Calculation of Ad Valorem Equivalents of Non-Tariff Barriers: A Case Study of 16 RCEP Countries

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6.1 Introduction

Apart from tariff barriers, administrative and geographical barriers to trade also have a negative impact on trade. All these barriers restrict trade by increasing the number of days to exchange goods from one country to another. These barriers include: number of documents required to trade, online availability of information related to trade procedures, number of procedures requested to start a business, and existing levels of corruption and infrastructure, among others. Reduction in all these hurdles to trade is called trade facilitation (TF). Regional trade agreements (RTAs) include commitments aimed at reducing all the existing and potential barriers to trade, some of which are administrative barriers. Under the proposed Regional Comprehensive Economic Partnership (RCEP) agreement, the guiding principles of negotiation include provisions to facilitate trade and investment among member countries. Under this provision, member countries shall try "*to enhance transparency in trade and investment relations between the participating countries, as well as to facilitate the participating countries' engagement in global and regional supply chains.*"

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In recent literature, studies have focused on the calculation of ad valorem equivalents (AVEs) of these barriers (sectorwide as well as countrywide) and have attempted to look into the impact of these barriers on trade and other macroeconomic variables using partial and general equilibrium approaches. Both approaches have their own merits over the other, and sometimes one approach complements the other by providing the extent of the restriction of the barriers on trade.

Results from these studies have raised the need for a countrywide detailed analysis that can provide the sectorwide extent of the restrictiveness of these trade barriers. Information on sectorwide restrictiveness would further help to form an appropriate policy framework to remove the barriers that hinder trade.

The study in the present chapter attempts to enrich the literature by calculating the restrictiveness of administrative barriers to trade in tariff-equivalent terms for 42 merchandise sectors in order to quantify the effects of these barriers on bilateral trade among the 16 RCEP member countries. To the best of our knowledge, not even a single study exists in the literature assuming such a detailed level of disaggregation at the product level for countrywide analysis.

Using an econometric approach, following Zaki (2010), sectorwide AVEs of time to import and time to export have been calculated, and the results of the estimated augmented gravity model have been presented to show the impact of time to import and time to export on bilateral trade flows. To pursue the study's objective, this chapter is divided into five sections. Section 6.2 explains the extent of trade barriers in the 16 member countries of the proposed RCEP. In Sect. 6.3, econometric methodology is discussed with the help of the AVEs that have been calculated. In Sect. 6.4, detailed empirical results are discussed. The final section concludes the study with some policy implications.

6.2   TRADE BARRIERS IN RCEP ECONOMIES

Tables 6.1 and 6.2 present existing levels of trade barriers related to trade transaction costs (TTCs) in RCEP member countries and their ranking regarding the ease of trade across borders as provided in the Doing Business Report 2015. Table 6.1 also shows the average level of the ad valorem most favored nation (MFN) tariff rate in addition to the trade barriers related to the TTCs. On the basis of data given in both tables, the major highlights of

Table 6.1 Extent of trade barriers in RCEP countries in 2015

S. no.	Country	AVE MFN applied tariff	Time to import (in days)	Time to export (in days)	Documents to import (in umber)	Documents to export (in umber)	Costs to import (in SD)	Costs to export (in USD)	Ease of trading across borders (ranking)
1.	Australia	2.7	8	9	7	5	1220	1200	49
2.	China	9.6	24	21	5	8	800	823	98
3.	India	13.5	21	17	10	7	1462	1332	126
4.	Japan	4.2	11	11	5	3	1021.3	829.3	20
5.	New Zealand	2.0	9	10	6	4	825	870	27
6.	South Korea	13.3	7	8	3	3	695	670	03
7.	Brunei	1.2	15	19	5	5	770	705	46
8.	Burma	5.6[a]	22	20	8	8	610	620	103
9.	Cambodia	11.2	24	22	9	8	930	795	124
10.	Indonesia	6.9	26	17	8	4	646.8	571.8	62
11.	Laos PDR	10	26	23	10	10	1910	1950	156
12.	Malaysia	6.1	8	11	4	4	560	525	11
13.	Philippines	6.3	15	15	7	6	915	755	65
14.	Singapore	0.2	4	6	3	3	440	460	1
15.	Thailand	11.6	13	14	5	5	760	595	36
16.	Vietnam	9.5	21	21	8	5	600	610	75

