilibrium analysis; section 7 summarises and concludes.

[3] See Bergstrand and Egger (2011) for developments of gravity models since1960s and their use in explaining the impact of regional FTAs. http://www3.nd.edu/~jbergstr/Working_Papers/Gravity_Survey.pdf

2. TPPA Provisions: Brief Review

The TPPA is a potential free trade agreement aimed at creating a platform of economic integration across the Asia Pacific region. This is an expansion of the 2005 Trans-Pacific Strategic Economic Partnership Agreement (TPPA) that included originally 4 countries namely Brunei, Chile, New Zealand, and Singapore. In October 2014, the agreement was being negotiated between 12 countries of the Asia pacific region. Other countries such as South Korea, Taiwan, Philippines, Laos, Colombia and Indonesia, Cambodia, Bangladesh, Thailand and India have also expressed their interest to be a member of the TPPA. Though most of the countries involved in the agreement are already into some sort of trade agreements, either bilateral or multilateral, the present partnership treaty goes beyond the existing partnership agreements in terms of its scope.

The text of the negotiation is based on 29 chapters which cover both the traditional areas in FTAs and the new issues. Of the 29 draft chapters only eight deal with traditional trade issues. The traditional issues in TPPA chapters cover the market access, technical barriers to trade, sanitary and phytosanitary measures, rules of origin, customs cooperation, investment, services and legal and institutional aspects of the negotiation. The new FTA issues include government procurement, competition, intellectual property, labour and environment issues. The negotiation covers the legal texts which prescribe rules and disciplines on the subject areas; and market access which confers access opportunities for goods, services, procurement and investment. The legal texts which cover all aspects of commercial relations among the TPPA countries are virtually complete except in some areas where the differences remain. In the later stage, further negotiations and discussions are required on specific issues that still remain sensitive.

The first round of negotiations on TPPA commenced in March 2010 and the original participant's countries were Australia, Brunei, Chile, New Zealand, Peru, Singapore, United States and Viet Nam. During the third round at Brunei Darussalam, Malaysia joined the negotiations and in December 2012, at the 15th Round, Mexico and Canada were accepted as members to TPPA. Similarly, Japan joined in the 18th round held in Malaysia.

Given the confidentiality agreement between the partner countries, provisions in most of the chapters have remained out of the public domain. Some of the leaked chapters include the

investment chapter. TPPA's investment text emphasizes a substantive legal protection to the investment and the investors of each TPPA country in its TPPA partner countries. The TPPA envisages elevating individual foreign firms to equal status with the sovereign nations. The negotiations aim at providing the investors a non-discriminatory and a minimum standard of treatment and restrict performance requirements for foreign investments. The text aims to include provisions for expeditious, investor-state dispute settlement. Though the investment chapter has not been officially released by the trade negotiators but the leaked document reveals that TPPA would restrict the signatories from regulating foreign firms operating within their boundaries.

The TPPA would expand on the investor privileges found in the North American Free Trade Agreement (NAFTA) and subsequent NAFTA-style deals. The leaked documents claim that TPPA includes the provisions to acquire land, natural resources, factories without adequate government review and the right to move capital without limits for foreign investors. Risks and costs of offshoring to low wage countries are reduced and special guarantees are provided for "minimum standard of treatment" for relocating firms. Under this regime, foreign investors can directly sue the host government before tribunals of three private sector lawyers operating under World Bank and UN rules to demand taxpayer compensation for any domestic law that investors believe will diminish their "expected future profits." Similarly, on cross border services the TPPA partner countries have agreed on most of the cross border service text that is likely to include an open market for services trade. On goods negotiations, although not much is in public domain, it is expected TPPA will include a 'yarn forward' rule of origin, which is a standard USFTA requirement. This rule requires the TPPA nation to use a member-produced yarn in textiles in order to receive duty-free access.

3. Existing Tariff Profiles of TPPA12 Countries

Although TPPA goes much beyond tariff liberalisation, there is always an interest in examining the sectors which will gain and those which will lose in terms of tariff liberalisation. What is intriguing about TPPA is that all the countries are already in FTAs with most of the TPPA partner countries (Table 1). This is especially true for countries like Chile and Singapore. However, it is important to note that the existing FTAs have 'exclusion lists'. If TPPA aims at a higher scope of tariff liberalisation with smaller scope for excluding tariff lines, it will be important to examine the impact of tariff liberalisation.

Table 1: Existing FTAs among TPPA member countries in 2013

	Australia	Brunei	Canada	Chile	Japan	Malaysia	Mexico	New Zealan	Peru	Singapore	USA	Vietnam
Australia		✓		✓		✓		✓		✓	✓	✓
Brunei	✓			✓	✓	✓		✓		✓		✓
Canada				✓			✓		✓		✓	
Chile	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Japan		✓		✓		✓	✓		✓	✓		✓
Malaysia	✓	✓		✓	✓			✓		✓		✓
Mexico			✓	✓	✓				✓		✓	
New Zealan	✓	✓		✓		✓				✓		✓
Peru			✓	✓	✓		✓			✓	✓	
Singapore	✓	✓		✓	✓	✓		✓	✓		✓	✓
USA	✓		✓	✓			✓		✓	✓		✓
Vietnam	✓	✓		✓	✓	✓		✓		✓	✓	

Vietnam has FTA with eight out of the 11 partner countries in TPPA. This indicates that with some of the TPPA members, Vietnam still has relatively higher tariffs. Table 2 reports the existing tariff profiles of TPPA12. It can be seen that the average applied MFN tariffs are quite low for some countries like Singapore and New Zealand. But these could differ widely across sectors. Canada, Malaysia, Mexico and Vietnam have average MFN applied tariff as high as 16% in agriculture sector while Mexico and Vietnam have around 8% applied tariffs in non-agriculture sector.

Table 2: Average Applied MFN Tariffs (%)

	Total	Agriculture	Non-Agriculture
Australia	2.7	1.2	2.9
Brunei	2.5	0.1	2.9
Canada	4.3	16.2	2.4
Chile	6	6	6
Japan	4.6	16.6	2.6
Malaysia	6.5	11.2	5.8
Mexico	7.8	16.1	8.4
New Zealan	2	1.4	2.2
Peru	3.7	4.1	3.6
Singapore	0.2	1.4	0
USA	3.4	4.7	3.2
Vietnam	9.5	16.1	8.4

Source: TRAINS, World Trade Integrated Solutions (WITS)

These variations become even more evident when product level tariffs are observed in some sectors and in some countries. Table 3 provides highest tariffs by product category in TPPA countries. These products include dairy, clothing, beverages, tobacco, sugar and electrical machinery.

