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VO SY
NHAN HUU HUYNH
YEN THI HAI NGUYEN

The Nexus of Inward FDI, Institution Quality, Business Environment, and Trade Flows: Evidence from RCEP countries

Abstract

Research background and purpose: Despite decades of impressive economic development, some developing countries in the RCEP group have not commensurately ensured strong institutions and a sound business environment. These economies should focus on improving institutional quality and creating a favorable business environment to promote trade flows and enhance inward FDI.
Design/methodology/approach: The empirical analysis assess the distinct effects of institutional quality and business environment on trade flows of RCEP countries by using gravity model. Moreover, the research decisively examines the mediating role of inward FDI within this framework by using the structural equation model (SEM)
Findings: The empirical analysis of the institutional quality, business environment, and trade flows nexus reveals that RCEP member states characterized by robust political governance structures and more conducive business environments experienced significantly deeper integration into international trade during the 2010–2020 period. Conversely, certain dimensions of economic institutions exerted a discernible adverse influence on the trade flows between RCEP nations and their external partners. Moreover, the results of SEM indicate a strong, indirect causal relationship between institutional quality, business environment, and trade flows. Testing mediation using the bootstrapping technique shows that inward FDI mediates this nexus.
Value added and limitations: The results mentioned above in this study contribute to the theoretical understanding of international trade in the following ways: (1) Introduces a business environment - institutional quality typology for trade policy, distinguishing indirect (FDI-dependent) and direct drivers. (2) Resolves the "institutional paradox" (where strong institutional quality does not automatically guarantee trade) by introducing FDI as a mediator. (3) Offers empirical grounding for regional institutionalism in mega-trade blocs.
Nevertheless, the limitation is that the study covers the period 2010–2020, which excludes recent global disruptions. Thus, the findings may not fully capture current dynamics affecting FDI and trade. The study aggregates trade and FDI data at the country level, overlooking differences across industries or firm sizes in responding to institutional quality /business environment changes.

Keywords: *business environment, RCEP, Gravity model, Institution quality, trade flows*

JEL Classification: F13, F18

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Vo Sy
Faculty of Economics, Tay Nguyen University, Viet Nam; email: vsy@ttn.edu.vn;
ORCID: 0000-0002-4416-5283

Nhan Huu Huynh
Department of Mathematics and Informatics, Vietnam Aviation Academy, Vietnam;
email: Nhanhuynhvn@gmail.com; ORCID: 0000-0002-8557-5908

Yen Thi Hai Nguyen ✉
Faculty of Economics, Tay Nguyen University, Viet Nam; email: ngthyen@ttn.edu.vn;
ORCID: 0009-0003-4176-7718

1. Introduction

In the evolving landscape of global integration, institutional quality (IQ)—encompassing the efficiency and effectiveness of a country's economic and political institutions—and a favorable business environment (BE) are paramount for attracting foreign direct investment (FDI) and fostering international trade. These factors collectively form a nexus that significantly influences trade flows between countries. The Regional Comprehensive Economic Partnership (RCEP) stands as a significant mega-trade bloc, poised to enhance trade and investment by reducing barriers and fostering deeper economic collaboration among its member states.

Despite the impressive economic development observed across the RCEP region, some developing member states continue to face challenges in establishing robust institutions and sound business environments. While existing literature has explored the individual impacts of IQ on trade flows, BE on trade flows, and how IQ and BE influence FDI inflows, a critical research gap remains. Specifically, prior studies have not comprehensively investigated the *interconnectedness* of institutional quality, business environment, and trade flows, nor have they thoroughly examined the pivotal mediating role of inward FDI within this nexus for RCEP member states. The indirect influence of IQ and BE on international trade through FDI, particularly for the RCEP bloc, has largely been unexplored.

This study aims to bridge this theoretical and empirical gap by empirically assessing the distinct effects of institutional quality and business environment on trade flows and, crucially, by demonstrating the mediating role of inward FDI in shaping this relationship across RCEP member states during the 2010-2020 period. Utilizing a robust empirical approach combining a gravity model, structural equation model (SEM), and Principal Component Analysis (PCA), this research addresses key questions: (1) Does higher institutional quality and a better business environment in RCEP countries lead to increased FDI inflows? (2) Do institutional quality and business environment have an indirect impact on trade flows through inward FDI? (3) How do specific sub-indicators of institutional quality and business environment influence trade flows?

By doing so, this research contributes to resolving the "institutional paradox"—where strong institutional quality does not automatically translate to trade gains—by introducing FDI as a key mediator. It also offers empirical grounding for regional institutionalism in mega-trade blocs and provides actionable recommendations for RCEP nations to amplify FDI inflows and international trade through targeted institutional and business environment improvements.

2. Literature review

The interconnectedness of institutional quality (IQ), the business environment (BE), and trade flows is increasingly recognized as fundamental in fostering international trade and attracting foreign direct investment (FDI) in the contemporary global economy. Understanding this nexus is crucial for countries, especially those undergoing integration, as strong institutions and a conducive business environment can significantly promote cross-border economic activities.

Institutional quality and international trade: Established links and emerging nuances. A substantial body of literature affirms the critical impact of institutional quality on international trade. Strong institutions are generally understood to create a stable and predictable operating environment for businesses, thereby attracting foreign investment and stimulating trade flows. Seminal works by North (1991), Anderson & Marcouiller (2002), Yu (2010), and Heo et al. (2020) highlight a consistent trend where robust institutions facilitate trade. While weak institutions are associated with reduced trade flows, akin to the restrictive effects of tariff barriers (Hall & Jones, 1999; Anderson & Marcouiller, 2002). Beyond merely influencing trade volume, institutional quality also shapes the organization of trade and production (Feenstra et al., 2013).

