［研究論文］

Domestic Institutional Quality as a Factor in East Asian Regionalization

東アジア諸国の国内制度が地域統合に与える影響

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Abstract: Recent research questioning the overall trade creation effects of some East Asian Free Trade Agreements calls for the investigation of the influence of other variables on regional trade. To this end, this paper examines the effects of domestic institutional quality, and the changes thereof, on trade among East Asian economies by using the gravity model of trade. The results show that domestic institutional quality has a significant positive effect on trade, which suggests that improving domestic economic governance should be prioritized in future trade agreements.

　近年の研究では、東アジアにおける自由貿易協定の貿易創出効果に対する疑問が報告されているため、地域の貿易に影響を与える他の要因を検証する必要がある。したがって、本稿では、各国の国内制度が東アジアの貿易へ与える影響について、重力モデルを用いて実証分析する。その結果は、国内制度が貿易へプラスの効果をもたらすことを示した。

1　Introduction

　East Asia had experienced rapid economic development over the past decades and emerged in the 21st century as a global center for manufacturing and an increasingly important market. This rapid transformation was achieved in large part through harnessing international trade and Foreign Direct Investment (FDI). Regional economies pursued trade-based growth strategies and relied heavily on foreign markets and foreign inputs throughout their development (Kimura, 2006). Since the

late 1980s, an increasing part of their success was based on the expansion of regional production networks in the manufacturing sector, which bind together numerous economies of varying size and levels of development, and contribute to the high levels of intra-regional trade and investment in East Asia (Kimura and Ando, 2005).

The common narrative in the International Political Economy (IPE) literature is that this economic architecture emerged due to market forces. Facing rising domestic wages and the appreciation of the Japanese yen, in the late 1980s Japanese firms began to relocate their production to Southeast Asia and China, sowing the seeds of region-wide production networks. The market-based nature of this process underwent a major shift after the Asian Financial Crisis of 1997-98, which gave impetus for the establishment of regional institutions to manage interdependence with and within the Association of Southeast Asian Nations (ASEAN), such as the Chiang Mai Initiative, the ASEAN+ process, and the proliferation of bilateral and ASEAN+1 Free Trade Agreements (FTA) (Urata, 2019). More recently, an increasing number of plurilateral 'mega-FTAs' have been negotiated to unify the plethora of bilateral FTAs (Watanabe, 2016); the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) entered into force in 2018, while the Regional Comprehensive Economic Partnership (RCEP) is under negotiation as of early 2020 [1].

Recent research tends to focus on these institutional arrangements. A large body of the economics and IPE literature investigates the economic utility and political background of FTAs, while the International Relations (IR) literature has been focusing on regional powers' strategic interests behind institution-building. Nevertheless, recent findings suggest that the 'market-based' logic of the previous decades remains important. A substantial part of recent trade liberalization has been achieved through unilateral measures by national governments, and changes in domestic economic policies and institutions remain key contributors to trade in East Asia (Baldwin, 2011). Moreover, recent research highlighted that FTAs produce heterogenous effects on trade, and some East Asian FTAs did not lead to the expansion of participants' trade levels (Ando *et al.,* 2019; Yamanouchi, 2019). This suggests that factors other than FTAs continue to influence trade and investment

flows in the region.

This paper aims to contribute to the research on the role of such factors by investigating how and to which degree did domestic institutional quality, and the changes thereof, influence international trade within the ASEAN Plus Six. I argue that regional states considered international trade and investment as a vehicle of national development and instituted domestic reforms to be able to harness the forces of regionalization and globalization. Consequently, the hypothesis of the paper posits that domestic institutional quality is expected to have a significant and positive effect on regional trade. The hypothesis was tested by utilizing the gravity model of trade to explore the relationship between independent variables representing domestic institutional quality, regional trade as the dependent variable, and FTAs and exogenous factors such as infrastructural and financial development as control variables.

Previous studies have found a significant link between the quality of domestic institutions and trade [2] (Nunn, 2007; Levchenko, 2007; Nunn and Trefler, 2014), supporting this analysis. Nevertheless, this study differs from previous ones in two important aspects. First, it investigates the role of institutions specifically in East Asia, instead of looking at global effects. Second, and more importantly, it aims to not only capture the effects of domestic institutions on trade but to compare those to other variables, namely FTAs and exogenous factors. This means that the implications of these findings are more relevant to the study of East Asian regionalism.

The paper is organized as follows. The next section sets out the background of the hypothesis and provides the conceptual tenets of the study. The third section describes the operationalization of the variables and the specification of the gravity models. The fourth section introduces the estimation results and discusses the findings, followed by the conclusion.