Table 3: Highest tariffs by product in TPPA countries

Country	Product	Average Applied MFN Tariffs (%)
Australia	Clothing	8.9
Brunei	Electrical machinery	13.9
Canada	Dairy Products	246.8
Chile	Most Products	6.0
Japan	Dairy Products	178.5
Malaysia	Beverages and Tobacco	119.7
Mexico	Sugar and confectionary	59.3
New Zealand	clothing	9.6
Peru	clothing	13
Singapore	Beverages and tobacco	2.4
USA	Dairy	19.1
Vietnam	Beverages and tobacco	43.6

Source: WTO Tariff profile 2012 and Williams (2013), CRS Report for Congress in USA

Table 4 reports the existing tariffs at the sector level (HS 2 digit) of Vietnam vis-à-vis TPP member countries as a group (including the effective tariffs in existing FTAs), USA and world. Only tariffs higher than 15% are reported. It can be seen that the sectors with high tariffs (above 25%) are tobacco, beverages, vegetables, vehicles, cereals, meat and footwear. The simple average tariffs with respect to TPP member countries do not seem to be much different than that with the world. In only some cases, tariffs are higher for USA as compared to TPP member countries as a group. Tobacco is a sector where Vietnam has a much higher tariff vis-à-vis TPPA member countries as compared to the world.

Table 4: Vietnam's Simple Average Tariffs (above 15%) in 2013 vis-à-vis TPP member countries, USA and World

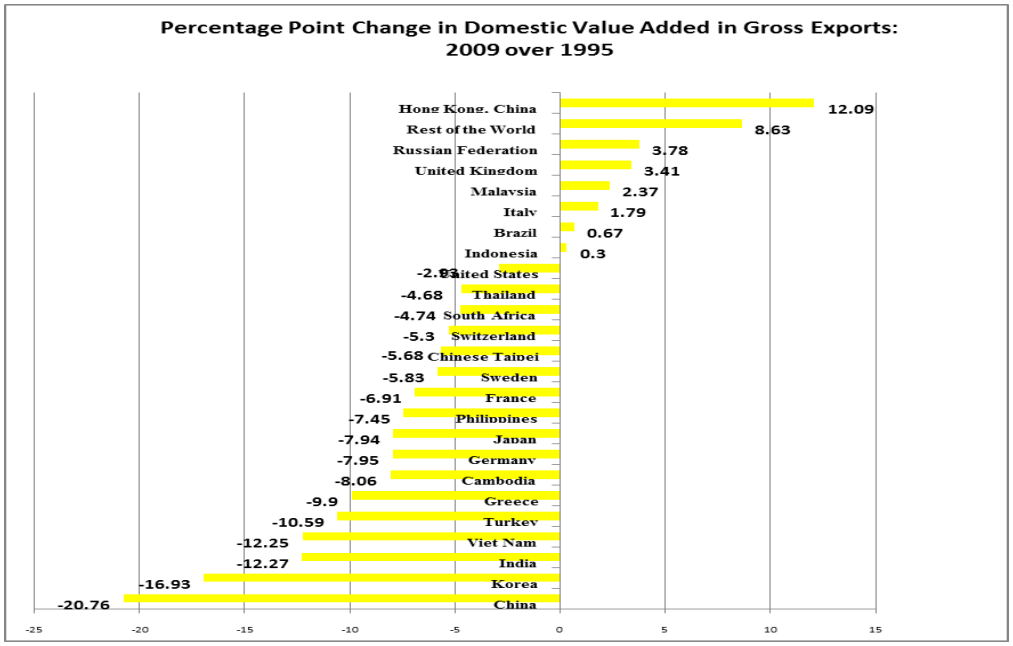
HS Codes	Product Name	TPP	World	USA
Total Trade		9.12	9.44	8.58
24	TOBACCO AND MANUFACTURED TOBACCO SUBSTITUTES	75	60.95	55
22	BEVERAGES, SPIRITS AND VINEGAR	42.92	42.92	40.61
20	PREPARATIONS OF VEGETABLES, FRUIT, NUTS OR OTHER P	31.96	32.84	31.19
87	VEHICLES OTHER THAN RAILWAY OR TRAMWAY ROLLING STO	29.2	28.08	24.47
19	PREPARATIONS OF CEREALS, FLOUR, STARCH OR MILK; PA	28.48	29.32	27.88
16	PREPARATIONS OF MEAT, OF FISH OR OF CRUSTACEANS, M	27.6	28.17	26.8
64	FOOTWEAR, GAITERS AND THE LIKE; PARTS OF SUCH ARTI	27.01	27.25	27.02
21	MISCELLANEOUS EDIBLE PREPARATIONS	26.07	26.94	23.25
66	UMBRELLAS, SUN UMBRELLAS, WALKING STICKS, SEAT-STI	25	25	25
67	PREPARED FEATHERS AND DOWN AND ARTICLES MADE OF FE	25	24.38	25
69	CERAMIC PRODUCTS	25	25.69	22.19
42	ARTICLES OF LEATHER; SADDLERY AND HARNESS; TRAVEL	23.94	22.8	24.36
96	MISCELLANEOUS MANUFACTURED ARTICLES	22.26	22.43	22.86
09	COFFEE, TEA, MATÉ AND SPICES	21.85	21.41	22.75
65	HEADGEAR AND PARTS THEREOF	21.5	18.63	20.8
08	EDIBLE FRUIT AND NUTS; PEEL OF CITRUS FRUIT OR MEL	21.08	23.22	20.25
83	MISCELLANEOUS ARTICLES OF BASE METAL	20.88	20.88	20.67
36	EXPLOSIVES; PYROTECHNIC PRODUCTS; MATCHES; PYROPHO	20	10.83	20
46	MANUFACTURES OF STRAW, OF ESPARTO OR OF OTHER PLAI	20	20	20
94	FURNITURE; BEDDING, MATTRESSES, MATTRESS SUPPORTS,	19.9	19.52	19.29
61	ARTICLES OF APPAREL AND CLOTHING ACCESSORIES, KNIT	19.82	19.89	19.6
62	ARTICLES OF APPAREL AND CLOTHING ACCESSORIES, NOT	19.76	19.84	19.56
18	COCOA AND COCOA PREPARATIONS	18.19	15.95	19.36
91	CLOCKS AND WATCHES AND PARTS THEREOF	17.86	18.75	14.17
70	GLASS AND GLASSWARE	16.99	16.68	15.76
11	PRODUCTS OF THE MILLING INDUSTRY; MALT; STARCHES;	16.11	17.04	19.29
07	EDIBLE VEGETABLES AND CERTAIN ROOTS AND TUBERS	15.02	15.41	16.02
68	ARTICLES OF STONE, PLASTER, CEMENT, ASBESTOS, MICA	14.8	15.54	12.88
02	MEAT AND EDIBLE MEAT OFFAL	14.71	17.38	17.63