Notes: [a]Represents data for year 2013; Rank 1 shows the best and 189 shows the worst in the ease of trading across borders
Source: Authors' elaboration using data from *Doing Business* and World Tariff Profile, 2015

Table 6.2   Time and cost associated with each stage to import and export

Stages →	Customs clearance and inspections	Documents preparation	Inland transportation and handling	Ports and terminal handling
Australia				
Days (cost) to import	1 (170)	3 (200)	2 (450)	2 (400)
Days (cost) to export	1 (65)	5 (285)	2 (450)	1 (400)
China (Shanghai)				
Days (cost) to import	4 (80)	15 (260)	2 (135)	3 (140)
Days (cost) to export	2 (80)	14 (305)	2 (95)	3 (140)
India				
Days (cost) to import	4 (200)	8 (400)	3 (400)	5 (250)
Days (cost) to export	2 (130)	8 (365)	3 (400)	3 (225)
Japan				
Days (cost) to import	2 (135)	5 (277)	2 (200)	2 (250)
Days (cost) to export	2 (75)	5 (145)	2 (200)	2 (250)
New Zealand				
Days (cost) to import	1 (50)	5 (175)	2 (300)	1 (300)
Days (cost) to export	1 (50)	5 (220)	2 (300)	2 (300)
South Korea				
Days (cost) to import	1 (30)	2 (65)	2 (500)	2 (100)
Days (cost) to export	1 (15)	3 (55)	2 (500)	2 (100)
Brunei				
Days (cost) to import	1 (80)	11 (150)	1 (225)	2 (315)
Days (cost) to export	2 (50)	11 (190)	3 (225)	3 (240)
Burma (Myanmar)				
Days (cost) to import	4 (80)	10 (165)	2 (200)	6 (165)
Days (cost) to export	3 (80)	12 (175)	2 (200)	3 (165)
Cambodia				
Days (cost) to import	3 (280)	15 (225)	2 (200)	4 (225)
Days (cost) to export	3 (275)	14 (220)	2 (200)	3 (100)
Indonesia				
Days (cost) to import	4 (125)	13 (210)	2 (160)	7 (165)
Days (cost) to export	1 (125)	11 (135)	3 (160)	2 (165)
Laos PDR				
Days (cost) to import	7 (195)	13 (205)	4 (1350)	2 (160)
Days (cost) to export	2 (150)	15 (290)	3 (1350)	3 (160)
Malaysia				
Days (cost) to import	1 (60)	3 (120)	2 (260)	2 (120)
Days (cost) to export	1 (60)	5 (85)	3 (260)	2 (120)
Philippines				
Days (cost) to import	2 (185)	8 (90)	2 (340)	3 (300)
Days (cost) to export	2 (85)	8 (105)	2 (340)	3 (225)

Table 6.2 (continued)

Stages →	Customs clearance and inspections	Documents preparation	Inland transportation and handling	Ports and terminal handling
Singapore				
Days (cost) to import	1 (50)	1 (100)	1 (140)	1 (150)
Days (cost) to export	1 (50)	2 (120)	2 (140)	1 (150)
Thailand				
Days (cost) to import	2 (255)	8 (135)	1 (210)	2 (160)
Days (cost) to export	1 (50)	8 (175)	2 (210)	3 (160)
Vietnam				
Days (cost) to import	4 (95)	12 (130)	1 (200)	4 (175)
Days (cost) to export	4 (100)	12 (160)	2 (200)	3 (150)

Note: Cost is in USD
Source: Doing Business Database (2015)

country-level obstacles and recent reforms in trading across borders by RCEP countries are given as follows:

- In all RCEP countries, document preparation takes the maximum number of days, which can be reduced further to facilitate trade. Table 6.3 shows the types of documents used in trading across borders.
- Singapore, South Korea, and Malaysia are in the top 15 ranked countries for ease of trade across borders, requiring a fewer number of documents.
- Countries ranked high for ease of trading across borders include: Laos, India, Cambodia, Burma, China, and Vietnam. However, the time taken to import and export for these countries is very high.
- China relaxed trade credit restrictions to ease trading across borders (DB, 2010).
- Indonesia launched a single window service to reduce the time to export (DB, 2010).
- Vietnam reduced the time to trade by implementing rules for customs administration and increasing competition in the logistics industry (DB, 2010), but It still takes more time in document preparation.
- Brunei introduced an electronic customs system that made trade easier (DB, 2011).

Table 6.3 Types of documents in trade across borders

Documents to import	Documents to export
Bill of lading	Bill of lading
Commercial invoice	Commercial invoice
Customs import declaration	Customs export declaration
Packing declaration	Packing list
Packing list	Technical standard/health certificate
Release order	Contract between exporter and importer
Technical standard/health certificate	Foreign exchange form
Contract between exporter and importer	Station receipts
Cargo release order	Terminal handling receipts
Insurance documentation	Export declaration form
Proof of payments of customs, excise, and taxation	Export permit
Certified engineer's report (NOC)	Inspection report
Foreign currency exchange form	Insurance certificate
Inspection report	Certificate of origin
Product manual	Customs transit document
Terminal handling receipts	Bank certificate
Tax certificate	Sales contract
Certificate of origin	Shipping instruction
Preshipment inspection clean report of findings	
Customs delivery order for imports	
Quarantine certificate (container packing declaration)	
Gate pass	
Delivery order	
Import permit	

Note: The list of documents is exhaustive and includes all types of documents required to trade across borders
Source: Doing Business Report (2015)

- Cambodia eliminated preshipment inspections which reduced the time and number of documents required in trade (DB, 2011).
- The Philippines improved its electronic customs system by adding electronic payments and online submission of declarations (DB, 2011).
- Laos implemented an electronic data interchange system at the Thanaleng-Friendship bridge border crossing (DB, 2013).
- Myanmar reduced the number of documents required for exports and imports (DB, 2015).

- In the Philippines, new city ordinances in Manila restricted truck traffic, which made trading across the border more difficult (DB, 2015).
- In Indonesia, due to insufficient infrastructure at Tanjung Priok port in Jakarta, trading across borders became more difficult (DB, 2015).

6.3 Methodology and Data

Following Zaki (2010), our present study utilizes the augmented gravity model to discover the impact of trade facilitation on bilateral trade flows (TFs). Estimation of the augmented gravity model provides the effect of TF on bilateral import flows. Here, the term TF relates to a reduction in the number of days in time to import and time to export due to better implementation of TFMs, due to which the TTCs decline, thus improving the level of bilateral trade. The effect is shown by the coefficients of estimated time to export and time to import variables. The study also calculates the AVEs of administrative barriers using the methodology given by Kee et al. (2009). The stepwise procedure of the econometric approach is given as follows:

Step 1 In step 1, two regression Eqs. (6.1) and (6.2), *Time to Import* (*Time*$^{\text{imp}}$), *Time to Export* (*Time*$^{\text{exp}}$) have been estimated with a host of independent variables as control variables. As already shown in the previous section, time to import and time to export are positively related with the number of documents required for imports (*ImDoc*) and exports (*ExDoc*), the number of procedures (*ImProc* and *ExProc*) to start a business in the home country, and the level of corruption[1] (*Corr*) in the country, and they are inversely related to the internet intensity (*InterInt*) representing the technological advancement in relation to computerization of all trading processes. In addition, both equations include the *Island* dummy to represent the geographical nature of a country, that is, 1 if a country is an island country, 0 otherwise.

$$\ln\left(Time_i^{\text{imp}}\right) = k + \beta_0 \ln\left(InterInt_i\right) + \beta_1 \ln\left(\text{Im}Doc_i\right) + \beta_2 \ln\left(Corr_i\right)$$
$$+ \beta_3 \ln\left(ImProc_i\right) + \beta_4 \, Island_i + e_i \tag{6.1}$$

$$\ln\left(Time_j^{\exp}\right) = k + \beta_0 \ln\left(InterInt_j\right) + \beta_1 \ln\left(ExDoc_j\right) + \beta_2 \ln\left(Corr_j\right)$$
$$+ \beta_3 \ln\left(ExProc_j\right) + \beta_4 Island_j + e_j \tag{6.2}$$

where i and j are importer and exporter, respectively. Estimation of these two regression equations provides the estimated values of time to import and time to export variables.

