The Impact of New Regionalism on Global Value Chains Participation

Stela Rubínová

stela.rubinova@wto.org

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Abstract

This article investigates the impact of trade agreements on bilateral trade flows of manufactured goods. Compared to other studies, it enriches the analysis by decomposing gross trade flows into their value added components, and by considering the direction of trade flows and the content of trade agreements. The analysis reveals a clear pattern in the effects of economic integration on the degree and type of global value chains (GVC) participation. It shows that free trade agreements enhance GVC-driven trade between developed and developing economies whereby the latter assemble imported intermediates into final goods exports. Deeper integration fosters production fragmentation with a more balanced structure where even the less developed economies participate at more upstream stages and contribute more domestic value added into the supply chain. Finally, an analysis based on the content of FTAs reveals that liberalisation of trade in services is essential for the insertion of less developed economies in global value chains while investment provisions are crucial for their participation at more upstream stages of the value chain.

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1. Introduction

The nature of international trade has changed in the last two decades. Final goods are no longer the main trading article as intermediate goods, services and generally trade in tasks have become characteristic to nowadays trade. At the same time, agreements governing international trade partly departed from the forum of the World Trade Organization (WTO) resulting in a massive wave of regionalism. When studied closely, the new regional agreements differ from deals at the WTO in that they often treat areas that have proved so far intractable in the multilateral setting. They go much further in harmonizing what is often considered purely domestic policies such as competition policy, investment or intellectual property rights protection. Especially East Asia has become a leading example of a regional manufacturing network (so called "Factory Asia") and has witnessed a boom in trade agreements since the beginning of the new millennium.

This article investigates the relationship between the two phenomena in a gravity model framework. Compared to other studies, it enriches the analysis by looking at value added components of gross trade flows, and by considering both the content of trade agreements and the direction of the flows. Given the structure of production networks and the character of regionalism in the past twenty years, it concentrates mainly on the impact on trade between countries at different levels of economic development.

When international supply linkages drive a large part of international trade flows, the role of trade liberalisation may be more complex than is generally assumed in empirical gravity models. For instance, global value chains involve large amounts of bilateral exports of intermediate inputs from high-income countries that are assembled in lower-income countries into exports of, typically, final goods. Therefore, it cannot be expected that the impact of trade agreements on exports of intermediates between asymmetric partners is symmetric, and the same holds for final goods. Furthermore, gross trade flows mask the origin of value added in exports, which is essential in characterizing global value chains participation. This article thus adopts a novel approach. It estimates how trade agreements affected various value added components of gross bilateral trade flows and uses the results to shed light on the character of GVC participation they fostered. Finally, the analysis focuses on the heterogeneity in the content of free trade agreements. It uses a dataset newly constructed by the World Bank and considers five main policy areas that have been identified in the literature as important for international production fragmentation.

The structure of the remaining chapters is as follows; Chapters 2 and 3 introduce global value chains and the new regionalism. Chapter 4 provides a summary of the relevant economic literature. Chapter 5 presents the econometric model and estimation technique together with data description. Chapter 6 presents results of the empirical analysis and Chapter 7 concludes.

2. The rise of international production networks

Trade in intermediate inputs is a result of an increasingly complex structure of the world's production chains. It reflects decisions of firms to take advantage of more favourable conditions for some stages of their production process abroad and develop international backward linkages, either by subcontracting to foreign producers or by setting up own foreign subsidiaries. The internationalization of the supply chain started already in the late 1980s when shipping costs and tariff barriers became sufficiently low. Major boost came with advances in the internet and communication. The new technologies made coordination and management on distance easier, faster and therefore weakened the glue that kept all the tasks of production at a single location (Baldwin, 2011). Kimura and Obashi (2010) document the evolution of production networks in East Asia that was marked especially by the rise of China. The study also shows that the supply chains within the region have started to play an important role in the last decade. Koopman et al. (2014) provide an integrated framework for the accounting of foreign value in countries' exports and show that in some countries nearly 50% of the value added of their exports comes from abroad. The increasing fragmentation of production is also corroborated by a decreasing ratio of value added in gross trade flows as documented for instance by Johnson and Noguera (2012).

The prospects of economic development through GVC participation have become a major topic for the policy-oriented literature (Taglioni and Winkler, 2016). Developing countries usually enter GVCs at downstream low-skill-intensive stages such as the assembly of intermediate inputs into final goods exports. At this stage, the domestic value added to the exported product is very low and therefore GVC-driven exports are characterised by very high foreign value added content. Upgrading within GVCs is associated with increasing domestic value added content of exports as countries start engaging in relatively more upstream stages of production and/or more skill-intensive tasks. This can be a result of development of a competitive domestic supplier base, attracting foreign affiliates that bring in more production stages (foreign firms offshore part of their production that directly enters the assembly process), or simply moving to higher-value added tasks due to changes in comparative advantage. Upgrading thus possibly involves a decreasing value of intermediates exports from North and increasing domestic content in intermediates and/or final goods exports from South. Overall, the literature suggests that the relationship between GVC participation and the degree of foreign value added in exports is non-linear.

3. Barriers to trade beyond trade policies

In manufactured goods trade, tariff levels are generally low and many developing countries face virtually free access to major markets. In East Asia, for instance, even some developing countries

pursued a massive unilateral tariff cutting to assure their competitive place in the production networks of the region. When tariffs are already low, other barriers to trade become more prominent. The growing body of literature on the internationalization of production process suggests that the decisions of firms to develop international backward linkages depend not only on the border barriers among countries but also on their institutional characteristics. When contracts are not perfectly enforceable, Antras and Staiger (2008) show how the amount of trade in intermediates can be influenced by institutions that influence parties' bargaining power. Therefore, harmonization of policies such as competition enforcement may play an important role in firms' decisions to outsource some products to foreign suppliers. Setting up foreign affiliates, on the other hand, depends on the investment conditions for foreign firms, and the protection of asset-intensive activities. In both cases, regional integration in terms of "playing field" regulations enhances the capability of firms to specialize or fragment their production process to fully exploit the different production conditions in different countries.

Regional trade agreements can achieve deeper integration in several ways - they harmonize policies between members, guarantee national treatment for members' companies or, in the case of developed-developing countries' agreements, upgrade some disciplines or even introduce new policy areas for the developing partners. Deeper provisions in trade agreements have started to be documented by Estevadeordal et al. (2008), Horn et al. (2009), Dür et al. (2011) and most recently Hofmann et al. (2016). The latter code the presence of more than 30 different provisions that surpass the current WTO mandate in 280 trade agreements. The agreements include legally enforceable provisions ranging from Agriculture, Industrial Cooperation, Consumer Protection to Research and Technology or Visa and Asylum. However, closer inspection shows that there are four behind-the-border policy provisions that appear by far most often and have the largest potential to influence international production networks trade[1]:

Investment

Investment provisions are important for multinational companies as they simplify foreign investment procedures, establish the national treatment principle for foreign-owned affiliates and guarantee certain rights in the post-establishment periods. As such they make it easier for foreign companies to establish production units in the partner countries and provide more certainty in how their assets will be treated. These provisions also generally include a broader definition of investment that includes portfolio investment and different forms of tangible and intangible property (Miroudot, 2011).

[1] Legally enforceable provisions on Agriculture, Information Society, Regional Cooperation, Consumer Protection, Research and Technology, Education and Training, Energy, Mining, Industrial Cooperation, Cultural Cooperation, Data Protection, Environmental Laws, Labor Market Regulation appear in only few agreements. The provision on Visa and Asylum appears very often but it is not that pertinent to trade in goods, especially when movement of workers and managers related to foreign direct investment is often treated in the investment provisions (Miroudot, 2011)

Capital movement

Capital movement provisions aim at dismantling capital movement restrictions that do not only concern FDI and capital inflows but also capital outflows.

Intellectual property rights (IPRs)

Some regional trade agreements go beyond the TRIPs Agreement and include more comprehensive measures or accession to international treaties not referenced in the TRIPs Agreement. IPRs are crucial for trade in more sophisticated goods that often embody large costs of research and development. Low IPRs protection may act as a barrier for foreign high-tech firms to include such countries in their production networks as it generates uncertainty in resolving potential IPRs breaches. Higher IPRs protection can however also appear as a trade barrier when it restricts imports that are counterfeited or restricts the ability of developing countries to export through imitation of technologies from developed countries.

Competition policy

Competition policy differs especially among developed and developing countries as the latter often have much more lenient attitude to domestic monopolies or lack any competition enforcement whatsoever. Harmonizing, or rather binding the countries to adhere to some competition policy enforcement standard may help foreign firms to access previously monopolized markets. Another incentive for countries to include competition policy in trade agreements is to exchange information and cooperate on competition concerns regarding multinational companies that cannot be easily handled by only one jurisdiction.

Services

Finally, good infrastructure services and other business services also matter for attracting foreign investors. By the same token, they are even more important for domestic firms as ICT services, transport and access to finance are essential ingredients for export success. Liberalisation of trade in services exposes domestic services firms to competitive pressure from foreign firms and possibly gives better access to new services technologies. It therefore ensures better conditions for manufacturing firms to engage in international production activities which require a high degree of connectivity, coordination and communication. A services provision in trade agreements is therefore the fifth ingredient that is considered in this study.

4. Related literature

Empirical literature on the effects of trade agreements on international trade is plentiful,[2] nevertheless few studies consider the actual content of the agreements.

[2] See a survey of the trade impact of trade agreements by Limao (2016) or a meta-analysis by Ghosh and Yamarik (2004).

Chen and Matoo (2008) investigate the impact of harmonization of product standards and how it changes depending on the rules of origin and mode of implementation. Using sectoral level data, they find a very large positive impact of mutual recognition agreements without rules of origin. By including four sets of fixed effects (importer-industry-year, exporter-industry-year, importer-exporter-industry and importer-exporter-year) the authors control for a wide range of unobserved heterogeneity.

Foster (2012) focuses on the effect of intellectual property rights (IPR) protection in the importing country on bilateral trade using a standard gravity model. Even though the study does not focus on IPR protection built-in in the trade agreements, it might provide a hint about its effects. The study finds an overall positive impact of strong IPR protection on trade that is decomposed into a positive impact on the extensive margin and a negative impact on the intensive margin. The caveat of the study lies in the fact that the variable of interest is importer-year specific. Various studies (e.g. Baier and Bergstrand, 2007) have shown that omitting the unobservable price indexes causes a substantial estimation bias if the variable of interest represents a barrier to trade. Since the authors cannot use the importer-year fixed effects to account for the omitted variables, their results may suffer from the bias.

A study by Berger et al. (2012) looks at the investment protection and facilitation embodied either in trade agreements or bilateral investment treaties and its effect on FDI. Since vertical FDI is an important component of international production, the results of their study help to gauge also the effect of investment facilitation on global value chains. Using panel data methods and several estimators the authors find significantly positive effects of liberal admission rules as well as of post-establishment guarantees on bilateral FDI, irrespective of whether they are part of a bilateral investment treaty or a trade agreement.

Kohl et al. (2016) construct a comprehensive database of the content of trade agreements. Using an OLS estimation with importer-year, exporter-year and importer-exporter fixed effects they show that standard trade provisions that are part of the WTO's mandate promote bilateral trade whereas provisions that are beyond the scope of the WTO do not. Furthermore, they find that only legally enforceable provisions have an impact.

Orefice and Rocha (2014) use a database on the content of trade agreements created by the WTO and show that production networks trade is increased more by deeper trade agreements (defined as having more deep provisions). Production networks trade is defined as parts and components trade according to BEC classification and the impact is estimated by OLS regressions with importer-period, exporter-period and exporter-importer fixed effects. To account for potential selection bias stemming from zero trade flows the authors use the Heckman selection procedure.

Osnago et al. (2016) use the value added decomposition of gross exports and show that deeper trade agreements increase foreign value added in exports. They also show that positive impact of the agreements on trade in parts and components is driven by trade between asymmetric partners.

This paper is the first to consider that trade agreements between countries at different levels of economic development may not have symmetric effects on bilateral trade. It is also the first to use international input-output tables to shed light on the underlying phenomena behind the impact of trade agreements on gross trade flows.

5. Empirical specification and data description

5.1. Empirical model

Following for example Egger et al. (2011) I estimate a standard multiplicative gravity model:

$$Exports_{ijt} = exp(\boldsymbol{EIA}_{ijt}\boldsymbol{\beta} + \boldsymbol{Z}_{ijt}\boldsymbol{\varphi} + \boldsymbol{\alpha}_{ij} + \boldsymbol{\delta}_{it} + \boldsymbol{\gamma}_{jt})e_{ijt}\ ,$$

where $\boldsymbol{\alpha}_{ij}$ captures all time-invariant country-pair specific effects such as geographical, cultural or historical predispositions to trade, $\boldsymbol{\delta}_{it}$ captures the effects that vary over exporter and time such as GDP or price level and $\boldsymbol{\gamma}_{jt}$ does the same for importer. The vector $\mathbf{EIA}_{ijt}$ consists of the following economic integration variables: a dummy *WTO* equal to one when both countries are WTO members, a dummy *FTA* equal to one when countries have a free trade agreement, a dummy *DEEP* equal to one when countries conclude a deeper agreement while already having an FTA, a dummy *EU* equal to one when countries are part of an economic union[3]. $Exports_{ijt}$ are manufacturing exports from country$_i$ to country$_j$, or one of their components.