Source: TRAINS, World Trade Integrated Solutions (WITS)

4. **Trends in Vietnam's Domestic Value Added Exports**

Domestic Value Added in gross exports has been declining over time in many developing countries including China (Figure 1). This decline has been around 12% for Vietnam in 2009 as compared to 1995.

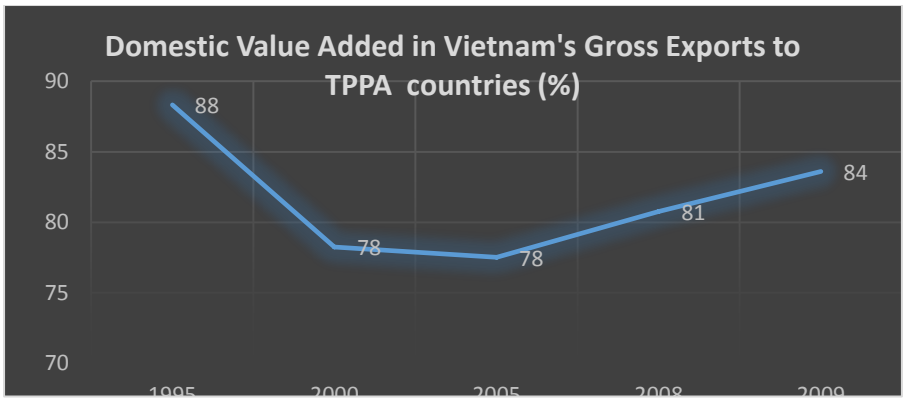
Figure 1: Percentage Change in Domestic Value Added in Gross Exports: 2009 over 1995



Source: OECD-WTO TiVA

However, with respect to TPPA member countries, there has been a rise in Vietnam's DVA exports post 2005 (Figure 2), although in 2009 the DVA exports were still lower than 1995 figure of 88%.

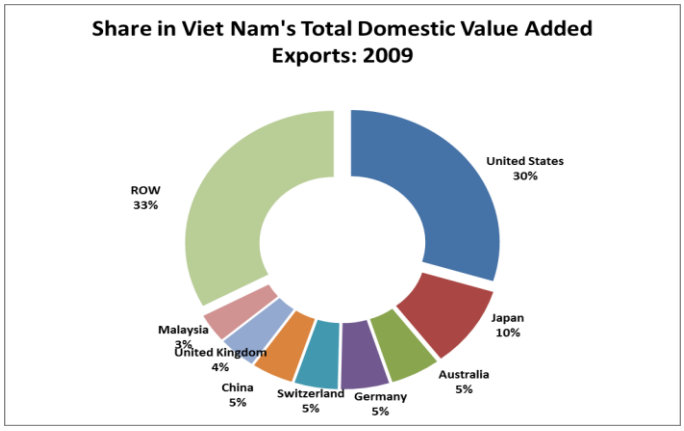
Figure 2 DVA Exports of Vietnam to TPPA Member countries: 1995-2009



Source: OECD-WTO TiVA

TPPA member countries form an important group for Vietnam's DVA exports. Figure 3 shows that around 48% of DVA exports of Vietnam went to TPPA member countries with share of USA being the highest at 30%, followed by Japan (10%), Australia (5%) and Malaysia (3%).

Figure 3. Share of TPPA Member Countries in Vietnam's Domestic Value Added Exports in 2009

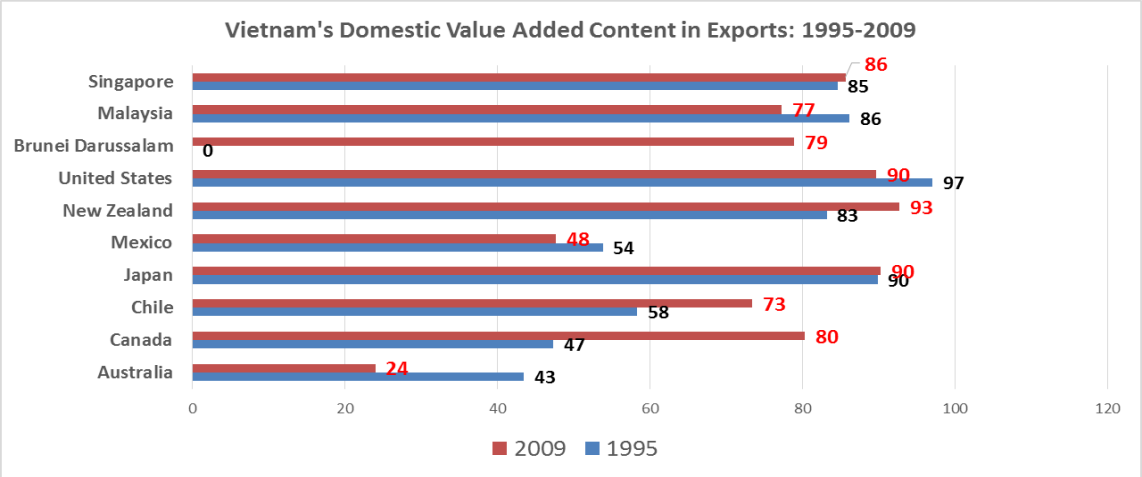


Source: OECD-WTO TiVA

ROW = Rest of the world

It is interesting to see that although Vietnam's DVA exports have increased with respect to the TPPA group as a whole, with respect to its major trade partner, USA it has in fact declined from 97% in 1995 to 90% in 2009 (Figure 4). The decline in DVA exports has been drastic in exports to Malaysia and Australia. The increase has been led by exports to Canada, Chile and New Zealand.