Step 2 In step 2, an augmented gravity equation has been estimated with a host of independent variables including the estimated time to import and time to export variables calculated in step 1. Equation (6.3) shows the augmented gravity model which has been estimated to provide the effect of TFMs—such as reducing the time to import and export—on bilateral trade flows between RCEP economies.

$$\ln\left(\frac{m_{ij}}{m_{ii}}\right) = A + \beta_1 \ln\left(\frac{v_j}{v_i}\right) + \beta_2 \ln\left(\frac{p_j}{p_i}\right) + \beta_3 \ln\left(\frac{d_{ij}}{d_{ii}}\right)$$
$$+ \beta_4 \ln\left(1 + t_{ij}\right) + \beta_5 Conti_{ij} + \beta_6 ComLang_{ij}$$
$$+ \beta_7 Comcol + \beta_8 \ln\left(\widehat{Time}_i^{\text{imp}}\right) + \beta_9 \ln\left(\widehat{Time}_j^{\exp}\right) + e_j \tag{6.3}$$

where m_{ij} is the value of imports of country i from country j; m_{ii} is the intranational flow of goods in country i; v_j and v_i are the values of domestic production in country i and j, respectively; p_i and p_j are the consumer price indices in country i and j, respectively; t_{ij} is the bilateral tariff rates imposed by country i on country j's exports; *Conti, ComLang*, and *Comcol* are the dummy variables for common border, common language, and common colony, respectively; and the last two variables are the estimated values of time to import and time to export from Eqs. (6.1) and (6.2), respectively. The coefficients of these two variables provide the effect of time to import and time to export on bilateral imports.

Step 3 In the final step, following Eq. (6.4), we have estimated sectorwide to calculate the AVEs for each member country of RCEP:

$$\ln\left(\frac{m_{ij}^k}{m_{ii}^k}\right) = A + \beta_1 \ln\left(\frac{v_j^k}{v_i^k}\right) + \beta_2 \ln(p_i) + \beta_3 \ln(p_j)$$

$$+ \beta_4 \ln\left(\frac{d_{ij}}{d_{ii}}\right) + \beta_5 \ln\left(1 + t_{ij}^k\right) + \beta_6 Conti_{ij}$$

$$+ \beta_7 ComLang_{ij} + \beta_8 Comcol + \beta_9 \ln\left(\widehat{Time}_i^{\text{imp}}\right)$$

$$+ \beta_{10} \ln\left(\widehat{Time}_j^{\text{exp}}\right) + e_{ij}^k \tag{6.4}$$

Using the coefficients of Eq. (6.4), the sectorwide AVE of time to import (AVE_{TI}) and time to export (AVE_{TE}) can be calculated as:

$$AVE_{\text{TI}} = \frac{\beta_9}{\beta_2} \qquad \text{and} \qquad AVE_{\text{TE}} = \frac{\beta_{10}}{\beta_3}$$

where AVE_{TI} and AVE_{TE} are the AVEs of time to import and time to export, respectively. Where the numerator is the proportionate change in relative imports due to the proportionate change in time to import (export) and the denominator is the proportionate change in bilateral imports to proportionate change in domestic prices. Hence, the ratio becomes the proportionate change in prices of imports (exports) due to the proportionate change in time to import (export) and thus represent AVEs. We report productwide AVEs for the 16 member countries of RCEP in the next section.