In order to allow for heterogeneous responses according to the type of the flow, I interact all the **EIA** variables with dummies for directions of the flow: North-South, South-North, North-North and South-South.

Additional regressors included in **Z** are motivated by the literature on vertical foreign direct investment (for example Hattari and Rajan, 2009; Berger et al., 2012) which suggests that bilateral investment increases in the difference in factor endowments, proxied by the difference in GDPs per capita. Accordingly, I include a variable $GDPgap_{ijt} = |\ln(GDPpc_{it}) - \ln(GDPpc_{jt})|$, where $GDPpc_{it}$ is the GDP per capita of country i in time t. As discussed in the previous section, the relationship between the various components of gross trade and the

[3] Noguera (2012) focuses on gravity equation for trade in value added that incorporates weighted trade costs with third countries to account for the effects of trade costs on value traded through other partners. This adjustment is not pertinent to the estimation in this paper which decomposes gross trade flows into their value added components but does not estimate value added trade that flows via third partners.

difference in levels of economic development might be inverse-U-shaped. The empirical specification therefore includes $GDPgap_{ijt}^{2}$ as well.

5.2. Data sources and definitions

There are three main sources of the gravity equation data - OECD's Inter-Country Inter-Industry Input-Output Tables (ICIOs), Mario Larch's Regional Trade Agreements Database from Egger and Larch (2008)[4], and the Anatomy of Preferential Trade Agreements dataset created by the WTO Economic Research and Statistics Division and extended by the World Bank (Hofmann et al., 2016).

TRADE FLOWS

Gross flows of manufactured final goods and manufactured intermediate inputs come from the OECD's ICIOs[5]. In order to obtain value added trade flows I use the decomposition suggested by Wang et al. (2013) and implemented as an R package by Kümmritz and Quast (2015).

The value added components of gross trade

Koopman et al. (2014) present a comprehensive framework for the decomposition of gross trade flows and the interpretation of the various components in the context of GVC participation. The decomposition results in 16 components in three main categories – domestic value added (DVA), foreign value added (FVA) and the value added that gets double counted (DC)[6]. Both DVA and FVA are decomposed according to whether they are part of final goods or intermediate inputs exports. Furthermore, the foreign value added components can be broken down into those originating from the direct partner (the amount of foreign value added in exports of A to B that originated in B) and those originating from elsewhere.

ECONOMIC INTEGRATION AGREEMENTS

Information on free trade agreements comes from Mario Larch's Regional Trade Agreements database. The database includes all trade agreements notified to the WTO between 1950 and 2015 and differentiates them along five categories: partial scope agreement, free trade agreement, customs union and economic integration agreement.

Provisions in free trade agreements are coded according to a dataset by the World Bank that covers the content of 280 agreements signed by 180 countries between 1980 and 2014, and which builds on a smaller dataset previously published by the World Trade Organisation. The dataset includes dummies for several provisions present in trade agreements and distinguishes

[4] http://www.ewf.uni-bayreuth.de/en/research/RTA-data/index.html

[5] Manufacturing is the sum of ISIC Rev.3 categories 15-37.

[6] This is the value added content that crossed a given border more than once in the same direction. As an example, think of a car engine exported from Germany to the Czech Republic where it is used to manufacture a car body, then exported back to Germany where it is assembled into a car and then sold to a final car consumer in the Czech Republic. The value of the motor gets counted twice in the gross exports from Germany to the Czech Republic.

legally enforceable and non-enforceable provisions. The provisions of interest are services[7], capital movement, investment, intellectual property rights and competition policy. Only legally enforceable provisions are coded as present. In what follows these provisions are labelled as "GVC provisions".

Economic integration agreements included in the empirical analysis are classified as follows:

- *WTO*: A dummy for both partners being WTO members.
- *FTA*: A dummy for having a free trade agreement.
- *DEEP*: Some country-pairs concluded a deeper agreement on the top of an existing FTA and such agreements would not be captured by FTA dummies. The empirical model thus includes a dummy *DEEP* that is equal to one if the pair concludes an agreement with at least one GVC provision and at the same time already has an FTA without such provision from before[8]. The agreements are listed in Table A.14 in the Appendix.
- *EU*: A dummy for economic union. In my dataset it is de facto a dummy for the European Economic Area and captures the 2004 and 2007 enlargements.

The information on GDP per capita in current US dollars comes from the World Bank's World Development Indicators.

The resulting dataset covers 52 economies in 5-year intervals between 1995 and 2010. The share of zero trade flows is a negligible 0.53%. Excluded from the sample are Hong Kong and Singapore which serve as financial centres and logistics hubs, and overall are overwhelmingly service-based economies. The large trade flows these economies mediate are thus likely to reflect their transit-shed role and as such are less informative about the production structure in the region. Excluded are also economies with less than 2 million inhabitants in 2010 (Brunei, Cyprus, Estonia, Iceland, Luxembourg and Malta) and pure natural-resource exporters (Saudi Arabia).

High-income countries (North) are defined according to their World Bank's classification status in 1995. In the sample it is Australia, Canada, EU15, Israel, Japan, Korea, New Zealand, Norway, Switzerland and the United States. All the other countries are considered as South. Though South includes both lower-middle-income and upper-middle-income economies (some of which became high-income before 2010), this partition is sensible in capturing the main regional production networks structures. In Europe, the New EU Member States (NMSs) that joined in 2004 and 2007 played the role of lower-cost economies. The partition in South-East Asia is the

[7] Information on services agreements is complemented with information from DESTA (Dür et al., 2014).

[8] Traditionally, the literature considers two steps between an FTA and an economic union – a customs union and a common market. My dataset covers only one change in a customs union and that is Turkey-EU in 1996, the effect of which is estimated under the deepening agreements (*DEEP*). There are two other customs unions - MERCOSUR and Andean Community - both of which were nevertheless concluded before 1995 and therefore their effect cannot be estimated with my econometric approach.

most clear-cut as it comprises all the economies in the sample that were low-income in 1995 and remained lower-middle-income until 2010, only Malaysia and Thailand became upper-middle-income. In the American cluster, Chile and Mexico both started and remained upper-middle-income and Costa Rica climbed from lower-middle- to upper-middle-income. For a detailed table with the country classification see the Appendix.

Summary statistics for all variables and their correlations are reported in the Appendix.

5.3. Descriptive statistics

Table 1 shows the combinations of GVC provisions that exist in trade agreements in the sample and breaks down the numbers according to the development level of partners. Between 1996 and 2010 there were 215 country pairs with a new free trade agreement. Asymmetric country pairs account for more than half of them and for disproportionately more of the deeper agreements (that include at least one GVC provision). While deeper agreements represent around 60% of new symmetric agreements, they account for almost 90% of the asymmetric ones.

Table 1**:** The number of country pairs with an FTA concluded between 1996 and 2010, breakdown by the content of agreements and partners' levels of economic development

	North ⇔ North	North ⇔ South	South ⇔ South	Total
Pairs with an FTA	8	112	95	215
Pairs with an FTA with GVC provisions	5	99	57	161
Percentage of all pairs with an FTA	63%	88%	60%	74%
Breakdown by the content of an FTA				
Services & Capital movement & Investment & IPRs & Competition	3	0	0	3
Services & Capital movement & Investment & IPRs	2	31	10	43
Services & Capital movement & Investment & Competition	0	16	9	25
Services & Capital movement & Investment	0	4	1	5
Services & Capital movement & Competition	0	1	0	1
Services & Investment & IPRs	0	1	0	1
Capital movement & Investment & Competition	0	14	6	20
Capital movement & IPRs & Competition	0	4	9	13
Services & Capital movement	0	4	0	4
Services & Investment	0	3	1	4
Services & IPRs	0	6	0	6
Capital movement & Investment	0	1	0	1
Capital movement & Competition	0	14	9	23
Services	0	0	11	11
Competition	0	0	1	1

Table 2 lists the content of agreements according to partner countries. It becomes clear that except the United States, countries do not have a template for their agreements, neither is the content necessarily related to the type of cooperation (agreements classified as North-North are in blue, South-South in red). A combination of services, capital movement and investment is the most common; IPRs and competition usually appear as complementary to them. Agreements that are not listed in the table are those among the new EU member states, before they joined the EU, and between them and Turkey. None of them include deep provisions[9].

Table 3 breaks down gross trade flows according to the level of development of the partners. The share of final manufactured trade that flows among high-income countries (North) declined from 65% in 1995 to 42% in 2010. The portion of trade among lower-income countries (South), on the other hand, increased from 4% in 1995 to 12% in 2010. While the portion of total trade due to North exports to South remained rather stable, flows in the opposite direction increased from 14% to 24% in 2010. These figures document the rising importance of less developed economies as exporters of final goods. The patterns for symmetric trade in intermediate inputs are similar to those in final goods, only more pronounced. Asymmetric trade flows in intermediates, however, evolved differently; they increased in parallel. These trends thus show the increased participation of South in international production networks through imports of intermediate inputs and exports of final goods but also through participation in more upstream production stages.

Table 4 shows the evolution of the domestic value added (DVA) and the foreign value added (FVA) in exports. While the growth of both components was stronger for exports from South, the highest increase in the foreign value added embodied in exports of both final goods and intermediate inputs was among South countries. The third and fourth columns show the ratio of domestic and foreign value added in exports in 2010 and its change from 1995. The domestic value added content is in general higher for intermediates exports (the more upstream a product, the shorter its production chain, the lower the chance of some parts being offshored). Nevertheless, South exports have on average lower domestic content, especially when it comes to exports of intermediates to North. While fragmentation considerably decreased the domestic value added content of all flows, the decline was the sharpest again for the intermediates exports from South. A large part of the increased value of intermediates exports from South was therefore driven by foreign value added.

[9] A caveat to the World Bank's dataset is that it does not so far include agreements that are no longer in force. I therefore use the information in DESTA (Dür et al., 2014) for these agreements.

Table 2: Content of FTAs by country/bloc, 1996-2010

	Content: *Partner*	Services	Capital movement	Investment	IPRs	Competition
EU						
	Chile	x	x	x	x	
	Mexico	x	x	x		x
	Croatia		x	x		x
	South Africa		x			x
United States						
	Australia, Chile, Costa Rica	x	x	x	x	
Japan						
	Indonesia	x	x	x		x
	Malaysia, Philippines, Thailand, Switzerland	x	x	x	x	
	Chile, Mexico	x	x	x		
	Vietnam	x	x		x	
	ASEAN	x		x		
EFTA						
	Korea	x	x	x	x	x
	Tunisia		x		x	x
	Chile	x	x			
	Mexico	x		x		
	Croatia, Canada, South Africa					
Korea						
	EFTA	x	x	x	x	x
	Chile	x	x	x	x	
	India	x	x			
	ASEAN	x			x	
Australia						
	Chile	x	x	x		x
	United States	x	x	x	x	
	Thailand	x	x	x		
New Zealand						
	China	x		x	x	
	Chile	x	x			
	Thailand		x	x		
Israel						
	Turkey	x	x			x
	Canada, Mexico, EU NMSs					
Chile						
	EU, Korea, Mexico, United States	x	x	x	x	
	Australia	x	x	x		x
	Canada, Colombia, Japan	x	x	x		
	EFTA, New Zealand	x	x			
	Costa Rica	x		x		
	China					
ASEAN						
	Australia-New Zealand	x	x	x	x	
	Cambodia (accession), India	x				
Canada						
	Chile	x	x	x		
	EFTA, Costa Rica, Israel					

Table 3: Distribution of gross manufacturing trade flows

	1995	2000	2005	2010
	Final goods			
North-North	70%	65%	56%	45%
North-South	16%	14%	15%	18%
South-North	12%	18%	23%	27%
South-South	3%	3%	5%	10%
	Intermediate inputs			
North-North	70%	62%	51%	41%
North-South	15%	18%	22%	25%
South-North	12%	16%	20%	22%
South-South	3%	4%	7%	12%

Table 4: The evolution of value added components in exports

	Growth 1995-2010		Share DVA/FVA	
	DVA	FVA	2010	Change 1995-2010
	Final goods			
North-North	36%	89%	2.38	-0.28
North-South	114%	229%	2.86	-0.35
South-North	303%	529%	1.88	-0.36
South-South	563%	1065%	1.87	-0.43
	Intermediate inputs			
North-North	38%	91%	3.86	-0.28
North-South	246%	387%	4.68	-0.64
South-North	275%	414%	2.87	-0.98
South-South	769%	1223%	3.15	-0.97

6. Empirical Analysis

6.1. Estimation

Santos Silva and Tenreyro (2006) show that to estimate a model such as

$$y_i = exp(\boldsymbol{x}_i\boldsymbol{\psi})\epsilon_i \,,$$

where $\boldsymbol{\psi}$ is the vector of parameters of interest, ϵ_i is a heteroscedastic error term and it is assumed that the conditional variance $V[y_i|\boldsymbol{x}_i]$ is proportional to the conditional mean $E[y_i|\boldsymbol{x}_i]$, an estimator of $\boldsymbol{\psi}$ for which the set of first order conditions is defined as

$$\sum_{i=1}^{N}[y_i - exp(\boldsymbol{x}_i\boldsymbol{\psi})]\boldsymbol{x}_i = 0$$

is a reasonably good compromise between non-linear least squares (NLS) and a weighted-NLS method. This estimator gives the same weight to all observations, as opposed to the NLS that gives excessive weights to large observations and therefore depends heavily only on those observations. Compared to a log-linear specification, this approach allows for zero trade flows and therefore includes also the effect of EIAs on country pairs that start trading during the sample period. More importantly, it accounts for an inconsistency of the log-linear model estimates stemming from heteroscedastic errors. Numerically, this estimator is equal to the Poisson pseudo-maximum likelihood (PPML) estimator and therefore is easy to implement with standard econometric packages[10]. Since the equality is only numerical, nothing is assumed about the dispersion of the dependent variable (Santos Silva and Tenreyro, 2006)[11].