2　Research background

2.1　A brief overview of East Asian regionalization and regionalism

Traditional theories such as Vinerian economics and neofunctionalism treat

regional integration and regionalism as politically led phenomena, which rest on the establishment of international institutions in order to reduce barriers to the movement of factors of production among nations. East Asia's development challenges this narrative, for it represents a form of *de facto* regional integration (regionalization) without well-developed *de jure* institutionalized integration (regionalism) (Watanabe, 2016). Although it lacks a region-wide political institution providing for free trade such as the European Union (EU) or the North American Free Trade Agreement (NAFTA) [3], East Asia is home to dense regional production networks which are more sophisticated than either European or North American ones (Kimura, 2006). In terms of the share of intra-regional trade in total trade, an often-used metric of regional integration, East Asia is the second most integrated region of the world behind the European Union, as Figure 1 shows.
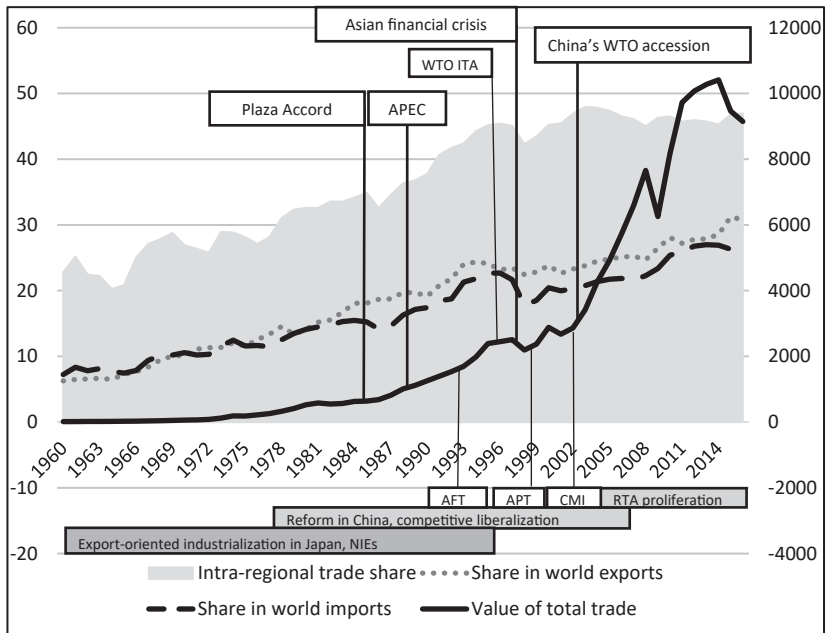

Figure 1   East Asian trade since 1960.

This theoretical paradox is usually explained through the agency of market forces: Multinational Enterprises (MNEs) created these production networks to take advantage of the differences in location advantages and production costs across the region even in the absence of regionalism [4]. Moreover, it has been argued that the market-led integration of the late 1980s and the 1990s has morphed into institution-led integration from the early 2000s through the proliferation of regional FTAs (Urata, 2019). According to data from the World Trade Organization (WTO), East Asian states were parties to a cumulative 87 regional trade agreements in 2019.

However, this narrative has been challenged on several fronts. Some scholars of IPE argue that East Asian FTAs serve political goals, and their contribution to trade-creation is marginal (Baldwin, 2008; Ravenhill, 2010). A neorealist IR version of this narrative states that East Asia is beset by 'institutional balancing,' where regional powers pursue institutionalization to attain their geostrategic goals or thwart the goals of their competitors (Lee, 2014; He, 2018). A more balanced IPE approach posits that East Asian FTAs focus narrowly on vertically differentiated intra-industry trade (in other words, the institutionalization of production networks) and neglect other aspects of integration (Manger, 2014). Finally, recent economics literature suggests that the effects of FTAs are heterogenous, meaning that they might affect certain sectors and countries positively, while others neutrally or even negatively (Baier, Bergstrand, and Clance, 2018). In fact, recent studies investigating Japanese FTAs found that those did not make significant contributions to Japan's trade with its FTA-partners (Ando *et al.,* 2019; Yamanouchi, 2019). In sum, it is reasonable to investigate factors other than FTA-formation as explanatory variables of regional trade.

To this end, this paper invokes a combination of neoinstitutionalist IPE theory and the empirical findings of economics. As explained by Keohane (1984), the purpose of international institutions is to reduce uncertainty, transaction costs and asymmetries of information among actors in the international system. In practice, FTAs serve the same purpose with regards to the transnational operation of sub-state actors, namely MNEs. However, in the case of MNEs, the reduction of uncertainty, transaction costs and asymmetries of information can be achieved not only on the

international level but also on the domestic one. From this perspective, East Asia's *de facto* integration has been heavily supported by state actors through domestic policies and institutional arrangements even in the absence of regional institutions.

Domestic institutional reform was theorized as a key driver of East Asian growth as early as the World Bank's (1993) report on the East Asian 'miracle.' More recently, students of Development Economics posited that institutional change is the most important explanatory variable of economic development (Acemoglu and Robinson, 2012). As mentioned above, previous studies have also found a positive relationship between the quality of domestic institutions and trade. Hence, it would be reasonable to expect that domestic institutional quality affects trade flows in East Asia.

In addition, a strand of research debates whether the expansion of regional trade can be separated from globalization, or in other words, if regionalism is an autonomous phenomenon or merely a part of a global one (Chen and Lombaerde, 2014). Recent papers by Ando and Kimura (2013, 2014) showed that the geographical reach of East Asian production networks have been expanding, as the region has become an important source of imports for production networks in Central and Eastern Europe and North America. Consequently, some authors refer to Global Value Chains and global production networks instead of regional ones (Baldwin, 2016, p. 6). While the relationship between regionalization and globalization is beyond the scope of this study, the WTO will be included in calculations as representing (although only partially) global institutional change.