Source of Data and Variable Construction
For the empirical analysis, data from various sources have been utilized. Aggregated data on Time to import, Time to export, Documents to import, Documents to export, and Number of procedures to start a business are culled from *Doing Business* report provided by the World Bank Group. The data for the Corruption Perceptions Index (CPI) was developed by Transparency International and we used the same information for our analysis. Further, to represent the widespread use of the internet in the country, data on the number of internet users per thousand people in the population was taken from World Development Indicators (WDI). WDI was also used to obtain data for countrywide consumer price indices to represent the level of prices in both the importing and exporting countries. The CEPII database

was used to get data on various gravity equation variables such as Island, International distance, Domestic distance, Contiguity, Common language, and Common colony.

In addition, to estimate the augmented gravity equation for GTAP sectors, the GTAP-9 database is used with the latest available data from the year 2011. The study utilizes the GTAP sectors and regions breakdown for the detailed analysis. The recent available GTAP database—version 9—provides the economywide data aggregated over 57 sectors for a total of 140 regions of the world. For the purposes of analysis, the entire economy of 57 sectors is further aggregated into 43 sectors wherein 42 sectors cover all the goods produced in the economy and one sector covers the services production. Further, to show the effect of TFMs on RCEP economies, the 140 regions of the world are finally aggregated into 17 countries/regions wherein 16 are the member nations of RCEP and one includes all other remaining regions under the classification "Rest of the World (ROW)."

GTAP-9 is the source of bilateral information on sectorwide import flows valued at world prices (*VIWS*), internal flow proxies ranked by the value of domestic sales of tradable commodities at agent prices (*VDA*), the value of production of all tradable sector proxies by the ranked by the productwide value of the output at agent's prices (*VOA*), and the bilateral tariff rate proxies ranked by level of import taxes (*tms*). Because we use GTAP data for 2011 as the reference year, data for all other variables are also taken from the same year. However, countrywide AVEs are calculated for the year 2015 by using data on time to import and time to export for that year.

6.4   EMPIRICAL RESULTS

Table 6.4 shows the estimated results of the augmented gravity equation given under step 2 in Sect. 6.3. Three different models of the gravity equation have been estimated and presented in three separate columns. The first column represents the results analogous to the gravity model results, and the next two columns represent the results of trade facilitation focusing on the estimated variables of time to import and time to export estimated using Eqs. (6.1) and (6.2) as given in step 1 of Sect. 6.3. The results show that the relative production has affected the trade positively and significantly in all three models. Relative prices have a negative and significant impact on the bilateral trade of RCEP nations in the first two models, and their effect becomes positive in the third specification but is insignificant. The distance variable has a positive impact on trade in the first two

Table 6.4 Estimated results of the augmented gravity equation

Variables	Model 1	Model 2	Model 3
	ln (Rel. Imp)	*ln* (Rel. Imp)	*ln* (Rel. Imp)
Log (v_j/v_i)	0.459***	0.468***	0.628***
	(0.0143)	(0.0147)	(0.0192)
Log (p_j/p_i)	−2.354*	−2.721**	0.109
	(1.204)	(1.175)	(1.090)
Log (d_{ij}/d_{ii})	0.184***	0.0873	−0.436***
	(0.0635)	(0.0689)	(0.0758)
Log $(1+t_{ij})$	−0.137***	−0.106***	0.0843
	(0.0400)	(0.0402)	(0.0705)
Conti	0.740***	0.716***	0.500**
	(0.240)	(0.230)	(0.217)
Comlang	0.0295	−0.0160	−0.0265
	(0.190)	(0.170)	(0.168)
Comcol	0.843***	0.892***	0.434*
	(0.242)	(0.228)	(0.239)
Log $(Time_i^{Imp})$	−0.377**	–	–
	(0.149)		
Log $(Time_i^{Exp})$	−0.260	–	–
	(0.169)		
Log $(Time_i^{Imp})\_Hat$	–	−1.617***	−2.127***
		(0.406)	(0.394)
Log $(Time_i^{Exp})\_Hat$	–	−1.128**	−1.850***
		(0.435)	(0.419)
Log $(Time_i^{Imp}*t_{ij})$	–	–	−0.0694**
			(0.0278)
Constant (A)	−3.799***	−2.606***	0.113
	(0.786)	(0.774)	(0.854)
Observations	**10,080**	**10,080**	**4883**
R-squared	**0.634**	**0.638**	**0.686**
Sector dummies	*YES*	*YES*	*YES*