The econometric specification includes importer-year, exporter-year and importer-exporter fixed effects which control for all country-pair time-invariant characteristics and all characteristics that are specific to a country in a given year[12]. Standard errors are heteroscedasticity robust and clustered at the country-pair level to allow for autocorrelated residuals.

It has been pointed out in the literature that the impact of trade agreements should be estimated on less than annual frequency due to varying lags in implementation and in how fast they translate into economic outcomes. Estimating the effect of EIAs on data at 5-year intervals is therefore in line with the standard practice[13].

6.2. Asymmetric impact of EIAs on gross exports

As a preliminary analysis, Table 5 shows the estimated average effects of EIA variables on gross trade flows of all manufactured goods, final manufactured goods and manufactured intermediate inputs, respectively. Previous literature has shown that bilateral trade flows are increasing in the strength of economic integration, from a free trade agreement, via a customs union, a common market, up to an economic union. Given my sample, I cannot estimate any

[10] To implement PPML with a large set of fixed effects I use Tom Zylkin's fast panel PPML Stata command.

[11] A conventional approach when applying the Poisson estimator is to use the negative binomial estimator, whose distribution is more general than Poisson, to check whether the results are similar. However, it is not conceptually pertinent to the pseudo Poisson estimator which does not assume that the conditional mean of the dependent variable is equal to the conditional variance (Santos Silva and Tenreyro, 2006). Furthermore, there is no guarantee that the negative binomial would be adequate, especially because it is not invariant to the scale of the dependent variable.

[12] Non-linear estimators with fixed effects have been widely discussed in the literature. When the time dimension is fixed and the number of units goes to infinity, adding fixed effects for each unit will generally cause inconsistency - so called incidental parameters problem. Nevertheless, Cameron and Trivedi (1998, p.282) have shown that this is not a concern in the Poisson fixed effects model and therefore using dummies to implement the fixed effects estimation yields consistent results.

[13] Baier and Bergstrand (2007) use 5-year intervals, Baier et al. (2015) use 4-year intervals.

effects of a customs union or a common market. However, using the information on the content of FTAs I can distinguish cases where country pairs move from an FTA towards deeper integration by concluding a new agreement that includes deeper provisions. In line with previous literature, I find that both *FTA* and *EU* have a positive and significant impact on bilateral trade flows, and the impact of the latter is larger. The effect of deepening agreements (*DEEP*) is also positive and its magnitude lies between *FTA* and *EU*. The results therefore confirm previous findings that deeper economic integration is associated with a stronger effect on bilateral trade flows.

Table 5: The average impact of economic integration agreements on gross exports

	Gross exports		
	Total	Final	Inputs
WTO	0.0385	-0.041	0.098
	(0.161)	(0.137)	(0.164)
FTA	0.138***	0.0934***	0.160***
	(0.0356)	(0.0361)	(0.0394)
DEEP	0.191***	0.232***	0.168**
	(0.0655)	(0.0655)	(0.0691)
EU	0.218***	0.250***	0.188***
	(0.0611)	(0.0592)	(0.0668)
GDP gap	-0.094**	-0.024	-0.136***
	(0.0434)	(0.0420)	(0.0473)
$(\text{GDP gap})^2$	0.0215**	0.024**	0.020*
	(0.0101)	(0.0095)	(0.0111)
Observations	10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses. Each regression includes country-pair, exporter-time and importer-time fixed effects.

The apparent absence of any effect of the WTO accession is in line with previous literature. It is nevertheless investigated in detail later in the text. The coefficients on the GDP per capita gap variables show that convergence in economic development has on average a strongly positive effect on trade in intermediate inputs and the faster the convergence the faster growth in bilateral flows.

Table 1 showed that an overwhelming majority of new FTAs was concluded between high-income and lower-income economies. If trade under North-South agreements is driven by international production fragmentation, we would expect that the effects of such agreements vary according to the direction of the flow. If the agreement facilitates trade that is driven by offshoring of the assembly stage from North to South, we would expect higher intermediate input exports from North and higher final goods flows from South. In the case when deeper integration leads to shifting more stages of production to South, either through arms-length relationships or via FDI, we would expect increased value of final and/or intermediates exports

from South and none, or possibly negative, effect on exports of intermediates from North to South.

Table 6: Asymmetric impact of economic integration agreements on gross exports

		Gross exports		
		Total	Final	Inputs
WTO	S => N	-0.054	-0.123	-0.040
		(0.142)	(0.140)	(0.143)
	S => S	0.436**	0.252	0.508**
		(0.198)	(0.171)	(0.201)
	N => N	-0.151	-0.167	-0.108
		(0.133)	(0.134)	(0.131)
	N => S	0.370**	0.300*	0.375**
		(0.188)	(0.172)	(0.184)
FTA	S => N	0.133**	0.164***	0.113*
		(0.0568)	(0.0538)	(0.0661)
	S => S	0.105	-0.043	0.178
		(0.114)	(0.0948)	(0.125)
	N => N	0.134	0.055	0.186
		(0.105)	(0.101)	(0.113)
	N => S	0.223***	0.159***	0.251***
		(0.0483)	(0.0524)	(0.0510)
DEEP	S => N	0.242*	0.202	0.295**
		(0.132)	(0.141)	(0.116)
	S => S	0.555***	0.612***	0.526***
		(0.102)	(0.106)	(0.110)
	N => N	-0.307***	-0.307***	-0.301***
		(0.0801)	(0.0876)	(0.0853)
	N => S	-0.0230	0.107	-0.126
		(0.0822)	(0.0753)	(0.0881)
EU	S => N	0.390***	0.388***	0.379***
		(0.0894)	(0.0978)	(0.0917)
	S => S	0.288**	0.334**	0.262*
		(0.145)	(0.158)	(0.145)
	N => S	0.262***	0.341***	0.193**
		(0.0829)	(0.0741)	(0.0957)
Asym_2000		0.109**	0.060	0.161***
		(0.0502)	(0.0545)	(0.0564)
Asym_2005		-0.064	-0.183**	0.0425
		(0.0778)	(0.0763)	(0.0886)
Asym_2010		-0.097	-0.242***	0.019
		(0.0903)	(0.0835)	(0.104)
Observations		10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses. Each regression includes country-pair, exporter-time and importer-time fixed effects.

Table 6 shows the results when we allow for heterogeneous responses of trade flows according to their direction. Note that I also include a dummy for asymmetric trade flows interacted with year dummies[14]. This controls for the possibility that globalisation had different effects on symmetric and asymmetric flows. Since I include these dummies, the GDP per capita variables become largely statistically insignificant and their coefficients are not reported.

Notably, the impact of FTAs is mostly driven by asymmetric trade flows. Furthermore, the impact on exports from South is driven by final goods while the impact on exports from North is much stronger for intermediate inputs, in line with the international production structure whereby less developed economies assemble imported intermediate inputs into final goods exports. This contrasts with the effect of the EU accession which boosted all flows in all directions and suggests that the outsourcing relationships fostered by the economic union are more balanced. Finally, the impact on South-South trade is driven by final goods flows and therefore akin rather to trade in goods than trade in tasks.

Since there were not many instances of deepening of trade agreements, the interpretation of the *DEEP* variable is rather case specific. The positive average results from Table 5 are largely driven by closer South-South integration which in turn represents ASEAN's services agreement. The impact on asymmetric flows is nevertheless suggestive of South moving upstream in the production process as it is highly positive for exports of intermediate inputs from South and rather negative on intermediates exports from North. The negative effect on North-North trade flows is due to EU-Israel deeper agreement and can be possibly interpreted as substituting trade with FDI.

6.3. Asymmetric impact of EIAs on value added flows

As manufacturing production becomes fragmented across countries, the value of gross manufacturing trade due to the double counting of value added increases. Lower-income economies typically engage in low-skill-intensive stages of production and their GVC-driven exports thus have relatively small content of domestic value added. Upgrading within GVCs is in turn often associated with a shift from pure final goods assembly to more skill-intensive stages, and/or with a longer part of the value chain taking place in South. This translates into higher domestic value added in (intermediates) exports. Exploring the effects of economic integration

[14] In principle, I want to control for the possibility that in a given year any of the North-North, North-South, South-North or North-North flows grew on average differently. Note however that given the fixed effects structure, most of the average growth-rate differentials are controlled for because I compare flows across partners for a given country in a given year. Since for each country there are only either South-North and South-South flows, or only North-South and North-North flows it is possible to estimate only the average difference between symmetric and asymmetric flows.

agreements on the value added components therefore sheds more light on the patterns found in the previous chapter.

Table 7: The average impact of economic integration agreements on value added exports

	DVA	FVA	DC
WTO	0.114	-0.032	-0.133
	(0.181)	(0.124)	(0.135)
FTA	0.136***	0.121***	0.163***
	(0.0371)	(0.0373)	(0.0449)
DEEP	0.182***	0.262***	0.180**
	(0.0674)	(0.0689)	(0.0747)
EU	0.218***	0.260***	0.131*
	(0.0624)	(0.0655)	(0.0717)
GDP gap	-0.085**	-0.089*	-0.235***
	(0.0410)	(0.0525)	(0.0583)
(GDP gap)^2	0.016	0.029**	0.059***
	(0.00987)	(0.0118)	(0.0159)
Observations	10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses. Each regression includes country-pair, exporter-time and importer-time fixed effects.
DVA is the domestic value added in exports, *FVA* is the foreign value added in exports, *DC* is the value added that gets double counted.

Table 7 shows the average effects of EIAs on the three main components of gross trade flows - domestic value added (*DVA*), foreign value added (*FVA*) and value added that gets double counted because it crosses the border several times (*DC*). On one hand, FTAs boosted more the domestic value component. On the other hand, both deeper agreements and economic union increased more the foreign value added component. The double-counted term always increases which indicates that all agreements increased the back-and-forth trade in intermediate inputs.

More insights can be again drawn from the breakdown of the effects according to the direction. The interpretation of the results is sometimes complemented by inspecting separate effects on foreign value added originating from the direct importer and from other countries, and on the value added components of final and intermediate goods separately; these results are reported in the Appendix.

Table 8 reveals that the average pattern of changes in value added exports induced by FTA conclusion is driven by the exports from North to South. The increase in intermediates exports from North, documented in Table 6, is reflected in the relatively higher increase in domestic value added exports as intermediates have typically relatively higher domestic value added content. Southern exports, on the other hand, are driven by increased foreign value added (in final goods to a large extent and entirely when it comes to intermediate inputs). In conclusion, based on both gross and value added trade flows, the results suggest that FTAs boosted the

inclusion of less developed economies in international production networks where they assemble imported intermediate inputs into (mostly) final goods exports.

Table 8: Asymmetric impact of economic integration agreements on value added exports

		DVA	FVA	DC
WTO	S => N	-0.040	-0.005	-0.206
		(0.147)	(0.129)	(0.148)
	S => S	0.452**	0.410**	0.289
		(0.202)	(0.170)	(0.189)
	N => N	-0.0644	-0.231**	-0.380***
		(0.149)	(0.107)	(0.131)
	N => S	0.450**	0.295**	0.0453
		(0.204)	(0.145)	(0.148)
FTA	S => N	0.105*	0.201***	0.133*
		(0.0575)	(0.0576)	(0.0800)
	S => S	0.144	0.0025	0.0335
		(0.115)	(0.115)	(0.113)
	N => N	0.135	0.104	0.227*
		(0.103)	(0.118)	(0.134)
	N => S	0.210***	0.182***	0.300***
		(0.0513)	(0.0519)	(0.0611)
DEEP	S => N	0.197	0.387***	0.409***
		(0.142)	(0.112)	(0.107)
	S => S	0.610***	0.493***	0.400***
		(0.102)	(0.108)	(0.117)
	N => N	-0.301***	-0.281***	-0.284***
		(0.0818)	(0.104)	(0.0920)
	N => S	-0.060	0.076	-0.018
		(0.0849)	(0.0798)	(0.103)
EU	S => N	0.375***	0.454***	0.418***
		(0.0916)	(0.0937)	(0.0988)
	S => S	0.359**	0.231	0.122
		(0.140)	(0.153)	(0.162)
	N => S	0.258***	0.304***	0.183*
		(0.0833)	(0.0854)	(0.111)
Asym_2000		0.061	0.052	0.262***
		(0.0459)	(0.0653)	(0.0789)
Asym_2005		-0.042	-0.249***	-0.134
		(0.0714)	(0.0842)	(0.120)
Asym_2010		-0.145*	-0.353***	-0.246*
		(0.0825)	(0.0971)	(0.135)
Observations		10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses. Each regression includes country-pair, exporter-time and importer-time fixed effects.