Figure 4: Change in Vietnam's DVA in Exports to TPPA Countries: 1995-2009



Source: OECD-WTO TiVA

4. Estimations of 'Trade in Value-Added' Gravity Model (TiVA Gravity Model)

4.1 Methodology and Data Used

The paper uses theoretically justified Gravity model to estimate the implications of the TPPA on member countries' total and bilateral trade in domestic value-added. A similar methodology has been used by Banga (October 2014) to estimate the impact of TPPA on Malaysia's DVA exports[4]. The trade in Value-Added Gravity model (TiVA Gravity) has been estimated. One of the main reasons for lack of literature in this area has been lack of data on bilateral trade in value-added. This paper uses the WTO-OECD dataset on Trade in Value-Added (TiVA) which provides information on bilateral value-added trade for 58 countries (including all OECD countries; BRICS countries; NICs1; NICs2, Cambodia, Brunei Darussalam and 'Rest of the world') for the years 1995, 2000, 2005, 2008 and 2009 using harmonized input-output tables of these countries. Growth rates of the value-added have been used to interpolate and arrive at a continuous series for 1995-2009.

Gravity models are extensively being used for estimating the impact of regional FTAs and predicting bilateral and regional trade along with estimating trade creation and trade diverting impacts of FTAs. Originally proposed by Tinbergen (1962) for international trade, the gravity model predicts bilateral trade flows between any two countries as a positive function of their size and negative function of the distance between them, where distance is a proxy for trade costs. Studies use gravity model to explain bilateral trade, regional trade and impact of regional FTAs, particularly whether these will result in trade creation or diversion. More recently, gravity models are being used to estimate welfare effects of RTAs.

This study estimates Dynamic TiVA Gravity Model for the period 1995-2009 for 24 countries[5] using panel data estimations (GMM-Arellano and Bond 1991). Most of the earlier studies have used static model, which may result in biased results as trade is a dynamic process[6]. Use of panel data and country-pair fixed effects in the model account for the

[4] For details of methodology used See Banga (October 2014), Trans Pacific Partnership Agreement (TPPA): Implications for Domestic Value-Added Trade of Malaysia, Background paper No 12, RVC, UNCTAD. [4] *unctad.org/en/PublicationsLibrary/ecidc2014misc1_bp12.pdf*

[5] 12 TTPA member countries are included with two of their major trading partners who are not members of TPPA. Countries are selected for which domestic value added data is available are included.

[6] For detailed discussion see Eichengreen and Irwin 1997 and Bun and Klassen (2002)

endogeneity of the integration effects and the existence of dynamic effects[7]. Dynamic models using GMM for estimating gravity models are also found to be more robust (Martínez-Zarzoso et al, 2009).

Two specifications are estimated, using 'bilateral trade in value-added' (bilateral TiVA) as dependent variables. These are with and without including the impact of tariff liberalisation on bilateral TiVA. The data on size variables have been extracted from the World Development Indicators. Distance variable is extracted from CEPII. The bilateral value-added data is used from WTO-OECD TiVA. The growth rate of bilateral value added exports between two distinct periods is applied to arrive at the continuous series of value-added trade for the period 1995-2009.

TiVA Gravity model is estimated, using relative GDPs and relative populations (or per capita incomes). Relative distance is used to capture bilateral trade costs. Following Baier and Bergstrand (2007), country-pair dummies are used to account for typical time invariant regressors, such as common language or border. Likewise time dummy is used to correct for potential trends in world trade. Similar model is estimated to explain bilateral trade by Bun and Klassen (2002). Impact of Tariffs in partner country is also estimated. TPPA member dummy is introduced. Arellano-Bond test for zero Autocorrelation in first differenced error has been undertaken. The model estimated is as follows:

$$\ln TiVA_{ijt} = \beta_0 + \beta_1 \ln TiVA_{ijt-1} + \beta_2 \ln(POP_{it} \times POP_{jt}) + \beta_3 \ln(GDP_{it} \times GDP_{jt}) + \beta_4(Distance_{ij}) + \beta_5 \ln Tariff_{jit} + \lambda ij + e_{ijt}$$

Where, $TiVA_{ijt}$ is bilateral trade in domestic value added between i and j in year t; GDP_{it} = GDP of country i at point t, GDP_{jt} = GDP of country j at point t; POP_{it} = population of country i at point t; Pop_{jt} = Population of country j at point t; $Tariff_{jt}$ is the simple average of tariffs in the importing country; Distance *ij* measures the great-circle distance between the capital cities (or economic centers) of country *i* and λij is the country pair dummy; and e_{ijt} = error term.

[7] See Baier and Bergstrand 2007 and Baldwin and Taglioni, 2007

5.2 Estimation Results

Using the estimated dynamic TiVA gravity model, bilateral trade in DVA is predicted between TPPA12 member countries[8]. As discussed, this model is estimated using panel data for the period 1995-2009. The model estimates the maximum potential of trade that 12 TPPA member countries can have in terms of Domestic Value Added, based just on gravity. This model is a closer fit to reality given the TPPA goals. These goals aim at removing all restrictions and regulations with respect FDI and trade in services; and remove all existing non-tariff and tariff barriers[9]. Further, domestic value added in exports includes value -added from goods sectors as well as services sectors.

Studies may point out that TPPA will be a win-win situation for all countries in terms of rise in exports, but it is important to estimate the change in domestic value-added in exports post TPPA in order to reach to any conclusions about rising exports and related gains in terms of production and employment. The results are reported in Table 5. The first three columns report the existing exports, imports and balance of trade (BOT) in 2013. These show that the exports of TPPA12 member countries in 2013 are around USD ($) 1.8 trillion. Of this, USA has the largest share of $588 billion, followed by Canada ($366 billion), Mexico, Japan and Singapore. The rest of the countries' export less than $100 billion. In 2013, Vietnam's exports are around USD ($) 57.3 billion to other TPPA11 member countries and imports around $34.2 billion. It therefore has a positive balance of trade (BOT) vis-à-vis TPPA member countries of around $23 billion. The BOT of the US is found to be negative with respect to TPPA countries. This is of the amount $278 billion in 2013 implying that US imports much more from TPPA countries than it exports to them.