Notes: Figures in parentheses of type ( ) are the standard error of respective coefficient; *, **, and *** show the level of significance at 10, 5, and 1 percent levels, respectively
Source: Authors' calculations

models, but it has a negative and significant impact on trade in the third model. Imposition of tariffs has an inverse and significant relation with trade in the first two models, and a positive but insignificant relation in the last model. Contiguity and common colony have a positive and significant impact on trade in all of the models, but the insignificant coefficient of common language does not provide evidence of any type of relationship.

Further, the remaining five independent variables in Table 6.4 represent the TF variables. In model 1, the TF aspects have been directly inferred from the observed time to import and export variables. In model 2 and model 3, the TF aspect has been observed via the estimated time to import and export variables using Eqs. (6.1) and (6.2). In all three models, variables pertaining to the impact of TF on trade show the inverse relationship between administrative delays and bilateral trade, which directly points out that trade facilitation will lead to more trade between RCEP member countries. Further, the negative and significant coefficient of interaction variable in model 3 depicts that the advantages from tariff reductions can only be availed through the enhanced TF levels.

6.4.1   Calculation of AVEs

To calculate the sectorwide AVEs of each member country, Eq. (6.4) has been estimated for each individual sector (42 GTAP sectors) to get the coefficients of price indices and estimated time to import and export. Table 6.5 shows the results of sectorwide estimation of the augmented gravity equation specified using Eq. (6.4) (see Sect. 6.3). Further, Table 6.6 presents the sectorwide value of tariff equivalent (AVEs) of time to import and time to export for one day calculated using the required coefficients of estimated sectorwide regressions given in Table 6.5. As per the results, the average AVEs of a one day delay in import and export of one container of goods for RCEP member countries are approximately 84 and 82 percent, respectively. So a one day delay leads to more than an 80 percent increment in the price of the tradable good among the RCEP countries.

Further, sectors having a value of AVE of more than 100 percent are, from the importer side, products such as chemical, rubber, and plastic products; nonmetallic mineral products; dairy products; paddy rice; petroleum and coal products; fishing; sugar; food products; and nonferrous metals. From the exporter side, these include products such as chemical, rubber, an plastic products; animal products; gas; textiles; beverages and tobacco products; paper and publishing products; machinery and equipment; electronic equipment; and nonmetallic mineral products.

In total, the high value of the AVEs of these 16 sectors from both sides shows that the price of the tradable good coming under these sectors would rise to more than 100 percent in the case of a delay of one extra day. These 16 sectors cover 72.51 percent of intra-RCEP trade, which shows the

Table 6.5 Sectorwide estimated results of the augmented gravity equation

Variables	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
Log (v_j/v_i)	0.373***	0.429***	0.347***	0.554***	0.286***	0.248***	0.315***
Log (p_j)	−3.237	−2.820	−5.993*	4.903	1.813	−3.194	−3.616
Log (p_i)	1.421	7.016	4.978	4.832	13.51***	3.420	2.989
Log (d_{ij}/d_{ii})	0.553***	−0.144	0.221	−0.0590	0.821***	0.907***	0.451***
Log $(1+t_{ij})$	−0.220**	0.236	0.0557	−0.139**	−0.162*	0.421	−0.405*
Conti	−0.153	0.0973	0.296	0.844**	0.753*	0.386	0.640
Comlang	0.522	−0.716	−0.389	0.513*	−0.236	−0.134	−0.448
Comcol	1.564***	0.990*	1.812***	1.212***	0.599	0.946**	0.502
Log $(Time_i^{Imp})\_Hat$	−2.727***	−2.089*	−3.116***	−3.928***	−2.451***	−1.808**	−1.465**
Log $(Time_i^{Exp})\_Hat$	−1.133	1.477	−0.630	−1.286	0.637	−0.490	−0.848
Constant (A)	3.692	−21.37	2.611	−46.53**	−76.86***	−6.187	0.326
Observations	**240**	**240**	**240**	**240**	**240**	**240**	**240**
R-squared	0.712	0.564	0.631	0.714	0.680	0.651	0.610