DVA is the domestic value added in exports, *FVA* is the foreign value added in exports, *DC* is the value added that gets double counted.

Deepening agreements had a similar effect on South-North trade in that they also boosted relatively more the foreign value added component. The difference is that this value added was part of intermediate inputs exports and therefore these agreements also significantly increased the double counted term. The exports from North were, on the other hand, not affected. The foreign-value-added-driven South to North exports do not suggest that this is a result of more stages being shifted to the partner South country. Rather, the fact that the deeper agreements boosted South-South trade can indicate that the associated production networks moved from a hub-and-spoke structure to a more interconnected one (this is supported by the fact that the foreign value added content in South exports was driven by foreign value added from countries other than the direct North partner).

In the case of EU accession, the impact is again of an increasing fragmentation but without the stark contrast between North-South and South-North flows. The impact of EU accession was stronger for the exports from South but in both cases the foreign value added component increased more than the domestic one. The fact that the increased South-South trade is entirely driven by domestic value added further corroborates that it is due to trade in goods rather than the GVC-driven trade in tasks.

The case for the WTO

From the results in Table 5 and Table 7 there seems to be no average impact of the WTO accession on bilateral flows. In my sample the are only few new WTO members - Bulgaria ('96), Latvia, ('99), Croatia ('00), Lithuania ('01), China ('01), Chinese Taipei ('02), Cambodia ('04) and Vietnam ('07). Table 6 shows that the insignificant average effect is caused by a negative coefficient on *WTO North-North*. This, in turn, is driven by a plunge in trade between Chinese Taipei and other advanced economies between 2000 and 2005. Furthermore, this plunge is entirely due to the foreign value added and the double-counted term (as shown in Table 8). Since China and Chinese Taipei joined the WTO at more or less the same time, it is possible that these results reflect how China's accession to the WTO altered the production structure in the region, and that activities that previously took place in Chinese Taipei have shifted to China to further take advantage of labour cost differentials[15]. Indeed, when Chinese Taipei is excluded from the sample (Table 9), the effect of WTO membership becomes large, with the largest change in the North exports to South, followed by South-South trade and South exports to North. Arguably, these increases in trade flows are driven by international production networks as they can be attributed to both domestic and foreign value added components, as well as the value added that gets double counted. The latter being especially important for the South-South trade and suggestive of a strong increase in production sharing among less developed

[15] FDI in the mainland China increased more than twofold between 2001 and 2002 (Brown et al., 2010). See for instance Breslin (2004) for an analysis of the regional investment and production structure.

economies. The next question is therefore how much of these effects is driven by China. The second bloc of Table 9 reports results where China is dropped from the sample instead of Chinese Taipei.

Table 9: The impact of WTO accession

		Gross exports		DVA	FVA	DC
		Final	Inputs			
				Without Chinese Taipei		
WTO	S => N	0.577**	0.496*	0.462**	0.604**	0.778**
		(0.246)	(0.258)	(0.229)	(0.264)	(0.331)
	S => S	0.940***	0.949***	0.911***	0.931***	1.051***
		(0.272)	(0.274)	(0.244)	(0.285)	(0.358)
	N => S	1.058***	0.826***	0.954***	0.829***	0.729**
		(0.289)	(0.268)	(0.244)	(0.286)	(0.367)
				Without China		
WTO	S => N	0.145	0.0647	0.208	-0.106	-0.138
		(0.223)	(0.170)	(0.150)	(0.177)	(0.160)
	S => S	0.356*	0.414***	0.480***	0.217	0.159
		(0.216)	(0.156)	(0.141)	(0.172)	(0.164)
	N => N	0.240	0.124	0.279*	-0.141	-0.171
		(0.237)	(0.175)	(0.156)	(0.186)	(0.160)
	N => S	0.591**	0.501***	0.617***	0.347*	0.270*
		(0.238)	(0.169)	(0.154)	(0.186)	(0.159)

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

DVA is the domestic value added in exports, *FVA* is the foreign value added in exports, *DC* is the value added that gets double counted. Each specification includes the directional *FTA*, *DEEP* and *EU* variables as well as the dummies for asymmetric trade interacted with year dummies, country-pair, exporter-time and importer-time fixed effects. The full set of results is reported in the Appendix.

The resulting picture is closer to the results with full sample and confirms that less developed countries that joined the WTO saw a significant increase in imports from North and in trade with other less developed economies. There is, however, no significant increase in exports to North and the South-South trade is entirely driven by domestic value added. The results therefore suggest that WTO accession boosted the "20th century trade" but, apart from China, did not affect developing countries' participation in production networks of more developed economies. Also note that the baseline analysis of the other variables is robust to exclusion of either China or Chinese Taipei as their estimated coefficients are almost identical to those reported in Table 6 and Table 8 (the results are reported in the Appendix).

6.4. Heterogeneous effects of FTAs according to their content

As listed in Table 1, 88% of the North-South agreements go deeper than just liberalizing tariffs. Most include services, capital movement and investment provisions, or some combination of

these. In this section I explore whether the content of FTAs is related with their impact on GVCs trade. Table 10 and Table 11 look at whether a particular provision drives the impact of FTAs from the previous section. The specification includes a dummy that is equal to one if an FTA includes the particular provision (irrespective of other content). If the coefficient on the dummy is statistically significant it means that the impact of FTAs with such provision is significantly different from other FTAs.

The picture that emerges is clear. Services liberalisation in FTAs is essential for the positive effect on exports from North to South (FTAs without a services provision have no impact). However, it does not have a significantly different impact on overall South exports to North compared to other FTAs. In fact, the North partner's value added in South's exports is the only component of gross exports from South that is significantly boosted by these agreements.

The positive effect on exports from South to North is, on the other hand, due entirely to agreements that include an investment provision, especially when it comes to the South's domestic value added in South's intermediate exports. Furthermore, these agreements are the only ones that have a positive impact on all flows in both directions.

To sum up, FTAs with services provisions increased exports of intermediate inputs from North to South and final goods exports (with a high North's value added content) from South to North. They therefore played an important role in boosting GVC participation of less developed economies in low-value-added downstream activities and can be thought of as facilitating the joining of GVCs. FTAs with an investment provision in turn boosted trade in both final goods and intermediates in both directions. The pattern of the results suggests that these agreements significantly fostered GVC participation of less developed economies at more upstream stages with a higher domestic value added contribution. The impact is thus closer to the one estimated for an economic union.

When it comes to symmetric trade flows the interpretation becomes again more case specific as there is little variation in the agreements. The only provision that seems relevant for symmetric flows is competition. This is a very intuitive result as ensuring competitive environment is a prerequisite for any trade liberalisation to have positive impact. Nevertheless, this result should be taken with caution as the only North-North agreement with a competition provision is EFTA-Korea and, in the case of South-South agreements, it is the impact of EU agreements with Croatia, Mexico, Tunisia and South Africa on trade between those countries and the new EU member states ('04 and '07 enlargements). Less intuitive is the result that liberalisation of services in FTAs has a negative impact on South-South trade but here again the result is driven by only two agreements - ASEAN-India and Cambodian accession to ASEAN.

I also investigate if specific combinations of provisions drive the results. In particular, I look at agreements that include services, capital movement and investment, or a combination of at least

two of these. These are meaningful combinations given the occurrence of provisions. The results nevertheless do not suggest that any of the provisions reinforce each other and the simple condition that an agreement contains a services or an investment provision yields the clearest identification. The results are reported in the Appendix.

Table 10: The impact of FTAs according to their content, gross flows

Provision:	SERVICES			CAPITAL MOVEMENT			INVESTMENT			IPRs			COMPETITION		
	Gross exports			Gross exports			Gross exports			Gross exports			Gross exports		
	Total	Final	Inputs	Total	Final	Inputs	Total	Final	Inputs	Total	Final	Inputs	Total	Final	Inputs
FTA															
S => N	-0.105	0.130	-0.231	0.039	0.078	0.008	-0.028	-0.012	-0.048	0.157	0.197	0.130	0.150**	0.192***	0.127*
	(0.186)	(0.161)	(0.214)	(0.0740)	(0.0600)	(0.0857)	(0.0800)	(0.0713)	(0.0881)	(0.104)	(0.120)	(0.109)	(0.0622)	(0.0570)	(0.0729)
S => S	0.345***	0.131	0.444***	0.069	-0.104	0.156	0.097	-0.065	0.179	0.094	-0.0465	0.168	0.059	-0.109	0.146
	(0.125)	(0.0840)	(0.128)	(0.130)	(0.105)	(0.146)	(0.127)	(0.104)	(0.142)	(0.116)	(0.0976)	(0.130)	(0.123)	(0.0998)	(0.139)
N => N	0.324***	0.122**	0.397***	0.324***	0.125**	0.399***	0.322***	0.121**	0.399***	0.326***	0.125**	0.398***	0.089	-0.010	0.146*
	(0.0694)	(0.0583)	(0.0631)	(0.0694)	(0.0583)	(0.0627)	(0.0699)	(0.0585)	(0.0628)	(0.0692)	(0.0582)	(0.0631)	(0.0860)	(0.0828)	(0.0857)
N => S	-0.061	0.008	-0.134	0.234***	0.150**	0.263***	0.157**	0.052	0.203***	0.212***	0.136	0.267***	0.262***	0.198***	0.285***
	(0.103)	(0.101)	(0.107)	(0.0693)	(0.0670)	(0.0725)	(0.0691)	(0.0714)	(0.0709)	(0.0797)	(0.0841)	(0.0827)	(0.0543)	(0.0605)	(0.0578)
FTA provision															
S => N	0.252	0.033	0.367*	0.113	0.102	0.129	**0.214****	**0.213****	**0.227****	-0.0395	-0.050	-0.028	-0.102	-0.167	-0.0802
	(0.192)	(0.169)	(0.222)	(0.0792)	(0.0745)	(0.0881)	(0.0909)	(0.0852)	(0.0997)	(0.120)	(0.131)	(0.131)	(0.105)	(0.102)	(0.132)
S => S	-0.456***	-0.308**	-0.511***	0.205	0.354*	0.146	0.0355	0.168	-0.008	0.119	0.050	0.202	0.350**	0.524***	0.253
	(0.169)	(0.151)	(0.170)	(0.198)	(0.181)	(0.222)	(0.201)	(0.174)	(0.238)	(0.391)	(0.315)	(0.458)	(0.174)	(0.159)	(0.194)
N => N	-0.210	-0.076	-0.236*	-0.212	-0.0785	-0.241*	-0.208	-0.074	-0.239*	-0.214*	-0.0779	-0.241*	0.342	0.470	0.315
	(0.130)	(0.124)	(0.135)	(0.130)	(0.123)	(0.134)	(0.129)	(0.123)	(0.134)	(0.129)	(0.123)	(0.135)	(0.355)	(0.305)	(0.415)
N => S	**0.318*****	**0.173**	**0.424*****	-0.006	0.012	-0.003	0.102	0.151*	0.082	0.028	0.045	-0.012	-0.144*	-0.130*	-0.129
	(0.116)	(0.115)	(0.123)	(0.0783)	(0.0780)	(0.0825)	(0.0853)	(0.0863)	(0.0895)	(0.0891)	(0.0956)	(0.0917)	(0.0783)	(0.0767)	(0.0941)
Observations	10608	10608	10604	10608	10608	10604	10608	10608	10604	10608	10608	10604	10608	10608	10604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Each specification includes the directional *WTO*, *DEEP* and *EU* variables as well as the dummies for asymmetric trade interacted with year dummies, country-pair, exporter-time and importer-time fixed effects.