However, the relationship is not always straightforward. Some research, for instance, suggests that trade openness might, paradoxically, be detrimental to institutional quality (Cheptea, 2007). Moreover, existing scholarship has often evaluated the separate influence of institutional quality on trade flows (e.g., Chong & Calderon, 2000; Levchenko, 2007) or focused on the distinct relationship between economic freedom and trade (e.g., Doyle & Martinez-Zarzoso, 2011; Alvarez et al., 2018). A significant gap remains in comprehensively understanding this dynamic, particularly for specific regional blocs. Specifically, there is a limited focus on the institutional quality-trade nexus within RCEP countries and, critically, the unexplored possibility of an indirect influence of institutional quality on RCEP's international trade. We hypothesize an assumption about the effect of institutional quality on the international trade flows of RCEP countries:

Hypothesis 1. *Institutional Quality has a positive impact on international trade flows.*

Institutional quality and Foreign Direct Investment (FDI): Dual pathways and the "institutional paradox". Extending its influence beyond trade, institutional quality is also a key determinant of FDI inflows. The literature identifies two primary, interconnected pathways through which IQ affects investment. First, a sound governance infrastructure—characterized by stability, transparency, and effective rule of law—is consistently found to be a crucial magnet for foreign investment (Daude & Stein, 2007; Mishra & Daly, 2007; Aziz, 2018). Investors overwhelmingly

prefer stable jurisdictions over high-risk markets (Gwartney et al., 2006). According to Buu & Trinh (2024), although the aggregate economic freedom index exerts a positive effect on FDI net inflows, the influence of its constituent elements is heterogeneous. Second, weak institutions act as a significant barrier to FDI. Systemic corruption, political instability, inadequate property rights protection, and weak intellectual property regimes increase business costs, erode investor confidence, and ultimately deter or divert foreign capital flows (Daude & Stein, 2007; Baek & Qian, 2011). Le (2025) shows that three institutional determinants - rule of law, control of corruption, voice and accountability -have a negative influence on FDI inflows. These institutional deficiencies compel multinational enterprises to recalibrate their strategic investment calculations.

Despite the prevailing view, a critical nuance emerges from some studies, suggesting that weak institutions, in certain contexts, might paradoxically attract FDI due to exceptionally low factor costs, presenting a suitable risk-trade-off for some investors (Janeba, 2002). This highlights the complexity of the IQ-FDI relationship and suggests that institutional strength alone may not always guarantee investment attractiveness. While research by Ren (2023) has explored the link between institutional quality, infrastructure, and economic growth within RCEP countries, a comprehensive analysis of the impact of institutional quality on trade flows mediated by FDI for the RCEP bloc is conspicuously absent. Based on above literature, we hypothesize an assumption about the effect of institutional quality on FDI inflows of RCEP countries:

Hypothesis 2. *Institutional Quality has a positive and significant influence on the flow of Inward FDI into RCEP countries.*

The business environment, trade, and FDI: A developing area of inquiry. The business environment (BE) also significantly influences international trade. However, scholarship specifically examining the direct relationship between the business environment and trade flows does not have a long tradition. More commonly, studies utilize various indicators of the business environment to assess its impact on inward FDI, including business regulations (Morris & Aziz, 2011), the doing business index (Athukorala, 2012), logistics infrastructure (Hausman et al., 2012), information and communication technology (ICT) infrastructure (Festus, 2021), and transport and border efficiency (Borojo & Yushi, 2020). Crucially, while some research investigates the business environment's influence on FDI, it often does not extend to its direct impact on trade flows (Borojo & Yushi, 2020; Contractor et al., 2020; Hardi et al.,2025; Vu et al., Sy et al., 2025). Other research investigates the effect of business environment on trade openness (Cui et al., 2023). Recent work by Sy (2025) has begun to address the impact of the business environment on international trade,

specifically in RCEP countries. However, this study distinguishes itself by taking a more integrated approach, investigating the business environment in combination with institutional quality and, most significantly, exploring the intermediary role of inward FDI in international trade. We hypothesize an assumption about the effect of business environment on international trade flows and FDI inflows of RCEP countries:

Hypothesis 3. *A favorable Business Environment has a direct positive impact on International Trade Flows and the flow of Inward FDI into RCEP countries.*

The mediating role of inward FDI: Bridging the gaps. The relationship between FDI and trade flows itself is subject to ongoing debate in the theoretical and empirical literature, with evidence pointing to both complementary and substitutable dynamics depending on specific circumstances. However, a recent concentration in empirical research has focused on how institutional quality and the business environment influence FDI inflows (Ali et al., 2010; Buchanan et al., 2012; Bayraktar, 2015; Moussa et al., 2016; Contractor et al., 2020; Vu et al., 2025; Sy et al., 2025).

This evolving understanding has given rise to the concept of FDI as a mediator variable in the broader nexus. Seyoum and Ramirez (2019), for instance, demonstrated that FDI inflows can mediate the effects of economic freedom on trade, particularly when government stability is high. Building on the understanding that inward FDI serves as a key mediator in the linkage where stronger institutional quality and a more favorable business environment can enhance a country's ability to attract FDI, which, in turn, influences international trade. Based on that, this study hypothesizes that:

Hypothesis 4. *Inward FDI mediates the relationships among institutional quality, business environment, and international trade flows in RCEP countries.*

Despite these insights, studies comprehensively examining the intricate association between institutional quality, business environment, inward FDI, and trade flows remain limited. Prior research has largely left scope for studying the direct versus mediated effects of institutional quality on international trade through inward FDI, particularly within the RCEP bloc.

This study aims to address these critical theoretical gaps by empirically assessing the distinct effects of institutional quality and the business environment on trade flows and, significantly, by demonstrating the pivotal mediating role of inward FDI in shaping this relationship within RCEP member states. This approach resolves the "institutional paradox" (where strong institutional quality does not automatically guarantee trade gains) by integrating FDI as a mediator, offering empirical grounding for regional

institutionalism in mega-trade blocs. By filling this gap, the research provides a new perspective on the inward FDI and trade flows relationship.

3. Methods

3.1. Model construction

The research considered a model based on one exogenous construct and three endogenous constructs. The exogenous construct, the trade flows construct, consists of merchandise export/ import volume, goods, and services export/import (Chen & Huang, 2009; Khan, 2020). Three endogenous constructs are institutional quality, business environment, and inward FDI. In which, institutional quality is measured by eight underlying variables of economic freedom and political governance (Borojo & Yushi, 2020). They include the size of government, legal systems & property rights, sound money, freedom to trade, international trade, government effectiveness, regulatory quality, rule of law, and control of corruption. Meanwhile, business environment is constructed in six dimensions, namely, the ease of doing business, enforcing contracts, dealing with construction permits, logistics performance index(LPI), quality of roads, and quality of ports.