2.2 Domestic sources of regionalization

As Kimura and Ando (2005, pp. 179-180), Kimura (2006, pp. 337-340) and Baldwin (2016, pp. 98-105) detail, the development of regional production networks has been backed by "a great transformation of the development strategies" of East Asian countries. Over the 1970s, most ASEAN members and China employed a dual-track approach to industrialization, trying to foster both import-substituting and export-oriented industries at the same time, but also relying on incoming FDI for the

lack of technological capacity.

Nevertheless, until the mid-1980s, their attitude toward foreign companies was cautious: import-substituting FDI faced severe regulatory burdens. As the dual-track efforts had produced mixed results, first in Malaysia and Thailand in the late 1980s, and from the early 1990s in the Philippines, Indonesia, and China, the selective approach towards FDI was replaced by the "accepting everybody" policy in most sectors. East Asian emerging economies began to actively compete for incoming FDI by upgrading their location advantages and reducing the cost of foreign investment and endeavoured to host as many exporting MNEs as possible through concentrated domestic policy accommodation.

The period from the mid-1980s to the 1990s is often described as "race-to-the-bottom liberalization." Tariffs on intra-regional trade have receded dramatically due to unilateral tariff reductions to attract inward FDI. Additionally, duty-drawback systems allowed exporting MNEs to get waivers for the duties and tariffs on the imported inputs used in the production of their exported products. (Baldwin, 2008, pp. 453-462; Kimura and Ando, 2005, p. 213). As Baldwin (2008, p. 458) underlines, "it is useful to think of this sort of tariff-cutting as "quasi-regionalism" because its effect is to reduce tariffs only on intra-regional trade, but it was not formally discriminatory."

In summary, the success of East Asian regionalization was based on substantial domestic reforms. Domestic policies promoting trade and FDI-hosting competitiveness continued even in the early 2000s. For most states of the region, "comprehensive domestic regulatory reform dominates as an integration strategy" (Dee, 2008, p. 151).

2.3　Additional factors on the regional and global level

While domestic policy accommodation was an important catalyst of international production network development, the fragmentation of production and outsourcing was made possible in the first place by technological improvements: the reduction of transportation costs and the advances in information-communication

technology (ICT). Technological change and the expansion of physical infrastructure were identified as key factors shaping the transnational structure of production (Baldwin, 2016; Olarreaga, 2016).

Further support for regionalization came from the regional and global levels. Despite its unambitious goals, the ASEAN Free Trade Area has slowly developed into "one of the cleanest and most effective regional trade arrangements in the world" since its adoption in 1993 (Kimura, 2006, pp. 338-339). The AFTA was followed by a raft of bilateral and ASEAN+1 FTAs. While recent research debates the magnitude of the overall trade-creation effects of these, they played an important role in reducing trader barriers and transaction costs in East Asia (Mutsvangwa *et al.,* 2019), and thus their net contribution was certainly positive (Urata, 2019).

Of similar importance were global agreements. While the WTO's influence has been waning, the General Agreement on Tariffs and Trade (GATT), and later the WTO provided foundation for the development of production networks through global liberalization (Baldwin, 2016, pp. 69-75). The WTO Information Technology Agreement (ITA) was especially important, for it liberalized the trade of semiconductor-related parts and components. This, coupled with the extensive use of the duty drawback systems, meant that production network-forming firms in the electric machinery sector barely paid tariffs from the late 1990s onward (Kimura, 2006, p. 340).

Further trade-creation stemmed from China's WTO-accession in 2001, and Vietnam's in 2007. For both China and Vietnam, joining the WTO required widespread tariff liberalization and the adoption of the international rules of commerce. Thus WTO-accession led to domestic institutional reforms in these two quasi-socialist economies, while providing them access to the world markets.

This highlights an important aspect of the interplay between international institutions and domestic reform, namely that FTAs institute domestic reform. First, trade liberalization alters the domestic political economy by strengthening pro-liberalization sectors (exporters), which leads to a self-sustaining cycle of liberalization and pro-business reform, called the juggernaut effect (Baldwin, 2016, p.

69). Second, the reduction of Non-Tariff Barriers, regulatory burdens, market distortions due to discriminative domestic competition policies, and other so-called WTO+ and WTO-X issues, have become increasingly central elements of FTAs. In the words of Baldwin (2011, p. 28), instituting domestic reform has become the key goal of contemporary FTAs.

On the one hand, this means that FTA-negotiators seek to improve the trade and investment environment by mandating domestic reform, which line up with the hypothesis of this paper. On the other hand, such developments make it harder to separate the effects of domestic reform and FTA-formation on trade, since these increasingly go hand in hand, and FTAs produce both *ex ante* (reform as a requirement for participation) and *ex post* effects on both institutions and trade. In the scope of this paper, however, such effects of FTAs appear to be meagre. As mentioned above, East Asian FTAs are often criticised for requiring weak commitments from participants, and the connection between regulatory reform and FTA-participation is not evident in the dataset used in this study [5]. Nevertheless, the case may be different for CPTPP and RCEP, which are discussed later on.