Table 11**:** The impact of FTAs according to their content, value added flows

Provision:	SERVICES			CAPITAL MOVEMENT			INVESTMENT			IPRs			COMPETITION		
	DVA	FVA	DC	DVA	FVA	DC	DVA	FVA	DC	DVA	FVA	DC	DVA	FVA	DC
FTA															
S => N	-0.156	0.083	-0.0695	0.051	0.0645	0.0105	-0.043	-0.016	-0.029	0.095	0.317**	0.244	0.133**	0.198***	0.123
	(0.189)	(0.164)	(0.213)	(0.0762)	(0.0741)	(0.109)	(0.0897)	(0.0757)	(0.0938)	(0.0928)	(0.138)	(0.152)	(0.0621)	(0.0626)	(0.0878)
S => S	0.383***	0.237*	0.256**	0.119	-0.057	-0.014	0.139	-0.005	0.020	0.133	-0.002	0.024	0.108	-0.067	-0.018
	(0.129)	(0.125)	(0.106)	(0.131)	(0.126)	(0.128)	(0.128)	(0.127)	(0.124)	(0.118)	(0.119)	(0.115)	(0.125)	(0.120)	(0.125)
N => N	0.314***	0.157***	0.340***	0.324***	0.159***	0.340***	0.314***	0.158***	0.340***	0.317***	0.160***	0.342***	0.094	0.019	0.172**
	(0.0688)	(0.0588)	(0.0831)	(0.0669)	(0.0588)	(0.0830)	(0.0692)	(0.0586)	(0.0830)	(0.0686)	(0.0592)	(0.0829)	(0.0851)	(0.0926)	(0.0838)
N => S	-0.089	0.017	-0.015	0.200***	0.178*	0.313***	0.109	0.146**	0.298***	0.214***	0.138**	0.296***	0.247***	0.223***	0.325***
	(0.0950)	(0.130)	(0.146)	(0.0701)	(0.0918)	(0.0941)	(0.0706)	(0.0729)	(0.0899)	(0.0819)	(0.0678)	(0.109)	(0.0592)	(0.0599)	(0.0648)
FTA provision															
S => N	0.280	**0.119**	0.215	0.063	0.160*	0.187	**0.198****	**0.265*****	**0.281****	0.014	-0.158	-0.145	-0.127	0.0011	0.103
	(0.195)	(0.172)	(0.225)	(0.0818)	(0.0841)	(0.119)	(0.0996)	(0.0891)	(0.114)	(0.108)	(0.156)	(0.180)	(0.107)	(0.0992)	(0.150)
S => S	-0.457***	-0.425**	-0.415***	0.132	0.358*	0.232	0.013	0.0595	0.078	0.112	0.024	0.280	0.300*	0.485**	0.248
	(0.175)	(0.173)	(0.156)	(0.203)	(0.199)	(0.230)	(0.211)	(0.184)	(0.255)	(0.411)	(0.317)	(0.363)	(0.164)	(0.191)	(0.241)
N => N	-0.192	-0.060	-0.156	-0.204	-0.0627	-0.156	-0.193	-0.060	-0.155	-0.198	-0.062	-0.158	0.372	0.442	0.205
	(0.127)	(0.144)	(0.197)	(0.126)	(0.143)	(0.196)	(0.127)	(0.142)	(0.194)	(0.127)	(0.142)	(0.196)	(0.362)	(0.334)	(0.410)
N => S	**0.337*****	**0.189**	**0.339****	0.021	0.015	-0.0055	0.143	0.079	0.019	0.004	0.082	0.017	-0.126	-0.153*	-0.127
	(0.111)	(0.143)	(0.157)	(0.0805)	(0.0927)	(0.0992)	(0.0879)	(0.0857)	(0.101)	(0.0929)	(0.0921)	(0.123)	(0.0854)	(0.0891)	(0.110)
Observations	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Each specification includes the dummies for *WTO*, *DEEP* and *EU* interacted with the direction of flows, as well as the dummies for asymmetric trade interacted with year dummies, country-pair, exporter-time and importer-time fixed effects.

DVA is the domestic value added in exports, *FVA* is the foreign value added in exports, *DC* is the value added that gets double counted

6.5. Heterogeneous effects of FTAs according to their origin

Another plausible way of categorizing free trade agreements is according to which high-income economy is the partner. It is clear from Table 2 that some countries have a template when it comes to the content of their FTAs. The clearest is the United States that uses the NAFTA template and always includes services, capital movement, investment and IPRs. Japanese agreements are also very homogeneous in that they always include services, capital movement and investment provisions[16], and this is also the case for Australia. The EU and EFTA, on the other hand, sign agreements with a rather miscellaneous content. The table also shows that services and investment provisions are represented in (some) agreements of all countries and therefore the results from previous chapter should not be driven by a set of agreements of a specific country. In what follows I investigate if this is indeed the case.

Table 12 presents results of an estimation where the impact of FTAs is allowed to vary according to the high-income partner of the FTA. That is, FTAs of Japan, EU, the U.S., Korea, EFTA, Australia/New Zealand, and Israel. Chile is the only South country in the sample that pursued partnerships with several other South countries. By construction of the dummies, most of the effects of its agreements with North are captured in the effects of the respective North partners; the coefficient on Chilean asymmetric agreements represents only the Chile-Canada agreement. The South-South effects represent agreements with Colombia, Costa Rica, China and Mexico. None of the "Other" agreements include any of the five deep provisions. The asymmetric agreement is Canada-Costa Rica and the symmetric ones are agreements among the new EU member states and between them and Turkey, before they joined the EU.

The pattern that emerges from Table 12 suggests that the impact of FTAs is indeed driven by their content rather than their origin. While the impact of the U.S. and Japanese agreements (that are rather homogeneous) is well identified, the impact of EU's, EFTA's and the Australian/New Zealandese agreements is not.

The results also reveal the different positions of the main GVCs hubs in the international production network. FTAs with Japan on average increase Japanese exports of both final and intermediate exports to its South partners, and increase imports of final goods from its South partners. While the final goods imports to Japan are boosted particularly through Japanese value added content, the Japanese exports are boosted both through the domestic content and content coming from other partners than the importing South country. This suggests that Japanese FTAs foster mostly the type of GVCs where Japanese firms locate the final stages of their production in the lower-income partner countries. The U.S. agreements, on the other hand, foster flows of intermediate and final goods in both directions. Still, the increase in the flows from South is

[16] The ASEAN and Vietnam agreements entered into force during 2008/2009 and therefore complement each other.

driven by foreign value added and the flows from the U.S. by intermediate inputs. The agreements thus also boosted the South partners' participation in the U.S. production network but compared to Japanese network, the South participates also on more upstream stages. Korean agreements increase only intermediate inputs exports from Korea. As mentioned above, the EU agreements do not have any average impact on asymmetric trade flows. Nevertheless, they increase trade between the New Member States and the South partners.

6.6. Endogeneity

A possible caveat to the estimation is a potential endogeneity problem between conclusion of an RTA and the intensity of trade. As discussed in Baier and Bergstrand (2007), a large part of the effects that influence both, and thus could cause an omitted variable bias, is captured by the country-pair fixed effects. The case is even stronger in my study as the time span of my sample is only 15 years and therefore many more factors are time invariant as compared to studies that use data spanning even 40 years. For instance, the concern that high-income countries conclude agreements with partners with which they have a higher GVCs trade potential should be largely accounted for by the fixed effects. The concern remains only if this potential changed during the 15 years covered in the study. In such case my results remain valid as an ex-post assessment of the effects of EIAs but should be taken with more caution when it comes to external validity. Concerns about reverse causality that would obscure my identification are also alleviated by using only the within country-pair variation to identify my results. Furthermore, I run specifications where I include leads of the EIAs variables and never find them significant. This indicates that reverse causality does not drive the results.

Table 12: The impact of FTAs according to their origin

		Gross exports			DVA	FVA	DC
		Total	Final	Inputs			
FTA Japan	S => N	0.135*	**0.144****	0.128	0.118	**0.189*****	0.208**
		(0.0728)	(0.0642)	(0.0901)	(0.0790)	(0.0637)	(0.104)
	N => N	0.269***	0.172***	0.333***	0.296***	0.245***	0.150***
		(0.0708)	(0.0618)	(0.0639)	(0.0804)	(0.0550)	(0.0490)
	N => S	0.272***	**0.255*****	**0.277*****	**0.276*****	**0.268*****	0.295***
		(0.0775)	(0.0842)	(0.0791)	(0.0789)	(0.0905)	(0.0797)
FTA U.S.	S => N	0.477***	**0.535*****	**0.504*****	**0.385*****	**0.748*****	0.503*
		(0.121)	(0.185)	(0.120)	(0.111)	(0.159)	(0.262)
	N => N	-0.0434	-0.0921	-0.0252	-0.0366	-0.125*	0.0357
		(0.0734)	(0.0823)	(0.0641)	(0.0739)	(0.0725)	(0.0829)
	N => S	0.517***	**0.204****	**0.847*****	**0.444*****	**0.500*****	0.944***
		(0.0903)	(0.0817)	(0.113)	(0.0845)	(0.102)	(0.147)
FTA EU	S => N	-0.0158	0.120	-0.0605	-0.0704	0.164*	-0.0016
		(0.105)	(0.101)	(0.124)	(0.109)	(0.0955)	(0.125)
	S => S	0.377***	0.414***	0.352**	0.373***	0.394**	0.196
		(0.137)	(0.131)	(0.153)	(0.125)	(0.156)	(0.217)
	N => S	0.0740	0.0859	0.0508	0.0603	0.0380	0.103
		(0.0798)	(0.0720)	(0.0931)	(0.0786)	(0.0867)	(0.112)
FTA Korea	S => N	0.0547	0.0393	0.0309	0.0628	0.0263	0.0056
		(0.0795)	(0.0756)	(0.0829)	(0.0857)	(0.0838)	(0.100)
	N => S	0.278***	0.150	**0.322*****	**0.237*****	**0.239*****	0.353***
		(0.0759)	(0.0972)	(0.0715)	(0.0790)	(0.0894)	(0.0899)
FTA EFTA	S => N	-0.255	-0.179	-0.256	-0.258	-0.164	-0.301
		(0.221)	(0.261)	(0.211)	(0.214)	(0.281)	(0.279)
	N => N	0.396**	0.342*	0.437**	0.412**	0.343*	0.360*
		(0.201)	(0.199)	(0.218)	(0.203)	(0.208)	(0.208)
	N => S	-0.141**	-0.112	-0.157**	-0.138**	-0.182*	-0.266***
		(0.0656)	(0.100)	(0.0782)	(0.0652)	(0.0971)	(0.0933)
FTA AUS/NZL	S => N	0.290	0.227	0.361*	0.259	0.287	0.487
		(0.180)	(0.151)	(0.213)	(0.165)	(0.194)	(0.305)
	N => S	0.147	0.0759	0.163	0.122	0.120	0.342*
		(0.125)	(0.112)	(0.142)	(0.111)	(0.161)	(0.188)
FTA Chile	S => N	1.526***	**0.401*****	**1.937*****	**1.476*****	**1.242*****	1.876***
		(0.103)	(0.0942)	(0.127)	(0.104)	(0.100)	(0.125)
	S => S	0.379**	0.001	0.534***	0.421**	0.221	0.364***
		(0.182)	(0.103)	(0.151)	(0.179)	(0.207)	(0.126)
	N => S	0.351***	**0.268*****	**0.437*****	**0.350*****	**0.381*****	0.0526
		(0.100)	(0.0949)	(0.136)	(0.0914)	(0.125)	(0.215)
FTA Israel	S => N	0.477	**0.777****	0.292	0.502*	0.455	0.0401
		(0.292)	(0.307)	(0.302)	(0.282)	(0.292)	(0.327)
	N => N	0.255***	0.215	0.292*	0.224**	0.313	0.287*
		(0.0943)	(0.143)	(0.162)	(0.0992)	(0.201)	(0.147)
	N => S	-0.132	-0.142	-0.131	-0.111	-0.163	-0.152
		(0.220)	(0.225)	(0.228)	(0.214)	(0.229)	(0.250)
FTA other	S => N	0.0103	0.442	-0.233	0.0775	0.139	-0.570**
		(0.251)	(0.304)	(0.225)	(0.195)	(0.291)	(0.277)
	S => S	-0.066	-0.144	-0.029	-0.0285	-0.154	-0.164
		(0.117)	(0.125)	(0.112)	(0.119)	(0.123)	(0.113)
	N => S	0.302***	**0.424*****	0.238*	**0.267****	**0.301****	0.378***
		(0.115)	(0.136)	(0.124)	(0.111)	(0.134)	(0.141)

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses. Each specification includes the dummies for WTO, DEEP and EU interacted with the direction of flows, as well as the dummies for asymmetric trade interacted with year dummies, country-pair, exporter-time and importer-time fixed effects. *DVA* is the domestic value added in exports, *FVA* is the foreign value added in exports, *DC* is the value added that gets double counted.

7. Conclusion

This study shows that when international trade is a mixture of trade in goods and trade in tasks, trade agreements do not have homogeneous effects. The effects differ according to the relative level of economic development of the partners and also according to the content of the agreement. Furthermore, the study sheds the first light on how trade agreements affect the structure of international production networks by identifying the effects on various value added components of gross trade flows. The impact of agreements is estimated by a PPML estimator with a comprehensive fixed effects structure that controls for a wide range of unobserved heterogeneity and therefore avoids a potential omitted variable bias.

The results show that free trade agreements enhance GVC-driven trade between high-income and lower-income economies whereby the latter assemble imported intermediates into exports with little domestic value added. Deeper integration fosters production fragmentation with a more balanced structure where even the less developed economies participate at more upstream stages and contribute more domestic value added into the supply chain. Previous literature has consistently found that the deeper the economic cooperation the larger the average impact on bilateral trade flows. My results show that this is at least partly because deeper agreements boost all types of flows in both directions while less ambitious FTAs have impact only on certain flows in certain directions.