Following studies of mediation analysis models by some scholars (Chen & Huang, 2009; Khan, 2020; Alassane & Aimin, 2020), this research's structural equation model is expressed as follows.

$$Ln(\mathrm{FDI})_{jt} = i_1 + a_1 \mathrm{LnIQ}_{j,t} + a_2 \mathrm{LnBE}_{j,t} + \beta_0 X_{it} + \beta_1 X_{jt} + \varepsilon_{1j,t} \quad (1)$$

$$\mathrm{lntradeflows}_{ijt} = i_3 + C_1 \mathrm{LnIQ}_{jt} + C_2 \mathrm{LnBE}_{jt} + \beta_4 X_{it} + \beta_5 X_{jt} + \varepsilon_{3jt} \quad (2)$$

$$\mathrm{lntradeflows}_{ijt} = i_4 + C_1 \mathrm{LnIQ}_{jt} + C_2 \mathrm{LnBE}_{jt} + b_j \mathrm{LN(FDI)}_{jt} + \beta_6 X_{it} + \beta_7 X_{jt} + \varepsilon_{4jt} \quad (3)$$

Where i denotes the country (i) from where RCEP country j imports or exports, other with time (t), and j is associated with RCEP country (j), $C_1+C_2=(C_1+C_2)+(a_1+a_2) * b_j$ FDI denotes FDI inflows to RCEP countries. X_{it} and X_{jt} are control variables of partners and RCEP countries, respectively.

3.2. Econometrics approach

This study employs a multi-step econometric approach to test its hypotheses and address the research gap concerning the mediating role of FDI. The rationale for choosing each method is clarified below:

Principal Component Analysis (PCA). PCA was utilized to synthesize complex indicators of institutional quality and business environment into more meaningful composite indices. Specifically, it helped reduce data dimensionality from numerous sub-indicators (such as economic freedom, political governance, and business climate measures) into representative aggregate indices. This process ensures that the main variables in the model are comprehensive, capture the majority of the original data's variance, and mitigate potential multicollinearity issues if too many raw indicators are used individually. The study derived four composite indices, with institutional quality's first two components accounting for 80% of the total variance, and business environment's first component accounting for 63% of the total variation. The first principal component of the trade flows index explained 99% of the total variation.

Gravity model. The gravity model is a standard and widely recognized framework in international economics for analyzing bilateral trade flows between countries. Its application in this research allows for the assessment of "the distinct effects of institutional quality and business environment on trade flows" by controlling for traditional determinants like market size (GDP, population) and geographical distance.

Ordinary Least Squares (OLS) and Feasible Generalized Least Squares (FGLS). OLS was initially used as a fundamental regression method to establish preliminary relationships between the variables of interest. It provides an initial overview of the impact of institutional quality and business environment on FDI and trade flows.

Following OLS estimation, the Breusch-Pagan test was conducted, revealing the presence of heteroscedasticity in the panel data. FGLS was specifically chosen to address and correct this heteroscedasticity problem, ensuring that the obtained estimations are more efficient and reliable, thereby making the findings more robust.

Structural Equation Model (SEM) and mediation analysis. These methods are central to addressing the critical research gap and to «conclusively demonstrate the pivotal mediating role of inward FDI in shaping this relationship». Mediation analysis, following the steps proposed by Baron & Kenny (1986) and employing Sobel's (1982) approach and bootstrapping, systematically tests whether institutional quality and business environment have an indirect impact on trade flows through inward FDI. This is crucial for identifying the mechanism by which institutional and business environment factors influence international trade, particularly for the RCEP bloc, where this indirect influence has been largely unexplored. The econometric strategy visually represents this interplay (See Figure 1).

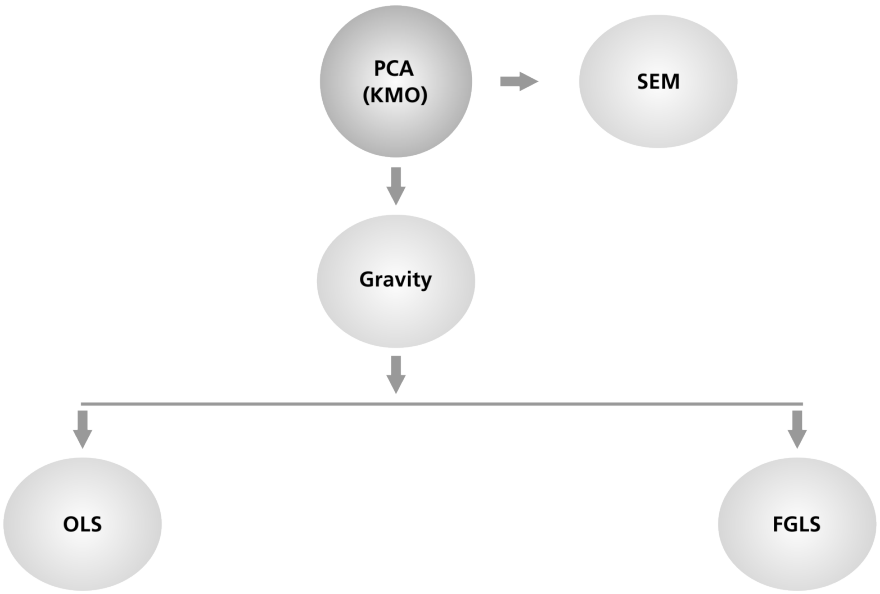

Figure 1. **Econometric strategy**

Source: own study

3.3. Data and measurements

The research used a panel dataset covering 15 RCEP countries from 2010 to 2020, yielding 14,700 bilateral trade observations across six time periods. Data for trade flows, traditional gravity model variables, economic freedom, political governance, business environment, and FDI were extracted from various authoritative sources like COMTRADE, CEPII, Fraser Institute, Worldwide Governance Indicators (WGI), World Development Index (WDI), Doing Business Index (DBI), and UNCTAD. The data were organized as an unbalanced panel.

The decision to use data from 2010–2020 was a deliberate methodological choice to ensure the integrity and clarity of our findings, for two primary reasons:

First, this period provides a window of relative global economic normalcy, allowing us to cleanly measure the fundamental relationships between institutions, business environment, FDI, and trade without the extreme distortions caused by the post-2020 pandemic and geopolitical shocks. Including post-2020 data would have meant our results were driven by unique global crises rather than the underlying institutional factors we aimed to study. Limiting the scope protects the internal validity of our conclusions about the core relationships.

Second, the World Bank's Doing Business data was discontinued after 2020. Using the 2010–2020 timeframe ensures all data points for this critical metric are measured consistently, avoiding any bias that would arise from splicing it with a different modern index. The variable's measurements and data sources are shown in Table 1.