3 Research methodology

3.1 Variables and data sources

What follows from the previous discussion is that East Asian regionalization can be conceptualized as dependent on multiple institutional variables across the regional, global, and the domestic level of analysis, with domestic institutions playing a substation role in the process.

To test the hypothesis, four 'broadly defined' institutional variables were operationalized: (1) the quality of domestic institutions and governance in a country; (2) financial development; (3) infrastructure; and (4) the quality of FTAs a country is signatory to.

The governance variable is constructed from the World Bank's Worldwide Governance Indicators dataset (World Bank, 2018). The data covers six indicators: (i) Voice and Accountability; (ii) Stability and Absence of Violence; (iii) Government

Effectiveness; (iv) Regulatory Quality; (v) Rule of Law; and (vi) Control of Corruption. These indicators represent institutional features that are relevant to the transaction costs of international trade. A considerable body of literature found that countries with stable and accountable political systems, less violence, and less corruption tend to have more efficient and more open economies (Acemoglu and Robinson, 2012). Regulatory quality has been proven to be an especially important factor for the entry of foreign companies (Helpman, Melitz and Rubinstein, 2008). Rule of law represents a good measure of the quality of contracting institutions, and therefore is a relevant determinant of the hold-up problems affecting international trade and investment. This is especially important in the East Asian case, where the high-frequency trade of intermediary inputs dominates intra-regional trade (Kimura and Ando, 2005).

The economics literature suggests that efficient credit allocation and a sound financial infrastructure are necessary requirements for industrialisation, and thus trade and integration. To test this assumption, a financial development indicator was constructed by combining two values: domestic credit to the private sector, and exports and imports of financial services. The domestic credit score signifies the capacity of the financial sector and has been used in previous studies to measure financial development (Beck, 2002; Becker *et al.,* 2013). The exports and imports of financial services measured in relation to GDP represent the international embeddedness and competitiveness of the financial sector [6]. Data was gathered from the World Bank World Development Indicators and national banks of regional states.

Infrastructure was measured across two variables. The first is primary energy supply per capita. Energy supply is vital for industrial production and is one of the major challenges facing low-income countries in attracting inward FDI. Data was obtained from ESCAP and the US Energy Information Administration. The second infrastructure variable is a combination of three components: landline phone subscriptions, mobile phone subscriptions, and broadband internet subscriptions per million persons. Data is from the World Bank World Development Indicators.

It should be noted that variable selection was in many cases 'path-dependant'

due to scarce data availability, as relevant data was hard to obtain for the least developed states of the region. In some cases, even more developed countries lacked comparable time-series data for important infrastructural or institutional indicators. Given that the aim of this study is to investigate long-term effects, the ability to gather comparable time-series data for the longest period possible was prioritized.

The countries covered in the regression model were the sixteen countries taking part in the RCEP negotiations, since this group represents the broadest institutionalized form of East Asian regional integration. The data used in the gravity model covered the years from 1996 to 2016, since these were the years were data on domestic institutional quality was available from the World Bank. Additional data for the gravity model were used from the datasets of Head and Mayer (2014) and Gurevich and Herman (2018), and the UN COMTRADE database.

To investigate the effects of international institutions, additional variables were used. First, in some specifications of the model, dummy variables were used to measure the effects of different FTAs. Second, to evaluate the quality of FTAs, a variable measuring the depth of FTAs was included as operationalized by Petri and Plummer (2016). This variable is a numerical score which is based on the length of the agreement text, the coverage of sub-issues (such as government procurement, dispute settlement, IPR, etc.), and a WTO score, which shows how far an agreement goes in liberalization. The reason for including this variable lies in the assumption that 'deeper' FTAs have a larger effect on trade. Finally, the effects of WTO-membership were measured with a dummy variable.

As mentioned above, FTAs can produce domestic reform, hence for the purposes of this paper it is important to distinguish FTA-induced reforms. In this dataset, the FTA scores treat this problem to a degree by differentiating between deeper and shallower FTAs. Second, neither the FTA dummies nor the FTA scores had a significant effect on institutional quality according to regression checks, suggesting that domestic reforms are not tied to FTA participation in the years and countries covered.

3.2　The gravity model

To evaluate the effects of the variables on intra-regional trade, this study utilizes three types of the gravity model of trade. First, we estimate the structural gravity model with fixed effects as described by Anderson and van Wincoop (2003) and Baier and Bergstrand (2007). The basic model is:

$$p_{ij}x_{ij} = \frac{Y_i E_j}{Y}\left(\frac{t_{ij}}{\prod i P_j}\right)^{1-\sigma}$$

where $p_{ij}\,x_{ij}$ is the bilateral trade value from country i to country j, Y_i is the total sales of country i, E_j is the total expenditure of country j, Y is the sum of sales in the world, t_{ij} captures bilateral iceberg trade costs from country i to j, Pj is an inward multilateral resistance term, $\prod i$ is an outward multilateral resistance term, and σ is the elasticity of substitution. The model is estimated first using the following equation, based on Yamanouchi (2019):

$$\ln X_{ijt} = \exp(\alpha WTO_{ijt} + \beta_1 FTAScore_{ijt} + \beta_2 Governance_{ijt} + \beta_3 ITInfrastructure_{ijt} + \beta_4 Energy_{ijt} + \beta_5 Finance_{ijt} + \delta_{ij}^B + \delta_{it}^X + \delta_{jt}^M) + \varepsilon_{ijt}$$