The analysis also confirms that the content of FTAs matters. In particular, it shows that liberalisation of trade in services is essential for the inclusion of less developed economies in global value chains while investment provisions are crucial for their participation at more upstream stages of the value chain. Since the analysis takes into account the evolution of income differences between partners, the results are not driven by the possibility that economic convergence shapes simultaneously the character of production linkages and the type of agreements countries conclude. The findings thus highlight that flows of goods, services and capital are tightly connected within international production networks and that successful policies aimed at GVC participation need to consider them all.

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Appendix

Table A.13: Income classification of "South" countries based on the World Bank Country Groups

1995			2010			
Low	Lower-middle	Upper-middle	Low	Lower-middle	Upper-middle	High
Cambodia	Bulgaria	Argentina	Cambodia	India	Argentina	Czech Republic
China	Colombia	Brazil		Indonesia	Brazil	Croatia
India	Costa Rica	Chile		Philippines	Bulgaria	Hungary
Vietnam	Indonesia	Czech Republic		Vietnam	Chile	Poland
	Latvia	Croatia			China	Slovakia
	Lithuania	Hungary			Colombia	Slovenia
	Philippines	Mexico			Costa Rica	
	Romania	Malaysia			Latvia	
	Russia	Poland			Lithuania	
	Thailand	Slovakia			Mexico	
	Tunisia	Slovenia			Malaysia	
	Turkey	South Africa			Romania	
					Russia	
					Thailand	
					Tunisia	
					Turkey	
					South Africa	

Table A.14: List of deeper agreements (*DEEP*) concluded on the top of an existing FTA between 1996 and 2010

	Content:	**Services**	**Capital movement**	**Investment**	**IPRs**	**Competition**
	Partner					
Croatia						
	Bulgaria, Romania, Slovenia		x	x		x
Tunisia						
	EU 15		x	x		x
EU						
	Israel		x		x	x
	Turkey				x	x
Thailand						
	New Zealand	x			x	
	Australia				x	
Switzerland						
	EU NMSs	x	x	x	x	x
ASEAN		x				

Table A.15: Asymmetric impact of trade agreements on gross and value added exports

		Gross exports			DVA	FVA	DC
		Total	Final	Inputs			
WTO	S => N	-0.0538	-0.123	-0.0402	-0.0403	-0.00509	-0.206
		(0.142)	(0.140)	(0.143)	(0.147)	(0.129)	(0.148)
	S => S	0.436**	0.252	0.508**	0.452**	0.410**	0.289
		(0.198)	(0.171)	(0.201)	(0.202)	(0.170)	(0.189)
	N => N	-0.151	-0.167	-0.108	-0.064	-0.231**	-0.380***
		(0.133)	(0.134)	(0.131)	(0.149)	(0.107)	(0.131)
	N => S	0.370**	0.300*	0.375**	0.450**	0.295**	0.045
		(0.188)	(0.172)	(0.184)	(0.204)	(0.145)	(0.148)
FTA	S => N	0.133**	0.164***	0.113*	0.105*	0.201***	0.133*
		(0.0568)	(0.0538)	(0.0661)	(0.0575)	(0.0576)	(0.0800)
	S => S	0.105	-0.043	0.178	0.144	0.00249	0.033
		(0.114)	(0.0948)	(0.125)	(0.115)	(0.115)	(0.113)
	N => N	0.134	0.055	0.186	0.135	0.104	0.227*
		(0.105)	(0.101)	(0.113)	(0.103)	(0.118)	(0.134)
	N => S	0.223***	0.159***	0.251***	0.210***	0.182***	0.300***
		(0.0483)	(0.0524)	(0.0510)	(0.0513)	(0.0519)	(0.0611)
DEEP	S => N	0.242*	0.202	0.295**	0.197	0.387***	0.409***
		(0.132)	(0.141)	(0.116)	(0.142)	(0.112)	(0.107)
	S => S	0.555***	0.612***	0.526***	0.610***	0.493***	0.400***
		(0.102)	(0.106)	(0.110)	(0.102)	(0.108)	(0.117)
	N => N	-0.307***	-0.307***	-0.301***	-0.301***	-0.281***	-0.284***
		(0.0801)	(0.0876)	(0.0853)	(0.0818)	(0.104)	(0.0920)
	N => S	-0.023	0.107	-0.126	-0.060	0.076	-0.018
		(0.0822)	(0.0753)	(0.0881)	(0.0849)	(0.0798)	(0.103)
EU	S => N	0.390***	0.388***	0.379***	0.375***	0.454***	0.418***
		(0.0894)	(0.0978)	(0.0917)	(0.0916)	(0.0937)	(0.0988)
	S => S	0.288**	0.334**	0.262*	0.359**	0.231	0.122
		(0.145)	(0.158)	(0.145)	(0.140)	(0.153)	(0.162)
	N => S	0.262***	0.341***	0.193**	0.258***	0.304***	0.183*
		(0.0829)	(0.0741)	(0.0957)	(0.0833)	(0.0854)	(0.111)
Asym_2000		0.109**	0.060	0.161***	0.061	0.052	0.262***
		(0.0502)	(0.0545)	(0.0564)	(0.0459)	(0.0653)	(0.0789)
Asym_2005		-0.064	-0.183**	0.0425	-0.042	-0.249***	-0.134
		(0.0778)	(0.0763)	(0.0886)	(0.0714)	(0.0842)	(0.120)
Asym_2010		-0.097	-0.242***	0.019	-0.145*	-0.353***	-0.246*
		(0.0903)	(0.0835)	(0.104)	(0.0825)	(0.0971)	(0.135)
GDP gap		-0.0240	0.0313	-0.0615	-0.0294	0.00258	-0.109**
		(0.0385)	(0.0411)	(0.0408)	(0.0360)	(0.0495)	(0.0523)
$(GDP\ gap)^2$		-0.0131	-0.00546	-0.0176	-0.0133	-0.0134	0.00205
		(0.0112)	(0.0108)	(0.0121)	(0.0113)	(0.0119)	(0.0157)
Observations		10,608	10,608	10,604	10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Each regression includes importer-time, exporter-time and country-pair fixed effects.

Table A.16: Asymmetric impact of economic integration agreements on value added exports, decomposition

		DVA		FVA		MVA		OVA	
		Final	Inputs	Final	Inputs	Final	Inputs	Final	Inputs
WTO	S => N	-0.106	-0.042	-0.159	0.0465	-0.326**	0.028	-0.169	0.126
		(0.151)	(0.148)	(0.123)	(0.130)	(0.165)	(0.178)	(0.122)	(0.131)
	S => S	0.279	0.506**	0.186	0.516***	0.155	0.568**	0.201	0.592***
		(0.186)	(0.201)	(0.141)	(0.178)	(0.194)	(0.241)	(0.141)	(0.171)
	N => N	-0.108	-0.014	-0.305***	-0.106	-0.325**	-0.182	-0.300***	-0.138
		(0.152)	(0.148)	(0.107)	(0.113)	(0.165)	(0.171)	(0.105)	(0.109)
	N => S	0.409**	0.427**	0.101	0.375**	-0.361*	-0.010	0.117	0.442***
		(0.198)	(0.195)	(0.129)	(0.146)	(0.207)	(0.226)	(0.126)	(0.140)
FTA	S => N	0.139**	0.084	0.209***	0.193***	0.242**	0.306**	0.191***	0.181***
		(0.0580)	(0.0656)	(0.0551)	(0.0706)	(0.0959)	(0.135)	(0.0572)	(0.0698)
	S => S	-0.031	0.228*	-0.083	0.0585	-0.107	0.301	-0.088	0.073
		(0.0939)	(0.126)	(0.101)	(0.134)	(0.170)	(0.306)	(0.101)	(0.135)
	N => N	0.063	0.178	0.074	0.256*	0.054	0.139	0.060	0.125
		(0.0954)	(0.113)	(0.115)	(0.155)	(0.137)	(0.103)	(0.115)	(0.134)
	N => S	0.173***	0.230***	0.112**	0.223***	-0.028	-0.056	0.125**	0.237***
		(0.0563)	(0.0541)	(0.0514)	(0.0664)	(0.146)	(0.241)	(0.0504)	(0.0640)
DEEP	S => N	0.151	0.256**	0.330**	0.431***	0.110	0.330*	0.340***	0.457***
		(0.151)	(0.122)	(0.128)	(0.108)	(0.208)	(0.191)	(0.129)	(0.106)
	S => S	0.648***	0.583***	0.550***	0.414***	1.115***	0.665***	0.560***	0.461***
		(0.106)	(0.110)	(0.112)	(0.115)	(0.197)	(0.205)	(0.111)	(0.116)
	N => N	-0.319***	-0.275***	-0.256**	-0.034	-0.610***	-0.467**	-0.212**	-0.250**
		(0.0834)	(0.0900)	(0.107)	(0.128)	(0.126)	(0.203)	(0.105)	(0.119)
	N => S	0.089	-0.172*	0.153*	-0.034	0.351	0.144	0.171**	0.0015
		(0.0752)	(0.0897)	(0.0807)	(0.0915)	(0.234)	(0.252)	(0.0792)	(0.0894)
EU	S => N	0.375***	0.363***	0.438***	0.426***	0.504***	0.555***	0.460***	0.459***
		(0.104)	(0.0915)	(0.0985)	(0.0994)	(0.111)	(0.113)	(0.0997)	(0.0990)
	S => S	0.415***	0.326**	0.238	0.174	0.704***	0.615***	0.264	0.216
		(0.155)	(0.139)	(0.168)	(0.149)	(0.269)	(0.216)	(0.163)	(0.145)
	N => S	0.343***	0.189**	0.341***	0.227**	0.724***	0.528**	0.351***	0.259**
		(0.0754)	(0.0960)	(0.0824)	(0.102)	(0.241)	(0.205)	(0.0811)	(0.101)
Asym_2000		0.0371	0.104*	0.066	0.032	0.474***	0.344**	0.061	0.050
		(0.0515)	(0.0539)	(0.0714)	(0.0690)	(0.150)	(0.136)	(0.0703)	(0.0688)
Asym_2005		-0.144*	0.0565	-0.296***	-0.207**	0.375**	0.335**	-0.293***	-0.188**
		(0.0766)	(0.0781)	(0.0887)	(0.0916)	(0.157)	(0.148)	(0.0890)	(0.0920)
Asym_2010		-0.200**	-0.0885	-0.368***	-0.376***	-0.022	-0.149	-0.344***	-0.307***
		(0.0879)	(0.0906)	(0.0978)	(0.110)	(0.201)	(0.206)	(0.0991)	(0.111)
GDP gap		0.030	-0.074*	0.043	-0.084*	-0.058	-0.239*	0.030	-0.042
		(0.0385)	(0.0391)	(0.0531)	(0.0508)	(0.155)	(0.128)	(0.0462)	(0.0463)
(GDP gap)^2		-0.004	-0.017	-0.007	-0.016	-0.042	-0.020	-0.001	-0.014
		(0.0109)	(0.0124)	(0.0126)	(0.0128)	(0.0336)	(0.0302)	(0.0114)	(0.0120)
Observations		10,608	10,604	10,608	10,604	10,608	10,604	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Total value added in exports is the sum of *DVA* and *FVA; DVA* is the domestic value added in exports, *FVA* is the foreign value added in exports. *FVA* is the sum of *MVA* and *OVA*; *MVA* is the foreign value added content of exports that originated from the direct partner (Country A's value added in Country B's exports to A), and *OVA* is the foreign value added that originated from elsewhere.

Each regression includes importer-time, exporter-time and country-pair fixed effects.