Table 1. **Descriptive statistics and source of variables**

Variables	Descriptions	Mean	St Dev.	Source
$lntrade_{ijt}$	Import/ export value between RCEP country j with its partners (1000 USD)	$8.05e^{-09}$	1.993	COM-TRADE
$Sibling_{ijt}$	If both countries currently have the same colonizer	.085	.279	CEPII
$Gatt_{it}$	1 If partner i is currently a GATT member	.654	.476	CEPII
$Comcol_{ijt}$	1 If both countries share a common colonizer post-1945	.091	.288	CEPII
$Lnpop_{it}$	Population of RCEP country j (in thousands)	9.033	3.092	CEPII
$Lngdpcap_{it}$	GDP per capita of partner (current thousands of US$)	2.942	2.725	CEPII
$lngdpcap_{jt}$	GDP per capita of RCEP country j (current thousands of US$)	3.882	2.990	CEPII
$Distcap_{ij}$	Distance between capitals of each RCEP country j with partner i (km)	10,084	4,526	CEPII
$Lninfdi_{jt}$	Inflow FDI to RCEP country j (Million USD)	9.078	1.535	UNC-TAD
$Lneconomicinsti_{jt}$	It is an index that covers some dimensions of economic freedom, such as the size of government, legal systems & property rights, sound money, and freedom to trade internationally.	$-3.04e^{-09}$	2.294	Fraser Institute
$Lnpoliticalgov_{jt}$	It is an index that covers some dimensions of governance, such as regulatory quality, government effectiveness, rule of law, and control of corruption.	$-1.75e^{-09}$	1.058	WGI
$lnbusienvr_{jt}$	It is an index that covers some dimensions of the Doing Business Index and infrastructure, such as the ease of doing business, enforcing contracts, dealing with construction permits, logistics LPI, quality of roads, and quality of ports.	$3.71e^{-09}$	1.9449	WDI DBI

Source: own study

Figure 2 definitively presents the conceptual framework for this analysis, vividly illustrating the setup of variables and the specific items that constitute each respective construct.

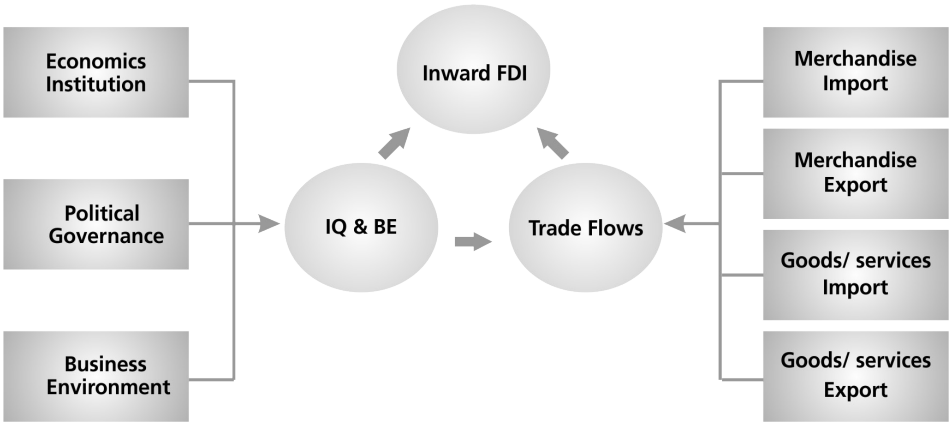

Figure 2. **Conceptual framework**

Source: own study

3.3.1. Reliability, validity, and correlation statistics

The study implemented several checks on its data and assumptions before proceeding with the main econometric analysis to ensure the robustness and reliability of its findings.

Here's a breakdown of how these checks were performed:

Dimensionality and Factor Loading Checks (using Principal Component Analysis - PCA). PCA was employed to synthesize complex indicators of institutional quality and business environment into aggregate indices. Before forming these composite indices, the dimensionality of the measures was examined. PCA with varimax rotation was conducted, and the Kaiser-Meyer-Olkin (KMO) loading was used to assess the contribution of each sub-indicator to its aggregate variable. Sub-indicators with KMO loading lower than 0.5 or lacking data were dropped due to insignificant contribution. For instance, "voice accountability" and "market regulation" were excluded from the political governance index because their KMO values were below 0.5.

Eigenvalue Criterion. The study retained principal components with eigenvalues greater than 1. For institutional quality, the first two components had eigenvalues of 5.26 and 1.12, explaining 80% of the total variance. For the business environment, the first

component had an eigenvalue of 3.78, explaining 63% of the total variance. Similarly, the first principal component of the trade flows index, with an eigenvalue greater than 1, explained 99% of the total variation.

Correlation Check. The results of the correlation analysis in Table 2 show that an inflow of FDI is a key factor for international trade. Here, both inflows of FDI and trade flows are positively related to each other, i.e., if FDI inflows come to the country, that leads to an increase in international trade with foreign partners. GDP per capita and market size of each country are found to be correlated with each other. On the other hand, the correlation coefficient of other variables shows that there is no correlation between the variables used in this analysis (see Table 2).

Multicollinearity Check. To ensure that independent variables were not too highly correlated with each other, which could distort regression results. The Variance Inflation Factor (VIF) was calculated for all predictors. The VIF values ranged from 1 to 10, which are considered within acceptable limits (Chen & Huang, 2009), indicating that there was no concern for multicollinearity among the variables used in the analysis (see Table 2).

Reliability and Validity of Sample Data. To assess the consistency and accuracy of the measurement instruments. Cronbach's alpha was used to evaluate the reliability and validity of the sample data. The reliability coefficients for some variables related to institutional quality and business environment were found to be close to the suggested value of 0.70, indicating acceptable reliability (see Table 2).

Heteroscedasticity Check (for OLS vs. FGLS decision). To determine if the variance of the error terms was constant (homoscedasticity) or varied (heteroscedasticity), which influences the efficiency and reliability of OLS estimators. The Breusch-Pagan Lagrangian multiplier test was conducted before selecting between OLS and Feasible Generalized Least Squares (FGLS) for the gravity model and for the models assessing the impact on FDI.