where X is the bilateral merchandise trade export value between country i and j at time t; *WTO* is a dummy variable which takes the value of 1 if both countries are WTO-members in a given year; δ_{ij}^B is a country-pair fixed effect and reflects all time-invariant factors which affect the bilateral trade values; δ_{it}^X is an exporter-time fixed effect and reflects the production capacity of exporter, outward multilateral resistance, and unilateral trade policies; and δ_{jt}^M is an importer-time fixed effect and reflects the total expenditure of the importer, inward multilateral resistance, and unilateral trade policies. The combination of the two country-year fixed effects controls for bilateral exchange rates.

The rest of the variables are those described above. *FTAScore* is the depth of the trade agreements in place between country i and j in year t, as calculated by Petri and Plummer (2016). To avoid having zero values, if there is no agreement in place

between country *i* and *j*, the variable takes the value of 0.01. The *FTAScore* value is introduced with a three-year lag after the implementation of an agreement. Although Baier and Berstrand (2007) found that the trade creation effects of FTAs are significant ten years after their inception, most East Asian FTAs are too recent to allow for a ten-year lag, therefore a shorter time-lag was used.

The *Governance* variable was constructed by taking the mean of the values of the six indices of the Worldwide Governance Indicators for a given country in a given year. This variable was constructed on a country-pair level, since gravity models with fixed effects cannot be used with country-specific variables (Baier and Bergstrand, 2009). The same holds true for the rest of the variables: *IT Infrastructure, Energy,* and *Financial development,* which represent data as specified in the previous section. In all estimations, standard errors were robust and clustered by country pair. The models were estimated using OLS.

For the sake of comparison, a second gravity model was calculated using the usual gravity variables instead of the country-pair fixed effects but retaining exporter-time and importer-time fixed effects.

$$\ln X_{ijt} = \exp(\alpha WTO_{ijt} + \beta_1 FTAScore_{ijt} + \beta_2 Governance_{ijt} + \beta_3 ITInfrastructure_{ijt} \\ + \beta_4 Energy_{ijt} + \beta_5 Finance_{ijt} + \beta_6 \ln Distance_{ij} + \beta_7 Contiguity_{ij} \\ + \beta_8 CommonLanguage_{ij} + \beta_9 CommonColonizer_{ji} + \delta_{it}^X + \delta_{jt}^M) + \varepsilon_{ijt}$$

where *Distance, Contiguity, Common Language,* and *Common Colonizer* represent the traditional gravity model variables used to measure bilateral 'distance' and thus serve the role which country-pair fixed effects serve in the previous model, although with lesser predictive value. This model was estimated using OLS as well. The results of the first two estimations are detailed in Table 1.

Table 1　Regression results of the first and second models

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) OLS
ln(Distance)		-0.729***	-1.347***	-1.150***
		(0.168)	(0.163)	(0.163)
contiguity		1.086***	0.748**	0.842***
		(0.249)	(0.306)	(0.298)
Common colonizer		0.808***	0.191	0.506
		(0.293)	(0.357)	(0.351)
Common language		-0.0895	-0.0223	0.00456
		(0.182)	(0.216)	(0.192)
Exporter ln(GDP)			0.883***	0.983***
			(0.111)	(0.115)
Importer ln(GDP)			0.269*	0.756***
			(0.143)	(0.173)
Exporter ln(Population)			0.164	0.108
			(0.107)	(0.109)
Importer ln(population)			0.642***	0.200
			(0.139)	(0.163)
WTO	0.360***	0.676***	0.584***	0.399**
	(0.117)	(0.180)	(0.201)	(0.191)
FTA score	0.270**	0.350	1.003**	2.648***
	(0.133)	(0.265)	(0.387)	(0.415)
Governance	0.569**	0.695**	2.291***	1.155***
	(0.269)	(0.351)	(0.331)	(0.385)
IT Infrastructure	0.0952**	0.0588	-0.104**	0.215***
	(0.0437)	(0.0554)	(0.0477)	(0.0636)
Energy supply	0.351*	0.546***	0.504***	-0.0682
	(0.182)	(0.206)	(0.185)	(0.200)
Financial development	0.0181*	0.0112	0.0572***	0.0512**
	(0.00951)	(0.0286)	(0.0215)	(0.0211)
Constant	-1.654	6.570**	-25.10***	-34.40***
	(1.753)	(2.722)	(3.554)	(4.127)
Observations	4,656	4,656	4,656	4,656
R-squared	0.958	0.890	0.780	0.800
Country-pair fixed effects	Yes	No	No	No
Importer-time fixed effects	Yes	Yes	No	No
Exporter-time fixed effects	Yes	Yes	No	No
Year fixed effects				Yes

To investigate individual FTAs separately, an additional model was estimated, where dummy variables represent the five ASEAN+1 FTAs: the Australia-New-Zealand-ASEAN FTA (AANZFTA), China-ASEAN FTA, India-ASEAN FTA, Japan-ASEAN FTA/EPA, and South Korea-ASEAN FTA. Similarly to the *FTAScore* variable, these dummies were introduced with a three-year lag. The model was estimated with two specifications, one following the methodology of Ando and Urata (2015), with exporter-time and country-pair fixed effects, and one following the methodology of Yamanouchi (2019), where importer-time fixed effects were added. The results are presented in Table 2.