Existing DVA exports, DVA exports as a percentage of Total Exports and Predicted DVA exports per year post TPPA are reported in columns 4, 5 and 6. It is found that DVA exports

[8] See Banga (October 2014) for estimated equation results

[9] "TPPA will provide new market access for Made-in-America goods and services, strong and enforceable labor standards and environmental commitments, ground breaking new rules on state-owned enterprises, a robust and balanced intellectual property rights framework, and a thriving digital economy. It will also include commitments that will improve the transparency and consistency of the regulatory environment to make it easier for small- and medium-sized businesses to operate across the region. By opening these new markets to American products, TPPA will help ensure that we are not left behind by our competitors in a vital region of the world"…http://www.ustr.gov/TPPA

to TPPA partner countries as a proportion of total exports are as high as 80% in many of the TPPA countries. But in US, Malaysia and Singapore it is much lower at around 50%. In Vietnam it is around 75%. Post TPPA, predicted DVA exports per annum increase in US, Japan and New Zealand. US has a potential to increase its exports of domestic value added to TPP12 countries by around $155 billion. (52% of its existing DVA exports); while Japan's potential increase in DVA exports is $ 87 billion (49% of its existing DVA exports).

Table 5: Results of TiVA Gravity Model

	Imports 2013 (USD '000)	Exports 2013(USD '000)	Balance of Trade(USD '000)	Domestic Value Added (DVA) EXPORTS IN 2013(USD '000)	DVA as a Percentage of Total Export	Predicted DVA Exports in 2013(USD '000)	Percentage Change in Estimated DVA Post TPPA	Value Added BOT Pre TPPA	Value Added BOT Post TPPA (1000USD)	Change in Value-Added BOT Post TPPA (USD '000)
United States	**866,456,611**	**588,022,109**	**-278,434,502**	**297,594,585**	**51**	**453,359,888**	**52**	-568,862,026	-413,096,722	**155,765,304**
Australia	79,278,324	59,183,792	-20,094,532	50,691,678	**86**	43,739,436	-14	-28,586,646	-35,538,888	-6,952,242
Canada	290,596,827	366,910,069	76,313,242	312,736,706	**85**	231,259,350	-26	22,139,880	-59,337,476	-81,477,356
Chile	25,173,043	23,669,310	-1,503,732	18,844,895	**80**	16,670,559	-12	-6,328,148	-8,502,484	-2,174,336
Japan	**221,692,156**	**208,720,414**	**-12,971,743**	**178,534,468**	**86**	**265,793,217**	**49**	-43,157,688	44,101,061	**87,258,749**
Mexico	225,915,853	318,409,018	92,493,165	249,929,963	**78**	179,666,617	-28	24,014,110	-46,249,236	-70,263,346
Malaysia	**68,647,871**	**93,727,339**	**25,079,468**	**54,449,405**	**58**	**36,818,591**	**-32**	-14,198,466	-31,829,280	**-17,630,814**
New Zealand	**10,901,781**	**15,142,569**	**4,240,788**	**12,134,276**	**80**	**12,571,410**	**4**	1,232,496	1,669,629	**437,134**
Singapore	111,967,839	124,895,701	12,927,862	60,664,577	**49**	55,105,381	-9	-51,303,261	-56,862,458	-5,559,196
Vietnam	**34,258,772**	**57,324,332**	**23,065,560**	**42,752,994**	**75**	**34,930,880**	**-18**	**8,494,222**	**672,108**	**-7,822,114**

Source: COMTRADE and Gravity Model Estimations Note: Peru and Brunei were dropped from gravity model estimations due to significant gaps in their data.

Predicted DVA exports post TPPA decline in Vietnam by around $7.8 billion reducing its domestic value added content in exports by 18% of existing DVA exports. This is not surprising if viewed with respect to the declining trend in Vietnam's DVA exports to big trading partners like USA, Malaysia and Australia, as discussed in the earlier section. The increase has been led by Canada, Chile and New Zealand. Decline in DVA exports can have severe employment implications in export sectors. Estimating the implications for VA BOT, it is found that for Vietnam in 2013, DVA-exports minus imports were minus $8.5 billion. This has a potential to be around $672 million, i.e., a worsening of Value-added BOT by $ 7.8 billion per year. When estimated in terms of DVA exports and imports is found to worsen for all countries except USA, Japan and New Zealand. These three countries will be the net 'gainers' post TPPA in terms of DVA exports.

Given the provisions of TPPA which removes restrictions to FDI and trade in services on a negative list basis (all sectors are opened to investors from other TPPA countries unless an exception is agreed by all TPPA countries), this is not very surprising. Most of the 'value' in manufactured exports come from pre-manufacturing services like R&D, designing, etc., and post-manufacturing services like branding, distribution, etc., which are embedded in manufacturing products. These services are often supplied by the lead firms and contribute to DVA in exports of their home countries. Developed countries have competitive advantages in these services and would therefore gain more in terms of DVA exports in any trade agreement with developing countries which include complete services liberalisation[10].

5. Implications of Tariff liberalisation under TPPA for Vietnam

To identify the sectors where TPPA may affect trade, impact of tariff liberalisation at a six-digit disaggregation is estimated. SMART simulations are used which are based on Partial equilibrium. One of the advantages of this approach is that it allows estimation of tariff reduction at a much disaggregated level, for example, implications of removing tariffs on broken rice (at HS six digit disaggregation). Such a disaggregated product level estimations of tariff liberalisation is not possible in any other model. SMART simulations are appropriate to use for TPPA 12 analysis as only few products have high tariffs in many of the member countries and implications for removing these tariffs on exports, imports, trade creation and trade diversion needs to be estimated. This also resolves a number of "aggregation biases." However, it needs to be remembered that this result of partial equilibrium analysis applies to only that product/sector and ignores inter-sectoral linkages.