Table 2. **Correlation and VIFs of variables**

Variables	VIFs	Reliability coefficient	1	2	3	4	5	6	7	8	9	10	11	12
$Lntrade_{ijt}$		.99	1.00											
$Sibling_{ij}$	1.11		-.05	1.00										
$Gatt_{it}$	1.11		-.03	.12	1.00									
$Comcol_{ij}$	1.24		-.01	.18	.10	1.00								
$lnpop_{jt}$	8.39		.46	.07	-.00	-.09	100							

$Discap_{ij}$	1.15		-.09	-.00	.21	-.15	.10	1.00						
$Lngdpcap_{it}$	4.71		-.08	-.05	.06	-.04	-.77	-.03	1.00					
$Lngdpcap_{jt}$	9.30		.05	-0.7	-.02	-.06	-.82	-.01	.85	1.00				
$Lneconomicinsti_{jt}$	1.35	.68	.09	.00	-.02	-.10	-.37	.16	.31	.51	1.00			
$Lnpoliticalgov_{jt}$	1.38	.68	.40	-.09	-.04	-.04	.23	-.03	-.03	-.02	.41	1.00		
$lnbusienvr_{jt}$	1.48	.79	.61	.07	-.02	-.02	.50	.05	-.04	-.31	.13	.31	1.00	
$LnFDI_{jt}$	1.80		.85	-.01	-.03	-.05	.34	-.02	-.08	.08	.32	.50	.54	1.00

Source: own elaboration based on results from Stata software

4. Results and discussion

4.1. The impact of institutional quality and business environment on inward FDI to RCEP countries

The results by OLS presented in Table 3 (column (i)) show that all the major variables of independent variables, economic institution, political governance, and business environment, are significant at the 1% level. The positive coefficients on economic institutions and political governance suggest that countries with better institutional quality tend to have higher FDI inflows. Supporting the findings of Borojo & Yushi (2020), who find a statistically significant positive relation between the level of economic institutions and political governance in African countries and the amount of FDI they receive from China. In detail, the results reported under column (i) show that a one percent increase in the economic institution level causes an increase in FDI inflows by about 0.11 percent, meanwhile, a one percent increase in the political governance level causes an increase in FDI inflows by about 0.15 percent. Thus, ceteris paribus, countries with higher levels of institutional quality over the period 2010–2020 have received more FDI.

The positive coefficient on business environment indicates that a robust business environment in the host market is a key driver for attracting FDI inflows. The results suggest that key sub-indicators of the business environment, such as ease of doing business, contract enforcement, construction permit efficiency, LPI scores, road infrastructure quality, and port infrastructure quality, align with a priori expectations, exhibiting positive associations. In detail, a one percent increase in the business environment level causes an increase in FDI inflows by about 0.34 percent. Implying that FDI inflows in the region increase when it becomes easier to do business, strong contract enforcement, and dealing with construction permits, as well as better LPI, quality of

roads, and quality of ports. However, the Breusch-Pagan test for heteroscedasticity of this model, with a p-value of 0.000, proves the existence of heteroscedasticity. This proved the existence of heteroscedasticity. This necessitated the use of FGLS estimation to correct the problem (see Table 3).

Table 3. **The Impact of institutional quality and business environment on the Inward FDI of RCEP countries**

Variables	OLS	FGLS
	(i)	(ii)
Independent variable LnFDI_{jt}:		
$Sibling_{ij}$	-.222*** [.031]	-.030[.027]
$Gatt_{it}$	.051**[.025]	.020[.019]
$Comcol_{ij}$	.541***[.031]	.170[.026]
$Lnpop_{jt}$	.639***[.009]	.748***[.007]
$Discap_{ij}$	-.000016***[.000]	-.000004**[.000]
$Lngdpcap_{it}$	-.039***[.008]	-.025***[.007]
$Lngdpcap_{jt}$	.674***[.011]	.690***[.009]
$Lneconomicinsti_{jt}$	.111***[.007]	.152***[.006]
$Lnpoliticalgov_{jt}$	.153***[.013]	-.033**[.011]
$lnbusienvr_{jt}$	.345***[.009]	.294***[.006]
Constant	.778***[.103]	-.150*[.088]
R-square	.693	
Breusch-Pagan test for heteroscedasticity(P-val)	.000	

Notes: The table reports the estimation results by OLS and FGLS regarding the impact of IQ and BE on inward FDI. Results are estimated by Eq. (1). ***, **, * denote significance at one, five, and ten percent levels. All variables are defined in Table 1. Numbers in square brackets are robust standard errors.

Source: own elaboration based on results from Stata software

FGLS models are used to work out heteroscedasticity problems. The results of FGLS presented in Table 3 (column (ii)) show that the signs of the coefficients of our interest variables and their significance are almost similar to OLS results, except for political governance, where the coefficient of economic institutions indicates that countries with strong economic institutions tend to have higher FDI inflows. In detail, a one percent increase in the economic institution level results in a 0.15 percent increase in FDI inflows.

The positive and statistically significant coefficients for business environment indicators suggest that favorable business climate factors play an important role in attracting foreign direct investment. In detail, a one percent increase in the business environment level causes an increase in FDI inflows by about 0.29 percent.

Conversely, countries with robust political governance systems tend to experience reduced FDI inflows, though the magnitude of this decrease is relatively modest. In detail, a one percent increase in the political governance level causes a decrease in FDI inflows by about 0.03 percent. The characteristics of RCEP member states explain this paradox. Explanation for this finding is that developed RCEP members (e.g., Japan, Australia, and South Korea), typically maintain strong political governance systems. Consequently, these countries tend to function more as sources of outward FDI than as recipients of inward investment. This implies that highly developed economies with robust political institutions might have saturated domestic investment opportunities, leading them to export capital rather than primarily attracting inward FDI from within the bloc. This finding is consistent with Buchanan et al. (2012), who also found a significantly negative association between governance and inward FDI in their IV estimates.

While the study initially hypothesized that all components of IQ exert a positive influence on FDI inflows into RCEP Bloc (Hypothesis 2), the results show that only the economic institution has a positive impact on attracting FDI. The negative effect of political governance found in the FGLS model suggests that institutional strength alone may not guarantee investment attractiveness in a complex regional bloc like RCEP.

Likewise, the statistical results of OLS and FGLS models imply that common colonizers after 1945, the partner is a member of GATT, GDP per capita, and market size of RCEP countries, have positive and highly significant impacts on FDI inflows into RCEP countries. This research is consistent with the view that per capita GDP is one of the major determinants of FDI flow to developing countries (Blonigen & Piger, 2011). Countries with a large population size attract more FDI inflow and stimulate greater trade activities. Dummy variables concerning having the same colonizer are often included in gravity models; these historical links often imply lower transaction costs or cultural affinity, which typically promote investment and trade. This result also supports the general understanding that international trade agreements like GATT, seek to diminish trade barriers and enhance economic collaboration (Filippini & Molini, 2003; Levchenko, 2007; Yu, 2010; Naanwaab & Diarrassouba, 2013; Borojo & Yushi, 2020).