<p align="center">**Table 2   Regression results of the first model with FTAs included**</p>

VARIABLES	(1) OLS	(2) OLS
WTO	0.366***	0.337***
	(0.117)	(0.0996)
AANZFTA	-0.00193	0.0436
	(0.0863)	(0.104)
China-ASEAN FTA	0.258*	0.363***
	(0.138)	(0.126)
India-ASEAN FTA	0.295*	0.626***
	(0.163)	(0.226)
S. Korea-ASEAN FTA	0.224	0.0969
	(0.152)	(0.172)
Japan-ASEAN EPA	0.162	-0.143
	(0.106)	(0.125)
Governance	0.569**	0.525**
	(0.272)	(0.225)
IT Infrastructure	0.0930**	0.123***
	(0.0437)	(0.0381)
Energy supply	0.341*	0.265**
	(0.181)	(0.131)
Financial development	0.0179*	0.00765
	(0.00956)	(0.00893)

Constant	-1.547	1.361
	(1.751)	(1.218)
Observations	4,656	4,656
R-squared	0.958	0.954
Country-pair fixed effects	Yes	Yes
Importer-time fixed effects	Yes	No
Exporter-time fixed effects	Yes	Yes

As mentioned above, the fixed effects model does not allow for the measurement of exporter- and importer-specific variables, as these would be absorbed by the fixed effects. For this reason, a fourth model was used to measure the exporter- and importer-specific effects of the institutional variables. For this model, a 'substitute' for fixed effects was used. Baier and Bergstrand (2009) suggest that the multilateral resistance terms introduced by Anderson and van Wincoop (2003) can be 'approximated' through observable trade costs. Following Baier and Bergstrand (2009), I used two approximations: one based on bilateral distance, and one on a remoteness variable as defined by Head and Mayer (2014). These variables were constructed according to the following equation and were calculated with the codes of Shepherd (2016, pp. 28-29).

$$MRDIS_{ij} = [\left(\sum_{k=1}^{N} \theta_k \, lnDIS_{ik}\right) + \left(\sum_{m=1}^{N} \theta_m \, lnDIS_{mj}\right) - \left(\sum_{k=1}^{N} \sum_{m=1}^{N} \theta_k \, \theta_m lnDIS_{km}\right)]$$

Thus, the model was estimated as:

$$\begin{aligned}
lnX_{ijt} = \alpha &+ \beta_1 Governance_{it} + \beta_2 Governance_{jt} + \beta_3 ITInfrastructure_{it} \\
&+ \beta_4 ITInfrastructure_{jt} + \beta_5 Energy_{it} + \beta_6 Energy_{jt} + \beta_7 Finance_{it} \\
&+ \beta_8 Finance_{jt} + \beta_9 MRDIS_{ij} + \beta_{10} lnGDP_{it} + \beta_{11} lnGDP_{jt} + \beta_{12} lnPopulation_{jt} \\
&+ \beta_{13} lnPopulation_{it} + \varepsilon_{ijt}
\end{aligned}$$

For further comparison, a fixed effects model without exporter- or importer-

specific fixed effects, but with country-pair fixed effects was estimated. Moreover, a random effects model was used for additional comparison, since it has been suggested that a random-effects regression accounts for unobserved heterogeneity, and yet allows the inclusion of variables that would be collinear with the fixed effects (Shepherd, 2016, p. 28). Nevertheless, the usage of random effects for gravity equations has not been theoretically developed, hence the results should be treated with caution. The results are presented in Table 3.

Table 3   Regression results of the third model

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) OLS
TRemoteness		-0.569***		
		(0.0756)		
TDistance	-1.276***			
	(0.251)			
Exporter ln(GDP)	-0.204		0.695***	0.288
	(0.232)		(0.0943)	(0.205)
Importer ln(GDP)	0.0499		0.812***	0.819***
	(0.219)		(0.0806)	(0.167)
Importer ln(Population)	0.725***	0.812***	-0.0568	-0.0279*
	(0.213)	(0.0602)	(0.0357)	(0.0149)
Exporter ln(Population)	1.100***	0.949***	0.0454	0.0157
	(0.231)	(0.0635)	(0.0354)	(0.0142)
Importer Governance	1.138**	1.973***	0.609***	0.795***
	(0.570)	(0.528)	(0.217)	(0.242)
Exporter Governance	1.002**	1.650***	-0.0716	0.154
	(0.507)	(0.431)	(0.252)	(0.288)
Exporter IT Infrastructure	0.00795	-0.0117*	0.00574*	0.00686**
	(0.00662)	(0.00702)	(0.00314)	(0.00338)
Importer IT Infrastructure	0.00825	-0.00997	8.54e-05	0.00369
	(0.00613)	(0.00695)	(0.00314)	(0.00369)
Exporter Energy supply	1.359***	1.289***	0.805***	1.051***
	(0.284)	(0.201)	(0.164)	(0.224)
Importer Energy supply	0.590**	0.759***	0.208*	0.310**
	(0.245)	(0.167)	(0.110)	(0.140)