Table A.17: Asymmetric impact of impact of economic integration agreements, robustness to exclusion of China or Chinese Taipei

		Without Chinese Taipei					*Without China*				
		Gross exports		DVA	FVA	DC	Gross exports		DVA	FVA	DC
		Final	Inputs				Final	Inputs			
WTO	S => N	0.577**	0.496*	0.462**	0.604**	0.778**	0.145	0.0647	0.208	-0.106	-0.138
		(0.246)	(0.258)	(0.229)	(0.264)	(0.331)	(0.223)	(0.170)	(0.150)	(0.177)	(0.160)
	S => S	0.940***	0.949***	0.911***	0.931***	1.051***	0.356*	0.414***	0.480***	0.217	0.159
		(0.272)	(0.274)	(0.244)	(0.285)	(0.358)	(0.216)	(0.156)	(0.141)	(0.172)	(0.164)
	N => N						0.240	0.124	0.279*	-0.141	-0.171
							(0.237)	(0.175)	(0.156)	(0.186)	(0.160)
	N => S	1.058***	0.826***	0.954***	0.829***	0.729**	0.591**	0.501***	0.617***	0.347*	0.270*
		(0.289)	(0.268)	(0.244)	(0.286)	(0.367)	(0.238)	(0.169)	(0.154)	(0.186)	(0.159)
FTA	S => N	0.171***	0.129*	0.114**	0.221***	0.156*	0.136**	0.0865	0.0669	0.192***	0.147**
		(0.0532)	(0.0673)	(0.0581)	(0.0567)	(0.0814)	(0.0602)	(0.0631)	(0.0581)	(0.0593)	(0.0717)
	S => S	-0.063	0.172	0.133	-0.002	0.031	-0.0045	0.093	0.0735	0.008	0.050
		(0.0932)	(0.123)	(0.115)	(0.111)	(0.108)	(0.112)	(0.0992)	(0.104)	(0.110)	(0.102)
	N => N	0.0536	0.186	0.132	0.109	0.242*	0.0481	0.186*	0.131	0.106	0.234*
		(0.102)	(0.116)	(0.105)	(0.120)	(0.137)	(0.101)	(0.108)	(0.0977)	(0.116)	(0.137)
	N => S	0.158***	0.271***	0.217***	0.190***	0.344***	0.146**	0.212***	0.182***	0.149***	0.246***
		(0.0552)	(0.0543)	(0.0544)	(0.0542)	(0.0642)	(0.0568)	(0.0560)	(0.0562)	(0.0524)	(0.0636)
DEEP	S => N	0.222	0.298***	0.207	0.399***	0.411***	0.209	0.278**	0.192	0.380***	0.394***
		(0.140)	(0.114)	(0.141)	(0.112)	(0.106)	(0.142)	(0.116)	(0.143)	(0.113)	(0.107)
	S => S	0.577***	0.511***	0.585***	0.486***	0.398***	0.641***	0.577***	0.634***	0.566***	0.486***
		(0.106)	(0.109)	(0.101)	(0.107)	(0.117)	(0.107)	(0.109)	(0.101)	(0.109)	(0.122)
	N => N	-0.307***	-0.281***	-0.292***	-0.267**	-0.251***	-0.287***	-0.276***	-0.277***	-0.259**	-0.263***
		(0.0909)	(0.0876)	(0.0844)	(0.106)	(0.0952)	(0.0850)	(0.0849)	(0.0785)	(0.103)	(0.0919)
	N => S	0.121	-0.105	-0.0429	0.0922	0.00198	0.105	-0.126	-0.0589	0.0631	-0.0429
		(0.0747)	(0.0849)	(0.0807)	(0.0795)	(0.107)	(0.0776)	(0.0869)	(0.0841)	(0.0810)	(0.107)
EU	S => N	0.399***	0.389***	0.386***	0.466***	0.425***	0.411***	0.403***	0.394***	0.478***	0.438***
		(0.0999)	(0.0918)	(0.0930)	(0.0942)	(0.0993)	(0.0977)	(0.0917)	(0.0912)	(0.0932)	(0.0976)
	S => S	0.314*	0.244	0.340**	0.219	0.0987	0.350**	0.301*	0.385***	0.264*	0.142
		(0.162)	(0.151)	(0.146)	(0.158)	(0.171)	(0.163)	(0.154)	(0.148)	(0.159)	(0.170)
	N => S	0.344***	0.207**	0.269***	0.313***	0.195	0.326***	0.204*	0.261***	0.296***	0.165
		(0.0780)	(0.102)	(0.0886)	(0.0914)	(0.121)	(0.0822)	(0.105)	(0.0926)	(0.0949)	(0.120)
Asym_2000		0.0444	0.156***	0.0660	0.0508	0.258***	0.119*	0.212***	0.108*	0.165**	0.376***
		(0.0546)	(0.0556)	(0.0457)	(0.0650)	(0.0782)	(0.0621)	(0.0656)	(0.0555)	(0.0687)	(0.0819)
Asym_2005		-0.238***	-0.0270	-0.0817	-0.293***	-0.174	-0.196***	-0.0229	-0.0907	-0.218***	-0.108
		(0.0754)	(0.0783)	(0.0683)	(0.0826)	(0.117)	(0.0759)	(0.0783)	(0.0682)	(0.0829)	(0.120)
Asym_2010		-0.271***	-0.130	-0.157*	-0.356***	-0.253*	-0.212**	-0.0608	-0.117	-0.240**	-0.145
		(0.0866)	(0.0935)	(0.0821)	(0.0960)	(0.135)	(0.0893)	(0.0933)	(0.0821)	(0.0947)	(0.137)
GDP gap		0.0540	-0.0413	-0.00388	0.0142	-0.0991*	0.0587	-0.0355	-0.00239	0.0192	-0.0643
		(0.0412)	(0.0404)	(0.0356)	(0.0498)	(0.0526)	(0.0445)	(0.0451)	(0.0379)	(0.0558)	(0.0584)
$(GDP\ gap)^2$		-0.00280	-0.0123	-0.0105	-0.00577	0.0130	-0.0159	-0.0210	-0.0210	-0.0151	-0.0167
		(0.0106)	(0.0117)	(0.0109)	(0.0116)	(0.0158)	(0.0140)	(0.0150)	(0.0136)	(0.0163)	(0.0187)
Observations		10,200	10,196	10,200	10,200	10,196	10,200	10,196	10,200	10,200	10,196

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

DVA is the domestic value added in exports, *FVA* is the foreign value added in exports, *DC* is the value added that gets double counted.

Each regression includes importer-time, exporter-time and country-pair fixed effects.

Table A.18: Asymmetric impact of economic integration agreements with a DEEP provision, decomposition

		Gross exports			DVA	FVA	DC
		Total	Final	Inputs			
WTO	S => N	-0.021	-0.127	0.012	0.001	0.012	-0.205
		(0.154)	(0.142)	(0.160)	(0.159)	(0.136)	(0.153)
	S => S	0.412*	0.230	0.492**	0.432**	0.380**	0.276
		(0.212)	(0.171)	(0.228)	(0.217)	(0.178)	(0.196)
	N => N	-0.132	-0.161	-0.0814	-0.0391	-0.231**	-0.414***
		(0.138)	(0.130)	(0.141)	(0.156)	(0.106)	(0.133)
	N => S	0.412**	0.296*	0.449**	0.503**	0.312**	0.070
		(0.209)	(0.174)	(0.217)	(0.227)	(0.156)	(0.160)
FTA	S => N	-0.159	-0.024	-0.235	-0.139	-0.119	-0.395*
		(0.217)	(0.295)	(0.194)	(0.215)	(0.259)	(0.215)
	S => S	0.346**	0.0531	0.475***	0.391***	0.182	0.313***
		(0.143)	(0.0854)	(0.135)	(0.145)	(0.148)	(0.109)
	N => N	0.337***	0.126**	0.407***	0.326***	0.168***	0.351***
		(0.0650)	(0.0542)	(0.0583)	(0.0634)	(0.0592)	(0.0798)
	N => S	-0.151*	-0.066	-0.222**	-0.156*	-0.117	-0.243**
		(0.0874)	(0.100)	(0.102)	(0.0859)	(0.0929)	(0.121)
FTA_deep	S => N	0.292	0.177	0.356*	0.244	0.315	0.539**
		(0.221)	(0.297)	(0.201)	(0.219)	(0.263)	(0.225)
	S => S	-0.384**	-0.136	-0.484***	-0.408**	-0.268	-0.412***
		(0.180)	(0.146)	(0.171)	(0.181)	(0.192)	(0.151)
	N => N	-0.227*	-0.0855	-0.248*	-0.209*	-0.076	-0.167
		(0.129)	(0.121)	(0.135)	(0.126)	(0.143)	(0.198)
	N => S	0.383***	0.221**	0.489***	0.377***	0.301***	0.558***
		(0.0954)	(0.107)	(0.110)	(0.0952)	(0.100)	(0.129)
EU	S => N	0.403***	0.384***	0.400***	0.393***	0.460***	0.447***
		(0.0886)	(0.0962)	(0.0914)	(0.0908)	(0.0923)	(0.0988)
	S => S	0.274*	0.327**	0.250*	0.346**	0.224	0.0963
		(0.149)	(0.158)	(0.150)	(0.144)	(0.156)	(0.167)
	N => S	0.276***	0.346***	0.214**	0.270***	0.327***	0.217*
		(0.0843)	(0.0740)	(0.0977)	(0.0852)	(0.0847)	(0.113)
Asym_2000		0.103*	0.041	0.160***	0.074	0.042	0.251***
		(0.0531)	(0.0554)	(0.0611)	(0.0489)	(0.0688)	(0.0880)
Asym_2005		-0.083	-0.214***	0.0321	-0.031	-0.271***	-0.161
		(0.0830)	(0.0784)	(0.0960)	(0.0792)	(0.0898)	(0.130)
Asym_2010		-0.121	-0.287***	0.008	-0.060	-0.337***	-0.231
		(0.0997)	(0.0893)	(0.115)	(0.0975)	(0.105)	(0.150)
Observations		10,608	10,604	10,608	10,604	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Total value added in exports is the sum of *DVA* and *FVA; DVA* is the domestic value added in exports, *FVA* is the foreign value added in exports. *FVA* is the sum of *MVA* and *OVA*; *MVA* is the foreign value added content of exports that originated from the direct partner (Country A's value added in Country B's exports to A), and *OVA* is the foreign value added that originated from elsewhere.

Each regression includes importer-time, exporter-time and country-pair fixed effects. Variable *DEEP* is included but not reported.

FTA_deep is defined as an agreement that includes *at least one* of the deep provisions. The coefficient on FTA can be therefore interpreted as the impactof shallow agreements.

Table A.19: Asymmetric impact of economic integration agreements with SERVICES provision, decomposition

		DVA		FVA		OVA		MVA	
		Final	Inputs	Final	Inputs	Final	Inputs	Final	Inputs
WTO	S => N	-0.114	-0.0388	-0.166	0.176	-0.182	0.161	-0.263	0.154
		(0.153)	(0.149)	(0.123)	(0.147)	(0.120)	(0.143)	(0.172)	(0.208)
	S => S	0.251	0.483**	0.156	0.572***	0.175	0.571***	0.0140	0.511
		(0.187)	(0.205)	(0.141)	(0.199)	(0.139)	(0.190)	(0.200)	(0.324)
	N => N	-0.102	0.00827	-0.309***	-0.155	-0.302***	-0.146	-0.289*	-0.154
		(0.149)	(0.152)	(0.105)	(0.114)	(0.0997)	(0.111)	(0.161)	(0.184)
	N => S	0.404**	0.443**	0.0983	0.477***	0.108	0.481***	-0.334*	0.0935
		(0.201)	(0.197)	(0.128)	(0.169)	(0.125)	(0.160)	(0.199)	(0.300)
FTA	S => N	0.014	-0.302	0.241	-0.185	0.297*	-0.145	-0.403*	-0.346
		(0.165)	(0.219)	(0.167)	(0.192)	(0.162)	(0.188)	(0.213)	(0.297)
	S => S	0.132*	0.490***	0.113	0.366***	0.120	0.378***	0.335**	1.009***
		(0.0795)	(0.122)	(0.102)	(0.135)	(0.101)	(0.137)	(0.145)	(0.278)
	N => N	0.151**	0.361***	0.076	0.230***	0.035	0.205***	-0.0997	0.0341
		(0.0661)	(0.0595)	(0.0595)	(0.0781)	(0.0471)	(0.0553)	(0.239)	(0.170)
	N => S	-0.040	-0.204**	0.030	-0.0498	0.046	-0.034	-0.245	-0.368
		(0.0967)	(0.102)	(0.127)	(0.132)	(0.124)	(0.130)	(0.257)	(0.274)
FTA_services	S => N	0.118	0.426*	-0.0463	0.395*	-0.122	0.334*	0.697***	0.743**
		(0.176)	(0.227)	(0.175)	(0.203)	(0.171)	(0.198)	(0.248)	(0.333)
	S => S	-0.275*	-0.502***	-0.348**	-0.520***	-0.366**	-0.535***	-0.711***	-1.284***
		(0.153)	(0.172)	(0.162)	(0.185)	(0.164)	(0.187)	(0.226)	(0.332)
	N => N	-0.101	-0.205	-0.009	-0.100	0.0192	-0.085	0.178	0.155
		(0.121)	(0.142)	(0.143)	(0.165)	(0.139)	(0.155)	(0.287)	(0.213)
	N => S	0.234**	0.475***	0.084	0.316**	0.0771	0.299**	0.228	0.309
		(0.110)	(0.116)	(0.141)	(0.151)	(0.137)	(0.147)	(0.287)	(0.346)
EU	S => N	0.391***	0.378***	0.445***	0.484***	0.465***	0.494***	0.521***	0.622***
		(0.102)	(0.0909)	(0.0968)	(0.0985)	(0.0972)	(0.0976)	(0.114)	(0.112)
	S => S	0.422***	0.322**	0.234	0.214	0.257	0.230	0.811***	0.649***
		(0.153)	(0.139)	(0.166)	(0.152)	(0.161)	(0.147)	(0.276)	(0.235)
	N => S	0.347***	0.187*	0.348***	0.289***	0.363***	0.295***	0.991***	0.815***
		(0.0754)	(0.0974)	(0.0817)	(0.101)	(0.0807)	(0.0998)	(0.240)	(0.215)
Asym_2000		0.0303	0.110*	0.0259	0.0665	0.0238	0.0543	0.509***	0.357**
		(0.0522)	(0.0576)	(0.0731)	(0.0745)	(0.0713)	(0.0735)	(0.160)	(0.149)
Asym_2005		-0.160**	0.0604	-0.349***	-0.176*	-0.344***	-0.184*	0.405**	0.373**
		(0.0788)	(0.0832)	(0.0905)	(0.0992)	(0.0900)	(0.0995)	(0.162)	(0.154)
Asym_2010		-0.235**	-0.0802	-0.441***	-0.230*	-0.431***	-0.227*	0.176	0.121
		(0.0916)	(0.0965)	(0.101)	(0.119)	(0.0991)	(0.119)	(0.180)	(0.186)
Observations		10,608	10,604	10,608	10,604	10,608	10,604	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Total value added in exports is the sum of *DVA* and *FVA; DVA* is the domestic value added in exports, *FVA* is the foreign value added in exports. *FVA* is the sum of *MVA* and *OVA*; *MVA* is the foreign value added content of exports that originated from the direct partner (Country A's value added in Country B's exports to A), and *OVA* is the foreign value added that originated from elsewhere.