Likewise, the same colonizer, distance has a negative and highly significant impact on FDI inflows. This finding is highly consistent with gravity model specifications used for FDI analysis, as distance serves as an approximate signal of trading costs (Borojo & Yushi, 2020)

4.2. The impact of institutional quality and business environment on trade flows of RCEP countries

Furthermore, the results reported in Table 4 (column ii) by the OLS method show that all variables have the expected effects, and the nexus with trade flows is significant at the 1% level. The coefficient of economic institution still has an opposite sign, though. The positive coefficient on political governance suggests that countries with better governance tend to engage in international trade. In detail, the results reported under column (i) show that a one percent increase in the political governance level causes an increase in trade flows by about 0.21 percent. Meanwhile, the positive coefficients on the business environment suggest that countries with better business environments tend to enhance bilateral trade flows. In detail, a one percent increase in the business environment level causes an increase in trade flows by about 0.52 percent. The results are consistent with the existing literature. Furthermore, the Breusch-Pagan test resulted in a p-value of 0.28, which proved the existence of homoscedasticity (see Table 4). These systematic checks ensured that the data were appropriately prepared and validated, and that the chosen econometric methods (OLS and FGLS) were suitable given the data's characteristics.

The results reported by the FGLS model in Table 4 (column iv), after dealing with the heteroscedasticity, are almost like OLS results (column ii), the signs of coefficients of political governance have a positive and significant effect on trade flows. For details, a one percent increase in the political governance level causes an increase in trade flows by about 0.19 percent.

On the other hand, the economic institution has a significantly negative impact on trade flows of RCEP countries. These results suggest that trade flows of RCEP countries with their partners are negatively affected by some aspects of economic freedom. Against the general assumption that strong economic institutions foster trade, the research indicated that "certain dimensions of economic institutions exerted a discernible adverse influence on the trade flows between RCEP nations and their external partners".

This result is also in contrast with the most common results in other studies. The study attributes this to several factors within some RCEP countries, where "the financial system is still weak. Legal systems & property rights are still a problem in these countries". Additionally, issues like "corruption is rampant in low- and middle-income countries in the RCEP bloc, such as Cambodia, Laos, Myanmar, and Vietnam, etc., and political

instability and partisan struggles in Cambodia, Myanmar, and Thailand" contribute to this unexpected outcome. Despite these institutional weaknesses, these countries still receive huge commercial exchanges with their partners, and trade flows between RCEP countries have grown strongly in recent years, particularly from "export-oriented economies like China, Vietnam, and Thailand". This suggests that other factors, possibly driven by export strategies, may override the direct adverse effects of weak economic institutions on overall trade.

While the study initially hypothesized that all components of IQ exert a positive influence on trade flows of RCEP Bloc (Hypothesis 1), the results show that only political governance have a positive and significant effect on trade flows. The negative effect of economic institutions found in the FGLS model suggests that institutional strength alone may not guarantee promotion of trade flows in a complex regional bloc like RCEP.

Meanwhile, the signs of coefficients of business environment have a positive and significant effect on trade flows. In detail, a one percent increase in the business environment level causes an increase in trade flows by about 0.49 percent. These statistical results imply that countries with a sound business environment find it easy to engage in international trade. Based on these findings, the hypothesis that A favorable business environment has a direct positive impact on International Trade Flows and the flow of Inward FDI into RCEP countries (Hypothesis 3) is supported.

Likewise, the statistical results of OLS and FGLS models imply that common colonizers after 1945, the partner is a member of GATT, GDP per capita, and market size of RCEP countries, have positive and highly significant impacts on trade flows of RCEP countries.

Table 4. **The impact of institutional quality and business environment on trade flows of RCEP countries**

Variables	OLS	OLS	FGLS	FGLS
	(i)	(ii)	(iii)	(iv)
Independent variable $Lntrade_{ijt}$:				
Siblingij	-.351***[.016]	-.304***[.005]	-.190***[.013]	-.283***[.013]
$Gatt_{it}$	.097***[.014]	.084***[.014]	.048***[.011]	.068***[.010]
$Comcol_{ij}$	.423***[.020]	.227***[.011]	.292***[.018]	.193***[.014]
$lnpop_{jt}$	.813***[.005]	.601***[.016]	.798***[.005]	.619***[.005]
$Discap_{ij}$	-.00002***[.000]	-.00002***[.000]	-.000013***[.000]	-.00002***[.000]

$Lngdpcap_{it}$	-.033***[.004]	-.015***[.004]	-.009***[.003]	-.012***[.003]
$Lngdpcap_{jt}$	.976***[.006]	.748***[.006]	.953***[.006]	.754***[.006]
$Lneconomicinsti_{jt}$	-.141***[.004]	-.170***[.016]	-.174***[.003]	-.157***[.003]
$Lnpoliticalgov_{jt}$	.291***[.007]	.214***[.003]	.266***[.007]	.192***[.006]
$lnbusienvr_{jt}$	.641***[.007]	.516***[.006]	.602***[.007]	.492***[.005]
$LnFDI_{jt}$		.348***[.016]		.362***[.005]
Constant	-11.76***[.063]	-12.10***[.050]	-11.76***[.066]	-12.35***[.049]
R–squared	.931	.956		
Breusch-Pagan test for heteroscedasticity(P-val)	.000	0.280		

Notes: The table reports the estimation results by OLS and FGLS regarding the impact of institutional quality and BE on trade flows. Results are estimated by Eq. (2), (3), respectively. ***, **, * denote significance at one, five, and ten percent levels. All variables are defined in Table 1.

Source: own elaboration based on results from Stata software

4.3. The mediating role of inward FDI in the nexus between institutional quality, business environment, and trade flows

The findings presented in Table 5 reveal a robust and indirect causal relationship linking economic institutions, political governance, business environment, inward FDI, and trade flows. To support the idea of an indirect effect. Testing mediation using bootstrapping has been done. The result reveals three key pathways through which IQ and business environment influence trade flows, with inward FDI acting as a critical mediator. Below is a structured interpretation:

Economic Institutions → FDI → Trade Flows

-Indirect Effect (0.244***): Strong economic institutions (such as secure property rights and effective sound money, freedom to trade internationally, and size of government) play a decisive role in attracting FDI, which subsequently leads to higher trade flows. Direct Effect (-0.139***), interestingly, economic institutions on their own display a negative direct impact on trade flows, likely due to weak legal systems that act as barriers to trade flows unless balanced by FDI inflows. Total Effect (0.104***), overall, the clear positive net effect highlights FDI's critical function in overcoming institutional barriers and enhancing trade performance.