Exporter Financial dev.	0.683***	0.546**	0.00806	-0.00590
	(0.258)	(0.257)	(0.0987)	(0.101)
Importer Financial dev.	0.578**	0.495**	0.210**	0.203**
	(0.227)	(0.227)	(0.0870)	(0.0906)
Constant	-23.82***	-21.93***	-41.81***	-37.90***
	(5.230)	(1.539)	(2.741)	(4.132)
Observations	4,656	4,656	4,656	4,656
R-squared	0.729	0.735		0.949
Country-pair fixed effects	No	No	No	Yes
Bilateral trade cost approximations	Yes	Yes	No	No
Random effects	No	No	Yes	No

4 Estimation results and discussion

The results show that in all specifications, the quality of governance and WTO-membership are significant determinants of trade. Quality of governance consistently has the highest coefficient among the variables, confirming the hypothesis.

One exception is that when the exporter- and importer-specific variables are estimated in a model with country-pair fixed effects or random effects, only the importer-side governance variable is significant, while the exporter side variable is not. This is contrary to expectations: domestic institutional quality is usually discussed in the context of industrialization; hence it is expected to have a stronger significance on the exporter side. On the other hand, it can be considered that institutional quality goes hand in hand with economic openness, hence countries with better institutions might be more open to imports. In any case, given the weaknesses of the random-effects model, the importance of these exceptions is meagre.

Coefficients for WTO-membership are significant across all the specifications. With fixed effects, the WTO dummy is stronger than the FTA score and all FTA dummies except for one. This validates the argument that WTO-membership has been an important factor in East Asian trade-creation.

The significance of exogenous variables is weaker. Energy supply is significant and has a high coefficient in most specifications, but weak when measured in the

model with the strongest predictive value, with exporter-time, importer-time, and country-pair fixed effects. IT infrastructure has a meagre and often insignificant effect. Financial development is strong and significant when the country-specific variables are measured separately, but weak in fixed effects models. It is likely that the weakness of these indicators stem from the fact that differences in ITC attainment and financial development between countries are more nuanced than what could be estimated with the crude comparative data available, and hence their effects are understated in this model.

In fact, Baldwin (2016) posits that global trade and the structure of the world economy are ultimately determined by the costs of moving goods, services, know-how, and people; which are, in the scope of this study, exogenous factors. According to this view, nations are no longer the natural unit of analysis in determining international competitiveness, since the fragmentation of production and the concentration of knowledge within MNEs decreases their ability to influence outcomes through traditional development policies. This paper uses a more traditional understanding of the international economy with a more favourable view of state capacity, but it should be noted that to more thoroughly investigate such trends, a more advanced analytic toolkit shall be developed.

Among the FTAs, only the China-ASEAN and the India-ASEAN agreements are significant in this model. This might mean on the one hand that the FTAs of ASEAN with developed countries are highly heterogenous, which is not inconsistent with previous research (Ando and Urata, 2015; Yamanouchi, 2019). On the other hand, this result suggests that in the case of the ASEAN, due to its diversity, even less ambitious FTAs might be effective in raising trade values: even though the China-ASEAN and the India-ASEAN agreements are of lower quality than the Japan-ASEAN EPA, they still create new trade flows among previously relatively closed economies. This in line with the finding of Baier, Bergstrand, and Clance (2018), that FTAs have higher effects for countries with lower per capita GDP.

Apart from heterogeneity, another possibility which has not been explored here is endogeneity: in the case of the Japan-ASEAN EPA and the South Korea-ASEAN

FTA, considerable trade and production networking activity had preceded the implementation of the FTA, and Japan had already conducted a number of bilateral treaties with individual ASEAN members. Thus, one can hypothesise that the ASEAN-Japan EPA and the South Korea-Japan FTA have institutionalised trade ties which had already existed. Moreover, the young age of regional FTAs must be considered: it is possible that not enough time has passed since their implementation, and their trade-creation effects will grow over time.

When it comes to the depth of FTAs, the FTA score variable is significant in three models out of four, yet loses its significance when time-invariant unobservable trade costs (country-pair fixed effects) are dropped. The *FTAScore* variable is weaker than the WTO dummy in the models, likely as a result of overall weak FTA depth in the treaties surveyed.

It should be noted that the regional institutional architecture is currently undergoing momentous changes which are not captured in this study. The first of these is the conclusion of the CPTPP. This treaty was to be adopted under the leadership of the United States as the Trans-Pacific Partnership among twelve Pacific states, including seven ASEAN Plus Six members. However, after the election of the protectionist Donald J. Trump as president of the US, Washington left the agreement. A somewhat weaker form of the TPP was signed in March 2018 as CPTPP by the rest of the participants and came into effect on 30 December 2018 among six countries which ratified it [7]. The CPTPP covers a dearth of WTO+ and WTO-X issues such as competition policy, widespread investment liberalization, intellectual property rights, and other forms of regulatory convergence (see Table 4). Therefore, it is described as a high quality 21st century free trade regime which establishes new benchmarks for international trade and investment rules and requires deep domestic reforms (Watanabe, 2016).