Using SMART simulations, we first estimate the impact of removal of all six digit product level tariffs in TPPA12 countries. Existing applied tariffs are used and all import tariffs among TPPA12 countries are brought down to zero, while tariffs with respect to excluded countries remain the same. The simulation results are reposted in Table 6. The results show that post tariff liberalisation, Vietnam's imports will rise by USD ($) 3.6 billion, while exports will rise by $ 4.1 billion resulting in a favourable BOT of around $ 525 million per annum. Of this increase of $ 4.1 billion, share of USA is estimated to be $ 3.2 billion (78% of total rise in exports). This rise in exports is not only concentrated in terms of markets of

[10] See Banga (2014) for distribution of gains in GVCs.

TPPA member countries but are also concentrated in terms of products., HS chapter 61 (articles of apparel and clothing accessories, knitted or crocheted); HS chapter 62 (articles of apparel and clothing accessories, not knitted or crocheted); and HS chapter 64 (footwear, gaiters and the like; parts of such articles) contribute $ 2.7 billion which is 87% of Vietnam's exports to USA.

It is important to note that although around 50% of estimated rise is in exports comes from Textiles and Clothing sector, (i.e., around $ 2.1 billion), these simulations do not take into account the impact of 'yarn-forward' provision of TPPA. If due to any such provisions Vietnam's exports in textiles and clothing sector are affected, the favourable BOT may be adversely affected. Vietnam's BOT deteriorates by $ 1.1 billion with Japan and $ 1 billion with Singapore. Decline in trade surpluses is experienced with respect to Malaysia, Australia and New Zealand, while BOT improves with respect to Canada and Mexico.

Table 6: Impact of Tariff Liberalisation in TPPA on Exports, Imports and Balance of Trade (BOT)

	Imports in 2012 (USD 1000)	Imports post TPPA (USD 1000)	Change in Imports (USD 1000)	Exports in 2012 (USD 1000)	Exports post TPPA (USD 1000)	Change in Exports (USD 1000)	BOT in 2012 TPPA(USD 1000)	BOT post TPPA (USD 1000)	Change in BOT (USD 1000)
Australia	1,772,183	1,815,567	43,384	3,208,733	3,220,114	11,381	1,436,550	1,404,547	**-32,003**
Brunei	610,519	610,570	51	11,214	11,653	439	-599,305	-598,917	**388**
Canada	455,738	468,343	12,605	1,156,512	1,442,671	286,159	700,774	974,328	**273,554**
Chile	370,144	376,009	5,865	168,649	194,476	25,828	-201,495	-181,532	**19,963**
Japan	11,602,055	13,088,054	1,485,999	13,064,524	13,374,317	309,794	1,462,468	286,263	**-1,176,205**
Malaysia	3,398,385	4,075,274	676,889	4,500,284	4,641,184	140,899	1,101,899	565,910	**-535,990**
Mexico	110,660	117,622	6,962	793,774	1,003,298	209,524	683,114	885,677	**202,562**
New Zealand	384,858	421,270	36,412	183,981	195,938	11,957	-200,877	-225,332	**-24,455**
Peru	96,595	97,581	986	100,592	115,422	14,830	3,997	17,841	**13,844**
Singapore	6,690,984	7,730,573	1,039,589	2,367,683	2,367,683	0	-4,323,301	-5,362,890	**-1,039,589**
United States	4,841,730	5,192,317	350,587	19,680,929	22,854,892	3,173,963	14,839,199	17,662,575	**2,823,376**
TPP	**30,333,851**	**33,993,179**	**3,659,329**	**45,236,873**	**49,421,649**	**4,184,776**	**14,903,023**	**15,428,470**	**525,447**

Of the $3.6 billion imports, $ 2.6 billion will be 'new imports' into Vietnam, while $ 1 billion will be on account of trade diversion (Table 7). That is to say, 71 % of total rise in imports due to TPPA will be new imports and 29% will be imports which already exist but following TPPA will be diverted from current exporters to TPPA member countries (Table 6). New imports come into Vietnam from Japan, Singapore, Malaysia and USA

Table 7: Trade Creation and Trade Diversion by TPPA

	Total Increase in Imports post TPPA (USD 1000)	Trade Creation Effect or New Imports post TPPA (USD	Trade Diversion Effect Post TPPA (USD 1000)	Trade Creation as a Percentage of Total Trade Effect
Australia	43,384	26,786	16,599	62
Peru	986	591	395	60
Chile	5,865	3,577	2,288	61
Japan	1,485,999	1,036,955	449,044	70
Canada	12,605	7,958	4,647	63
Brunei	51	25	26	50
Mexico	6,962	4,251	2,711	61
New Zealand	36,412	31,005	5,407	85
Singapore	1,039,589	742,886	296,703	71
United States	350,587	253,346	97,242	72
Malaysia	676,889	483,602	193,287	71
TPP	3,659,329	2,590,982	1,068,347	71

To identify the industries where the new imports increase post TPPA, we undertake the analysis at two-digit industry level. Table 8 reports the results. It is found that while 50% of rise in exports occur for Textiles and Clothing sector, rise in imports will be much more widespread. 38 industries have been identified out of 88 industries where new imports will be more than $ 10 million per annum. Maximum new imports are in distilled mineral fuels, oils and mineral products ($ 567 million), followed by electrical machinery and equipment; processed fish; manmade filaments and textiles; plastic articles; boilers; man made stable fibres; ships and boats; iron and steel and its articles; starches; organic chemicals; vehicles; vegetable oils and paper and paperboards. In many of these industries, new imports are more than 80% of total rise in imports with new imports of processed fish being around 95% of total rise in its imports.