Political Governance → FDI → Trade Flows

The analysis exposes that transparent political systems (government effectiveness, regulatory quality, rule of law, low corruption) display a strong indirect impact (0.343*) by attracting FDI and enhancing trade integration, while political governance alone displays a direct negative impact (-0.115*) due to potential trade barriers like bureaucratic red tape, bribery, corruption etc.; however, the total effect (0.228***) reveals that FDI fully mediates the negative direct effect, highlighting its transformative role in trade flows of RCEP countries.

Business Environment → FDI → Trade Flows

The analysis demonstrates that a favorable business environment (Ease of doing business, logistics quality such as quality of roads, quality of ports) exerts a strong indirect effect (0.399) by attracting FDI to amplify trade flows, while its direct effect (0.227) further boosts trade through efficiencies like reduced export costs, enhanced contract enforcement, and dealing with construction permits, resulting in a robust total effect (0.626*) that underscores its dual advantage as the most impactful pathway.

Table 5. **The mediating role of inward FDI in the nexus between IQ, business environment, and trade flows**

Path description	A	B	Indirect effect (a x b)	Direct effect ()	Total effect (c)
Economic Institution → Inward FDI → Trade Flows	.306***	.797***	.244***	-.139***	.104***
Political Governance → Inward FDI → Trade Flows	.427***	.803***	.343***	-.115***	.228***
Business Environment → Inward FDI → Trade Flows	.525***	.761***	.399***	.227***	.626***

Notes: ***, **, * denote significance at one, five, and ten percent levels. All variables are defined in Table 1. Numbers in square brackets are robust standard errors

Source: own elaboration based on results from Stata software

4.5. The study contributes to the theory of the mediating role of FDI

Firstly, FDI plays a pivotal mediating role in the relationship between institutional quality, the business environment, and trade flows. Empirical research validates that FDI is the linchpin connecting institutional quality and the business environment to trade growth. For RCEP nations, prioritizing FDI-friendly environments will unlock higher trade integration compared to standalone institutional reforms. The study's results strongly support *Hypothesis 4*, conclusively demonstrating the pivotal mediating role of inward FD.

Furthermore, the existing theoretical and empirical literature does not provide conclusive evidence on whether the relationship between FDI and trade is characterized by complementarity or substitutability, as it can be positive or negative depending on the circumstances. This groundbreaking research unequivocally establishes that FDI is a transformative force, driving both robust economic growth and accelerated economic globalization. It profoundly enhances productive capabilities through indispensable technology transfer and powerfully invigorates international trade as nations strategically specialize production based on their inherent comparative advantages. Moreover, a compellingly positive correlation between FDI inflows and trade flows has been empirically substantiated.

Finally, the research indicated that inward FDI not only mitigates institutional barriers to trade but also amplifies the benefits of business environment improvements, creating synergistic effects when combining institutional reforms with operational upgrades. This resolves the "institutional paradox" (strong institutional quality does not automatically lead to trade gains) by introducing FDI as a mediator.

5. Conclusions and managerial implications

In this study, we focused on the relationship between sub-indicators of institutional quality, business environment, and trade flows through the mediating role of inward FDI. The main findings of OLS and FGLS suggest that two major variables, economic institutions and business environment, have a positive impact on inward FDI of RCEP countries. However, the results show that the country's political governance has a significantly negative effect on FDI inflows into RCEP countries. Likewise, the statistical results of OLS and FGLS models imply that common colonizers after 1945, the partner is a member of GATT, GDP per capita, and market size of RCEP countries, have positive and highly significant impacts on FDI inflows into RCEP countries.

The empirical analysis of institutional quality, business environment, and trade flows nexus reveals that RCEP member states characterized by robust political governance structures and more conducive business environments experienced significantly deeper integration into international trade during the 2010–2020 period. However, when isolated within the SEM framework to calculate the direct effect, political governance alone displays a direct negative impact on trade flows. The negative direct effect is likely due to potential trade barriers within the governance structure, such as bureaucratic red tape or corruption, which hinder trade unless compensated by other factors. Conversely, certain dimensions of economic institutions exerted a discernible adverse influence on the trade flows between RCEP nations and their external partners.

In addition, the relationship between other underlying variables of institutional quality, business environment, and trade flows is found to be positive and statistically

significant when it is associated with inward FDI. The results of this analysis also indicate the existence of a strong, indirect causal relationship between institutional quality, business environment, and trade flows. Testing mediation using bootstrapping has been done. We find that inward FDI mediates this relationship. The study empirically validates that FDI is the linchpin connecting institutional quality and business environment to trade growth. For RCEP nations, prioritizing FDI-friendly environments will unlock higher trade integration than standalone institutional reforms.

The results mentioned above in this study contribute to the theoretical understanding of international trade in the following ways: (1) Introduces a business environment - institutional quality typology for trade policy, distinguishing indirect (FDI-dependent) and direct drivers. (2) Resolves the "institutional paradox" (where strong institutional quality does not automatically guarantee trade) by introducing FDI as a mediator. (3) Offers empirical grounding for regional institutionalism in mega-trade blocs.

The study culminates in actionable strategic recommendations for RCEP nations to amplify FDI inflows and international trade by elevating institutional quality and business environments. Key priorities include: (1) institutional reforms centered on economic freedom and legal transparency, simplify trade regulations while preserving strong economic governance, implement anti-corruption measures alongside FDI incentives like tax breaks, (2) large-scale infrastructure investments, prioritize digital infrastructure development (ports and digital trade systems), (3) streamlined business regulations. Additionally, intensified intra-bloc cooperation is critical to forging a unified, investor-friendly market, (4) harmonize FDI policies across the bloc, recognizing that inward FDI not only mitigates institutional barriers to trade but also amplifies the benefits of business environment improvements, creating synergistic effects when combining institutional reforms (e.g., streamlined dispute resolution) with operational upgrades (e.g., logistics performance). These measures will not only bolster individual nations' competitiveness but also propel RCEP into a pivotal global economic hub, fostering deep integration with international partners.

Building on the core finding that inward FDI is the crucial mediator between institutional quality and trade growth, RCEP nations should adopt targeted strategies for key economic sectors. The goal is to design policies that attract the *right kind* of FDI to catalyze trade within specific industries.