Table 4　The coverage of CPTPP and RCEP

	CPTPP	RCEP	WTO
Trade in goods	O	O	O
Trade remedies	O	O	O
Trade facilitation	O	O	O
Technical barriers to trade	O	O	O
Sanitary and phytosanitary measures	O	O	O
Trade in services	O	O	O
Investment	O	O	*
Intellectual property	O	O	O
Competition policy	O	O	X
State-owned enterprises	O	O	X
Ecommerce	O	*	X
Government procurement	O	X	*
Environment	O	X	X
Labor	O	X	X
Dispute settlement	O	O	O
Cross-cutting issues	O	X	X
Standards, regulatory cooperation	X	X	X

Source: JETRO (2015)

The RCEP also goes beyond the WTO and ASEAN+ FTAs in its coverage but is much less ambitious in liberalization and rule-setting than the CPTPP, as a substantial part of its membership is made up of less advanced economies (Chia, 2015). The status of the RCEP is unclear as of March 2020, after India decided to step away from the table due to its reluctance to open its markets.

While it is beyond the scope of this paper to analyse these undertakings in detail, it should be highlighted that the wider adoption of CPTPP would result in significant FTA-induced domestic reforms, which would create favourable conditions for durable trade-creation and integration in the region and beyond. While it is less ambitious, the same holds true for the RCEP, which would provide more gradual liberalization in the case of a number of low income, closed ASEAN countries, and

therefore would open new markets and opportunities for production relocation, provided that these countries (see Chia, 2015).

Finally, an important limitation should be noted when interpreting the results. The dataset contains data only for the ASEAN Plus Six, and no data for the rest of the world, as our goal was to discern the effects of institutional variables on East Asian intra-regional trade. Accordingly, variations across countries and across time come only from the variations among these sixteen countries. The discussion presented here is only valid for the determinants of trade among these economies and do not explain extra-regional effects.

5 Conclusion

This paper aimed to estimate how and to which degree did domestic institutional quality, and the changes thereof, influence international trade within the ASEAN Plus Six. The expectation was to find a significant effect, based on the hypothesis that East Asian nations follow trade-based development policies and therefore instituted domestic institutional reform to be able to participate in regional trade. The hypothesis was tested through various specifications of the gravity model of trade and the empirical analysis positively confirmed the hypothesis.

Taken in its entirety, the empirical model lines up with the theory-based and historically inferred arguments presented in the second section of the paper. While both domestic, regional and global factors contributed to the expansion of East Asian regional trade, domestic institutional quality had the highest coefficient in these estimations, consistent along the different specifications. WTO-membership remains equally important in providing rules, regulation and stability to regional commerce. This is not surprising, since East Asian regionalization is deeply embedded into globalization. On the regional level, progress has been heterogenous, which is not inconsistent with recent research.

The results of these estimations imply that domestic institutional reforms remain of paramount importance for East Asian trade and economic development. One implication of this is that the low- and middle-income economies of the region should

press on with institutional reforms so as to be able to continue on their current development paths, especially as globalization is moving from physical forms of trade to nonphysical and more knowledge-intensive ones. A second implication is when it comes to regional institutions, those which promote market reforms and regulatory reforms, such as the CPTPP, would provide larger and more lasting trade-creation effects, while less ambitious institutions, such as the RCEP, would be less durable and effective. However, the region's heterogeneity means that for the least advanced economies of East Asia, the less ambitious and 'more flexible' RCEP-type agreements may provide ample benefits and motivations for reform as well.

Research on the effects of domestic institutional quality and domestic institutional change on regional trade is relatively scarce, especially in the case of East Asia. This paper aimed to contribute to the discourse by introducing new variables and estimating them in a number of specifications, albeit with a less ambitious scope than some of the previous, more general papers (Nunn and Trefler, 2014). To attain more robust results, future research shall involve a larger dataset and improved control variables especially in the case of infrastructure and ICT attainment.

Endnotes

1) The RCEP involves the member countries of the ASEAN Plus Six framework, namely Australia, Brunei, Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, South Korea, Thailand, Vietnam. India decided to suspend its participation in the RCEP negotiations in late 2019.
2) Institutions are understood here broadly, "as the rules of the game", or "the set of rules in a society," which "are key in the determination of transaction costs," as formulated by North (1992, p.5-10).
3) The NAFTA was renegotiated as the Agreement between the United States of America, the United Mexican States, and Canada (USMCA), which is due to enter into force in 2020.
4) A related argument explains East Asian regionalization through the concept of informal governance networks made up of sub-state actors which are involved in transnational activities. (Katzenstein and Shiraishi 1997)
5) For example, the rule of law and regulatory quality in Vietnam began to improve in the early 2010s. Laos stagnated even though it is participant to ASEAN FTAs. China's values are highly heterogenous, but the improvements occurred mostly after 2010.
6) Since I am using merchandise trade data as the dependent variable, the inclusion of

services data on the other side of the equation does not interfere with it.

7) The current membership of the CPTPP include Japan, Mexico, Singapore, New Zealand, Canada, Australia and Vietnam. Chile, Brunei, Peru and Malaysia are also signatories, but are yet to ratify the treaty as of March 2020.

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