Table 8: Industries with 'New Imports' or Trade Creation above $ 10 million post TPPA

	Trade Creation Effect or New Imports post TPPA (USD 1000)	Trade Creation as a Percentage of Total Trade Effect (%)
27 -- MINERAL FUELS, MINERAL OILS AND PRODUCTS OF THEIR DISTILLATION; BITUMINOUS SUBSTANCES; MINERAL WAXES	567,353	69
85 -- ELECTRICAL MACHINERY AND EQUIPMENT AND PARTS THEREOF; SOUND RECORDERS AND REPRODUCERS, TELEVISION IMAGE AND SOUND RECORDERS AND REPRODUCERS, AND PARTS AND ACCESSORIES OF SUCH ARTICLES	184,340	57
03 -- FISH AND CRUSTACEANS, MOLLUSCS AND OTHER AQUATIC INVERTEBRATES	166,964	95
54 -- MAN-MADE FILAMENTS; STRIP AND THE LIKE OF MAN-MADE TEXTILE MATERIALS	150,740	91
39 -- PLASTICS AND ARTICLES THEREOF	126,404	61
84 -- NUCLEAR REACTORS, BOILERS, MACHINERY AND MECHANICAL APPLIANCES; PARTS THEREOF	102,312	58
55 -- MAN-MADE STAPLE FIBRES	98,473	84
89 -- SHIPS, BOATS AND FLOATING STRUCTURES	92,607	99
72 -- IRON AND STEEL	90,912	81
35 -- ALBUMINOIDAL SUBSTANCES; MODIFIED STARCHES; GLUES; ENZYMES	83,090	90
29 -- ORGANIC CHEMICALS	70,368	94
73 -- ARTICLES OF IRON OR STEEL	61,576	57
87 -- VEHICLES OTHER THAN RAILWAY OR TRAMWAY ROLLING STOCK, AND PARTS AND ACCESSORIES THEREOF	59,886	57
15 -- ANIMAL OR VEGETABLE FATS AND OILS AND THEIR CLEAVAGE PRODUCTS; PREPARED EDIBLE FATS; ANIMAL OR VEGETABLE WAXES	59,061	70
48 -- PAPER AND PAPERBOARD; ARTICLES OF PAPER PULP, OF PAPER OR OF PAPERBOARD	55,194	60
60 -- KNITTED OR CROCHETED FABRICS	36,357	72
24 -- TOBACCO AND MANUFACTURED TOBACCO SUBSTITUTES	35,724	94
70 -- GLASS AND GLASSWARE	35,057	83
96 -- MISCELLANEOUS MANUFACTURED ARTICLES	32,203	65
52 -- COTTON	31,925	71
19 -- PREPARATIONS OF CEREALS, FLOUR, STARCH OR MILK; PASTRYCOOKS' PRODUCTS	30,212	59
04 -- DAIRY PRODUCE; BIRDS' EGGS; NATURAL HONEY; EDIBLE PRODUCTS OF ANIMAL ORIGIN, NOT ELSEWHERE SPECIFIED OR INCLUDED	27,120	84
11 -- PRODUCTS OF THE MILLING INDUSTRY; MALT; STARCHES; INULIN; WHEAT GLUTEN	21,775	86
83 -- MISCELLANEOUS ARTICLES OF BASE METAL	20,624	58
21 -- MISCELLANEOUS EDIBLE PREPARATIONS	20,428	52
40 -- RUBBER AND ARTICLES THEREOF	20,109	48
08 -- EDIBLE FRUIT AND NUTS; PEEL OF CITRUS FRUIT OR MELONS	19,547	87
41 -- RAW HIDES AND SKINS (OTHER THAN FURSKINS) AND LEATHER	19,318	85
33 -- ESSENTIAL OILS AND RESINOIDS; PERFUMERY, COSMETIC OR TOILET PREPARATIONS	18,561	63
02 -- MEAT AND EDIBLE MEAT OFFAL	18,426	76
56 -- WADDING, FELT AND NONWOVENS; SPECIAL YARNS; TWINE, CORDAGE, ROPES AND CABLES AND ARTICLES THEREOF	17,307	79
58 -- SPECIAL WOVEN FABRICS; TUFTED TEXTILE FABRICS; LACE; TAPESTRIES; TRIMMINGS; EMBROIDERY	14,557	62
17 -- SUGARS AND SUGAR CONFECTIONERY	14,525	76
61 -- ARTICLES OF APPAREL AND CLOTHING ACCESSORIES, KNITTED OR CROCHETED	14,079	93
76 -- ALUMINIUM AND ARTICLES THEREOF	11,401	54
69 -- CERAMIC PRODUCTS	11,176	74
59 -- IMPREGNATED, COATED, COVERED OR LAMINATED TEXTILE FABRICS; TEXTILE ARTICLES OF A KIND SUITABLE FOR INDUSTRIAL USE	10,763	45
34 -- SOAP, ORGANIC SURFACE-ACTIVE AGENTS, WASHING PREPARATIONS, LUBRICATING PREPARATIONS, ARTIFICIAL WAXES, PREPARED WAXES, POLISHING OR SCOURING PREPARATIONS, CANDLES AND SIMILAR ARTICLES, MODELLING PASTES, 'DENTAL WAXES' AND DENTAL PREPARATION	10,450	58

Table 9: New Imports of Vietnam above $25 million post TPPA

Country of Import	HS Codes	Description	New Imports above $ 25 million per annum post TPPA (in USD 1000)
Singapore	271019	coal; briquettes, and similar solid fuels manufactured from coal	766,950
Japan	540742	Woven fabrics of synthetic filament yarn, including woven fabrics obtained from materials	248,308
Singapore	271012	Light oils and preparations :	236,882
Singapore	890690	Other vessels, including warships and lifeboats other than rowing boats :	133,582
Malaysia	290321	Vinyl chloride (chloroethylene)	117,680
Malaysia	852872	Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus	110,141
USA	30342	Yellow fin tuna (Thunnus albacares)	100,579
Japan	30349	other tuna	95,351
Malaysia	151190	Palm oil and its fractions, whether or not refined, but not chemically modified	91,317
Malaysia	271019	coal; briquettes, and similar solid fuels manufactured from coal	83,100
Japan	720918	Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, cold-rolled(cold-reduced), not clad, plated	82,797
Japan	350691	Adhesives based on polymers	68,352
Malaysia	350691	Adhesives based on polymers	63,940
Singapore	240220	Cigarettes containing tobacco :	59,795
Japan	392630	Fittings for furniture, coachwork or the like -	56,798
Japan	392690	Other articles of plastics and articles of other materials	52,253
Japan	551219	Woven fabrics of synthetic staple fibres, containing 85 % or more by weight of synthetic staple fibres	50,370
Japan	853690	Electrical apparatus for switching or protecting electrical circuits, or for making connections to or in electrical circuits	50,128
Japan	30349	fish fillets & other fish meat, fresh, chill or froze-Herrings (Clupea harengus, Clupea pallasii),excluding livers and roes	49,063
Singapore	240220	Cigarettes containing tobacco	29,897
Singapore	30344	Bigeye tuna (Thunnus obesus)	24,028

The above analysis clearly brings out the lopsided gains to Vietnam under TPPA. Exports rise mainly in two sectors, imports post TPPA will be dispersed in many sectors. Along with trade diversion which may divert imports from less competitive exporter, new imports will enter the markets. These new imports of more than $ 10 million will also come in some of the labour intensive industries like processed fish, preparation of cereals, dairy products, plastic articles; starches; vegetable oils and meat and meat products. These sectors may require more social safety nets in terms of making the gains from trade inclusive.