For the Manufacturing & Supply Chain Sector: develop "FDI-Trade Corridors" focused on priority sub-sectors (e.g., electronics, automotive, pharmaceuticals). This involves creating integrated industrial zones with pre-approved permits, streamlined customs clearance located on-site, and guaranteed connections to strategic infrastructure (e.g., deep-sea ports, highways). This reduces operational friction for manufacturing MNEs, making the region more attractive for establishing export-oriented production

hubs. It directly leverages the finding that a conducive business environment (through streamlined regulations and infrastructure) attracts FDI that then boosts trade flows.

For the Digital Trade & E-Commerce Sector: harmonize digital governance standards across RCEP, including data localization rules, digital payment protocols, and consumer protection frameworks for online transactions. Prioritize FDI in digital infrastructure (e.g., data centers, undersea cables). Inconsistent digital rules are a non-tariff barrier. A unified digital market, supported by high-quality infrastructure (a key business environment metric), attracts platform and logistics FDI. This FDI then mediates deeper integration into digital trade flows, which was a significant growth area not fully captured in the 2010-2020 data.

For the Services Sector (Financial, Professional, Educational): implement Mutual Recognition Agreements (MRAs) for professional qualifications (e.g., accountants, engineers, architects) and accelerate the liberalization of service sector FDI caps.

Because **s**trong economic institutions (like transparent licensing regimes) build confidence. MRAs reduce the institutional barrier for service-providing firms to operate across borders. Attracting FDI in financial and professional services creates high-value trade in services, which the aggregate country-level data in the original study may have overlooked.

For the Logistics & Transport Sector: offer targeted FDI incentives (e.g., tax holidays, land concessions) for investments in smart port technologies, automated warehouses, and cold chain logistics. This directly improves the operational "business environment" for all trading firms. FDI in logistics itself is a trade-facilitating mediator, effectively upgrading the region's trade infrastructure and amplifying the benefits of other institutional reforms.

For the Agribusiness & Food Security Sector: align Sanitary and Phyto-Sanitary (SPS) standards and invest in FDI for modern agricultural processing and storage facilities near major agricultural regions. Inconsistent SPS measures are a prime example of an institutional barrier to trade. Harmonization reduces this barrier, while FDI in processing infrastructure increases the value and tradability of agricultural products, turning raw goods into exported commodities.

6. Limitations and future research directions

Nevertheless, the first limitation is that the study covers the period 2010–2020, which excludes recent global disruptions (e.g., post-pandemic supply chain shifts, geopolitical tensions). Thus, the findings may not fully capture current dynamics affecting FDI and trade.

The second limitation of this study is trade and FDI data at the country level, overlooking differences across industries (e.g., manufacturing vs. services) or firm sizes (MNEs vs. SMEs) in responding to IQ/BE changes.

A third methodological limitation identified by a reviewer concerns the unreliability of data obtained from the Doing Business report. The study's composite business environment variable was constructed from six distinct dimensions. It indicates that the Doing Business sub-indices alone did not disproportionately dominate the explanatory power of the overall business environment variable.

To address these limitations, subsequent studies could:

Expand the sample to include recent time data for analysis. This will test the resilience and current applicability of the found relationships.

Incorporate disaggregated data (sectoral, firm-level) to uncover micro-level mechanisms. Explore sectoral heterogeneity (e.g., manufacturing vs. services FDI mediation). Specifically investigate the mediating role of FDI across different economic sectors to provide more nuanced policy recommendations tailored to high-potential industries.

Replace the Doing Business data with the World Bank's new and more rigorous B-READY (Business Ready) dataset. This will enhance the study's robustness, objectivity, and provide a more contemporary and authoritative measure of the business environment for future analysis.

Authors' contribution

V.S.: article conception, theoretical content of the article, research methods applied, conducting the research, data collection, analysis and interpretation of results, draft manuscript preparation. **Y.T.H.N.:** article conception, theoretical content of the article, analysis and interpretation of results, draft manuscript preparation**. N.H.H.:** theoretical content of the article, research methods applied, draft manuscript preparation.

Declaration of Generative AI and AI-assisted technologies in the writing process

While preparing this work, the authors did not use any tool/service.

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Appendix A

The aggregate indicators of IQ in the following table are derived from some variables in fields such as political governance and economic institutions, business environment and trade flows. Using principal component analysis, which aims to reduce the dimensionality of data. It changes the data into new aggregate variables. Each principal component is essentially the weighted average of the variables included. Similarly, in all cases, the Kaiser-Meyer-Olkin Measure (K.M.O.) and Cronbach's Alpha of sampling adequacy are used to check for the appropriateness of the P.C.A.

Principal component analysis

A.1 Institution quality			
Component	**PC1**	**PC2**	
Eigenvalue	5.26	1.12	
Variance proportion	0.66	0.14	
Cumulative proportion	0.66	0.80	
Eigenvector			
Variables	**Vector 1**	**Vector 2**	**KMO**
Economic institution			
Size of government	0.0224	0.8811	0.744
Legal systems & property rights	0.404	0.063	0.779
Sound money	0.305	0.042	0.89
Freedom to trade internationally	0.275	0.202	0.68
Political governance			
Government effectiveness	0.419	-0.411	0.741
Regulatory quality	0.393	0.068	0.869
Rule of law	0.406	0.033	0.7767
Control of corruption	0.413	0.043	0.8167
Overall KMO			**0.792**
Cronbach's alpha			**0.683**

A.2 Business environment			
Component	PC1		
Eigenvalue	3.78		
Variance proportion	0.47		
Cumulative proportion	0.47		
Eigenvector			
Variables	**Vector 1**		**KMO**
Ease of doing business	0.45		0.77
Enforcing contract	0.34		0.85
Dealing with construction permits	0.17		0.63
Logistics performance index (LPI)	0.46		0.84
Quality of roads	0.48		0.78
Quality of ports	0.46		0.80
Overall KMO			**0.80**
Cronbach's alpha			**0.79**
A.3 Trade Flows			
Component	**PC1**		
Eigenvalue	3.97		
Variance Proportion	0.99		
Cumulative Proportion	0.99		
Eigenvector	**Vector 1**		**KMO**
Merchandise export	0.50		0.73
Merchandise import	0.50		0.75
Goods and services export	0.50		0.80
Goods and services import	0.50		0.74
Overall KMO			**0.75**
Cronbach's alpha			**0.99**