Each regression includes importer-time, exporter-time and country-pair fixed effects. Variable *DEEP* is included but not reported.

Table A.20: Asymmetric impact of economic integration agreements with INVESTMENT provision, decomposition

		DVA		FVA		OVA		MVA	
		Final	Inputs	Final	Inputs	Final	Inputs	Final	Inputs
WTO	S => N	-0.116	0.029	-0.166	0.180	-0.182	0.166	-0.291*	0.150
		(0.153)	(0.163)	(0.122)	(0.146)	(0.120)	(0.142)	(0.168)	(0.204)
	S => S	0.266	0.523**	0.167	0.596***	0.188	0.594***	0.038	0.562*
		(0.186)	(0.227)	(0.140)	(0.195)	(0.139)	(0.187)	(0.195)	(0.314)
	N => N	-0.103	0.0204	-0.302***	-0.160	-0.303***	-0.150	-0.295*	-0.158
		(0.149)	(0.160)	(0.101)	(0.113)	(0.0996)	(0.111)	(0.160)	(0.184)
	N => S	0.404**	0.518**	0.097	0.474***	0.109	0.477***	-0.339*	0.098
		(0.200)	(0.230)	(0.128)	(0.167)	(0.125)	(0.159)	(0.196)	(0.294)
FTA	S => N	-0.049	-0.049	-0.063	-0.011	-0.057	-0.0115	-0.009	0.155
		(0.0832)	(0.0944)	(0.0744)	(0.0851)	(0.0743)	(0.0830)	(0.125)	(0.125)
	S => S	-0.047	0.236*	-0.103	0.079	-0.098	0.085	-0.164	0.312
		(0.103)	(0.143)	(0.115)	(0.148)	(0.116)	(0.150)	(0.168)	(0.321)
	N => N	0.149**	0.376***	0.070	0.230***	0.033	0.204***	0.0265	0.027
		(0.0665)	(0.0602)	(0.0593)	(0.0778)	(0.0467)	(0.0551)	(0.258)	(0.169)
	N => S	0.0235	0.147*	0.0305	0.206**	0.0341	0.206**	-0.144	-0.181
		(0.0787)	(0.0755)	(0.0755)	(0.0964)	(0.0741)	(0.0934)	(0.191)	(0.299)
FTA_investment	S => N	0.215**	0.199*	0.306***	0.266***	0.285***	0.247**	0.309**	0.253
		(0.100)	(0.104)	(0.0882)	(0.102)	(0.0890)	(0.0981)	(0.143)	(0.166)
	S => S	0.186	-0.027	0.154	-0.047	0.098	-0.086	0.712***	0.009
		(0.178)	(0.246)	(0.196)	(0.205)	(0.221)	(0.215)	(0.273)	(0.372)
	N => N	-0.0995	-0.211	-0.005	-0.010	0.0228	-0.085	0.053	0.173
		(0.120)	(0.134)	(0.142)	(0.164)	(0.137)	(0.154)	(0.303)	(0.214)
	N => S	0.188**	0.134	0.134	0.067	0.144*	0.067	0.224	0.291
		(0.0918)	(0.0940)	(0.0901)	(0.104)	(0.0871)	(0.101)	(0.200)	(0.241)
EU	S => N	0.377***	0.391***	0.428***	0.462***	0.449***	0.471***	0.517***	0.618***
		(0.102)	(0.0914)	(0.0973)	(0.0986)	(0.0988)	(0.0981)	(0.113)	(0.111)
	S => S	0.425***	0.336**	0.242	0.203	0.257	0.218	0.718**	0.580**
		(0.156)	(0.145)	(0.169)	(0.155)	(0.164)	(0.150)	(0.284)	(0.242)
	N => S	0.345***	0.206**	0.356***	0.279***	0.362***	0.286***	0.858***	0.702***
		(0.0752)	(0.0985)	(0.0822)	(0.101)	(0.0810)	(0.0995)	(0.243)	(0.218)
Asym_2000		0.0288	0.121**	0.0312	0.0551	0.0197	0.0425	0.510***	0.353**
		(0.0521)	(0.0585)	(0.0733)	(0.0752)	(0.0718)	(0.0742)	(0.161)	(0.150)
Asym_2005		-0.158**	0.100	-0.338***	-0.183*	-0.345***	-0.192*	0.425***	0.399***
		(0.0790)	(0.0902)	(0.0900)	(0.0992)	(0.0899)	(0.0994)	(0.163)	(0.153)
Asym_2010		-0.228**	0.0815	-0.431***	-0.228*	-0.427***	-0.226*	0.203	0.151
		(0.0917)	(0.111)	(0.0990)	(0.119)	(0.0994)	(0.118)	(0.182)	(0.184)
Observations		10,608	10,604	10,608	10,604	10,608	10,604	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Total value added in exports is the sum of *DVA* and *FVA; DVA* is the domestic value added in exports, *FVA* is the foreign value added in exports. *FVA* is the sum of *MVA* and *OVA*; *MVA* is the foreign value added content of exports that originated from the direct partner (Country A's value added in Country B's exports to A), and *OVA* is the foreign value added that originated from elsewhere.

Each regression includes importer-time, exporter-time and country-pair fixed effects. Variable *DEEP* is included but not reported.

Table A.21**:** Combinations of provisions, the impact on gross flows

Provisions:	SERVICES + CAPITAL MOVEMENT + INVESTMENT			CAPITAL MOVEMENT + INVESTMENT			SERVICES + CAPITAL MOVEMENT			SERVICES + INVESTMENT		
	Gross exports			Gross exports			Gross exports			Gross exports		
	Total	Final	Inputs	Total	Final	Inputs	Total	Final	Inputs	Total	Final	Inputs
FTA												
S => N	0.0165	0.0828	-0.0257	-0.0140	0.0227	-0.0430	0.00622	0.0924	-0.0427	0.00623	0.0665	-0.0293
	(0.0719)	(0.0648)	(0.0822)	(0.0732)	(0.0615)	(0.0840)	(0.0777)	(0.0655)	(0.0914)	(0.0780)	(0.0771)	(0.0860)
S => S	0.0950	-0.0579	0.173	0.0980	-0.0644	0.180	0.0984	-0.0533	0.177	0.0945	-0.0585	0.172
	(0.123)	(0.101)	(0.139)	(0.126)	(0.104)	(0.142)	(0.122)	(0.101)	(0.137)	(0.123)	(0.101)	(0.139)
N => N	0.324***	0.123**	0.397***	0.325***	0.123**	0.398***	0.324***	0.123**	0.398***	0.324***	0.121**	0.396***
	(0.0695)	(0.0581)	(0.0632)	(0.0692)	(0.0580)	(0.0629)	(0.0694)	(0.0584)	(0.0628)	(0.0695)	(0.0586)	(0.0635)
N => S	0.149**	0.0586	0.191***	0.148**	0.0504	0.192***	0.167**	0.102	0.193***	0.159**	0.0607	0.202***
	(0.0646)	(0.0654)	(0.0676)	(0.0665)	(0.0675)	(0.0690)	(0.0688)	(0.0636)	(0.0736)	(0.0669)	(0.0689)	(0.0694)
FTA provisions												
S => N	0.163*	0.107	0.204**	0.202**	0.182**	0.226**	0.165*	0.0900	0.209**	0.170*	0.120	0.204**
	(0.0861)	(0.0835)	(0.0965)	(0.0867)	(0.0806)	(0.0974)	(0.0851)	(0.0820)	(0.0960)	(0.0895)	(0.0902)	(0.0984)
S => S	0.0219	0.0997	0.0168	0.0335	0.170	-0.0131	0.0152	0.0884	0.0105	0.0256	0.0989	0.0235
	(0.237)	(0.197)	(0.284)	(0.203)	(0.176)	(0.240)	(0.237)	(0.198)	(0.283)	(0.234)	(0.195)	(0.279)
N => N	-0.209	-0.0763	-0.237*	-0.211	-0.0759	-0.238*	-0.210	-0.0758	-0.238*	-0.210	-0.0745	-0.237*
	(0.129)	(0.123)	(0.134)	(0.129)	(0.123)	(0.134)	(0.129)	(0.123)	(0.134)	(0.129)	(0.123)	(0.134)
N => S	0.120	0.153*	0.105	0.120	0.160*	0.102	0.0858	0.0781	0.0947	0.102	0.143*	0.0856
	(0.0838)	(0.0831)	(0.0894)	(0.0840)	(0.0835)	(0.0890)	(0.0839)	(0.0817)	(0.0899)	(0.0848)	(0.0854)	(0.0897)
Observations	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Each regression includes importer-time, exporter-time and country-pair fixed effects. Each specification includes the dummies for *WTO*, *DEEP* and *EU* interacted with the direction of flows, as well as the dummies for asymmetric trade interacted with year dummies.

Table A.22: Combinations of provisions, the impact on value added flows

Provisions:	SERVICES + CAPITAL MOVEMENT + INVESTMENT			CAPITAL MOVEMENT + INVESTMENT			SERVICES + CAPITAL MOVEMENT			SERVICES + INVESTMENT		
	DVA	FVA	DC	DVA	FVA	DC	DVA	FVA	DC	DVA	FVA	DC
FTA												
S => N	0.004	0.041	-0.007	-0.026	0.004	-0.026	-0.007	0.072	0.012	-0.009	0.029	-0.009
	(0.0792)	(0.0700)	(0.0920)	(0.0818)	(0.0683)	(0.0916)	(0.0863)	(0.0713)	(0.103)	(0.0863)	(0.0768)	(0.0940)
S => S	0.137	-0.005	0.006	0.140	-0.004	0.021	0.140	-0.001	0.013	0.136	-0.005	0.006
	(0.124)	(0.123)	(0.120)	(0.128)	(0.127)	(0.124)	(0.124)	(0.122)	(0.119)	(0.125)	(0.123)	(0.120)
N => N	0.313***	0.156***	0.341***	0.313***	0.156***	0.340***	0.314***	0.160***	0.340***	0.315***	0.158***	0.341***
	(0.0692)	(0.0586)	(0.0828)	(0.0692)	(0.0586)	(0.0830)	(0.0689)	(0.0589)	(0.0829)	(0.0688)	(0.0587)	(0.0829)
N => S	0.102	0.144**	0.280***	0.103	0.135*	0.276***	0.120*	0.147*	0.291***	0.108	0.155**	0.302***
	(0.0646)	(0.0688)	(0.0902)	(0.0665)	(0.0706)	(0.0928)	(0.0695)	(0.0798)	(0.0920)	(0.0683)	(0.0709)	(0.0874)
FTA provisions												
S => N	0.142	0.205**	0.254**	0.183*	0.249***	0.282**	0.147	0.158*	0.197*	0.154	0.214**	0.253**
	(0.0926)	(0.0862)	(0.114)	(0.0941)	(0.0850)	(0.113)	(0.0930)	(0.0843)	(0.116)	(0.0971)	(0.0896)	(0.114)
S => S	-0.019	0.032	0.173	0.009	0.0645	0.079	-0.026	0.024	0.163	-0.0123	0.0285	0.170
	(0.246)	(0.207)	(0.311)	(0.212)	(0.184)	(0.258)	(0.245)	(0.207)	(0.310)	(0.242)	(0.206)	(0.305)
N => N	-0.192	-0.058	-0.155	-0.192	-0.058	-0.154	-0.193	-0.0626	-0.155	-0.195	-0.0608	-0.155
	(0.127)	(0.142)	(0.195)	(0.127)	(0.142)	(0.194)	(0.127)	(0.143)	(0.196)	(0.127)	(0.142)	(0.195)
N => S	0.162*	0.093	0.056	0.157*	0.108	0.063	0.128	0.067	0.032	0.148*	0.063	0.012
	(0.0852)	(0.0838)	(0.102)	(0.0853)	(0.0843)	(0.104)	(0.0867)	(0.0856)	(0.101)	(0.0874)	(0.0850)	(0.0994)
Observations	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604	10,608	10,608	10,604

*** p<0.01, ** p<0.05, * p<0.1

Country-pair clustered standard errors in parentheses.

Each regression includes importer-time, exporter-time and country-pair fixed effects. Each specification includes the dummies for *WTO*, *DEEP* and *EU* interacted with the direction of flows, as well as the dummies for asymmetric trade interacted with year dummies.