6. Summary and Conclusions

Vietnam along with some other small economies like Brunei and Peru is negotiating entering TPPA, which includes advanced countries like USA, Australia, Canada and New Zealand. While these mega FTAs may provide larger markets for these small countries' exports and provide them with some vital inputs for their exports, there are concerns that such mega FTAs may '*hollow-out'* economies of small countries. This can happen if domestic value added in exports decline post FTA and imports increase both of intermediate products as well as of final consumer products. While higher imports may provide a competitive environment for the domestic industry, it can also have adverse implications for total production and employment in these countries.

Many studies have been undertaken to assess the costs and benefits associated with TPPA for the included as well as the excluded countries. Most of these studies have used Computable General Equilibrium Models (CGE) with Global Trade Analysis Projects (GTAP) database of 2007. Studies like Petri et al (2011), PIIE (2012), Cheong (2013), Williams (2013), Todsadee (2013) and Lukas (2013) show substantial gains to Vietnam in terms of exports ($ 47 billion), GD ($ 26 billion) and employment. However, an important limitation of these studies is that they are unable to capture the rise in imports of inputs that may enter the estimated rise in exports, post FTAs. Further, these models have been criticised for their unrealistic and inconsistent assumptions which always lead to overestimation of 'gains' (see Banga October 2014). They assume (i) fixed or 'full' employment of labour and capital is maintained everywhere in the world (ii) each country's trade deficit (or surplus) stays constant after liberalisation; and (iii) completely flexible taxes on households enable each country's internal economy to adjust smoothly. This implies that the models are designed in such a way that 'the price system' will always respond to liberalisation in a way that it leads to increases in overall well-being.

To estimate the impact of joining TPPA on Vietnam's trade, this paper adopts alternative methodologies. The paper estimates the maximum potential 'domestic value-added trade' that can take place between TPPA 12 member countries, by estimating 'Trade in Value Added Gravity model' (TiVA Gravity) using a panel data of 1995-2009 and simulates the scenario for post TPPA. One of the benefits of this approach is that the model is able to estimates trade

in 'domestic value-added' and estimate balance of trade which may result for Vietnam post TPPA. Given that TPPA goes much beyond trade and is also supposed to remove other non-tariff barriers and restrictions, gravity model provides a better fit than CGE models.

An encouraging trend with respect to Vietnam is that its exports of domestic value added (DVA exports) to TPPA partners has been rising since 2005 without joining any mega FTAs. The DVA in exports increased from 78% in 2005 to 84% in 2009. However, this increase has been particularly led by rise in DVA in exports of Vietnam to New Zealand, Chile and Canada. With USA, Malaysia and Australia, there has been a substantial decline in Vietnam's DVA in its exports. With Singapore and Japan there has been marginal change.

The results of the TiVA gravity model shows that predicted DVA exports post TPPA will decline for Vietnam reducing its domestic value added content in exports by 18% of existing DVA exports. This is not surprising if viewed with respect to the declining trend in Vietnam's DVA exports to big developed trading partners like USA, Malaysia and Australia. Value-added BOT, i.e., DVA exports minus imports, is estimated deteriorate by $ 7.8 billion per annum. VA BOT is found to worsen for all countries except USA, Japan and New Zealand, which will be the net 'gainers' post TPPA in terms of DVA exports.

The paper further estimates the impact of tariff liberalisation under TPPA on Vietnam's trade. Vietnam already has existing FTAs with eight out of eleven partner countries of TPPA. SMART simulations are used for estimating the impact on HS six-digit level of disaggregated products. Such a disaggregated product level estimations of tariff liberalisation is not possible in any other model. The results show that there are net gains to Vietnam in terms of balance of trade. Its exports increase by $ 4.1 billion while imports rise by $ 3.2 billion resulting in favourable BOT of $ 525 million. However, further analysis at the disaggregated level shows that the rise share of USA in the increased exports of $ 4.1 billion is $ 3.2 billion (78% of total rise in exports) which mainly occurs in textiles and clothing sector and footwear. These two industries together contribute $ 2.7 billion which is 87% of Vietnam's exports to USA and more than 66% of total rise in Vietnam's exports. It is important to note that these simulations do not take into account the impact of 'yarn-forward' provision of TPPA.

While rise in exports are concentrated in two industries, post TPPA the estimated imports are spread across many industries. Further, of the $3.6 billion rise in imports, $ 2.6 billion (71%) will be 'new imports' into Vietnam, while $ 1 billion will be on account of trade diversion. Rise in 'new imports' is spread across 88 industries with 38 industries getting new imports of more than $ 10 million per annum. Maximum new imports are found to be in distilled mineral fuels, oils and mineral products ($ 567 million); followed by electrical machinery and equipment; processed fish; manmade filaments and textiles; plastic articles; boilers; man made stable fibres; ships and boats; iron and steel and its articles; starches; organic chemicals; vehicles; vegetable oils and paper and paperboards. In many of these industries, new imports are more than 80% of total rise in imports with new imports of processed fish being around 95% of total rise in its imports. Important industries which may require safety nets post TPPA would be industries like processed fish, preparation of cereals, dairy products, plastic articles; starches; vegetable oils and meat and meat products which employ large numbers of poor people.

The paper highlights that '*trading more'* may no longer generate production-linked commensurate gains for small economies with the rapid spread of global value chains. Focus of policy makers therefore needs to shift from increasing exports to increasing domestic value-addition in exports while assessing costs and benefits of joining FTAs, especially mega FTAs with countries at different thresholds of competitiveness. It is also important to estimate the resulting 'spread' of gains and losses. Concentration of exports in few industries with widespread imports may have high adjustment costs.

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