Variables	Sector 8	Sector 9	Sector 10	Sector 11	Sector 12	Sector 13	Sector 14
Log (v_j/v_i)	0.449***	0.454***	0.436***	0.386***	0.288***	0.292***	0.437***
Log (p_j)	6.369**	−4.812	−0.755	4.040	−8.265**	−1.146	−5.150**
Log (p_i)	25.33***	−1.935	4.933*	12.19***	2.598	5.340*	−2.560
Log (d_{ij}/d_{ii})	0.178	0.299**	0.461***	0.377*	0.444***	1.024***	0.266**
Log $(1+t_{ij})$	−0.204**	−0.458***	−0.127		−0.828***	−0.185	−0.328***
Conti	1.091***	0.536	0.810***	0.583	0.502	1.229***	0.607***
Comlang	0.0212	0.139	0.105	−0.719*	−0.130	0.291	−0.206
Comcol	0.754**	1.546***	0.763**	1.716***	1.487***	1.614***	1.138***
Log $(Time_i^{Imp})\_Hat$	−5.779***	−0.704	−2.503***	1.911*	1.348	−1.149*	−3.220***
Log $(Time_i^{Exp})\_Hat$	−0.260	−2.328***	−2.314***	3.848***	3.331***	−0.194	−2.413***
Constant (A)	−147.1***	26.79	−22.93	−87.15***	17.22	−26.93	34.11*
Observations	**240**	**240**	**240**	**240**	**240**	**240**	**240**
R-squared	0.741	0.636	0.704	0.631	0.617	0.715	0.734

Table 6.5 (continued)

Variables	Sector 15	Sector 16	Sector 17	Sector 18	Sector 19	Sector 20	Sector 21
Log (v_j/v_i)	0.293***	0.368***	0.286***	0.645***	0.502***	0.481***	0.420***
Log (p_j)	4.006	0.808	0.925	8.329**	2.226	−0.658	−5.280
Log (p_i)	−14.91***	−7.298	−6.798	13.14***	3.386	2.226	10.36***
Log (d_{ij}/d_{ii})	0.606***	0.359**	0.152	−0.0639	0.178	0.248**	0.0724
Log ($1+t_{ij}$)	−0.381	−0.0716	1.806***	−0.00780	−0.00743	−0.227***	−0.288***
Conti	0.611	0.572	0.666	1.676***	−0.146	0.237	0.275
Comlang	−0.469	−0.806*	−0.927*	−0.0752	0.324	0.345	0.106
Comcol	1.334***	0.442	0.0118	0.755*	1.742***	1.253***	1.005**
Log ($Time_t^{Imp}$)_Hat	1.194	−2.325**	−2.123*	−3.031***	0.550	0.111	−1.799**
Log ($Time_t^{Exp}$)_Hat	−1.905*	0.399	−2.614*	−2.696***	−0.145	−0.227	−0.185
Constant (A)	45.59	25.61	27.67	−99.35***	−33.17	−14.36	−26.80
Observations	**240**	**240**	**240**	**240**	**240**	**240**	**240**
R-squared	0.622	0.521	0.470	0.602	0.597	0.626	0.683

Variables	Sector 22	Sector 23	Sector 24	Sector 25	Sector 26	Sector 27	Sector 28
Log (v_j/v_i)	0.330***	0.511***	0.400***	0.670***	0.623***	0.712***	0.648***
Log (p_j)	−3.034	5.374	−15.34***	7.788***	1.288	0.714	−0.817
Log (p_i)	0.767	−8.654**	0.556	5.560*	1.748	8.823***	3.816
Log (d_{ij}/d_{ii})	0.951***	0.236*	0.150	−0.565***	−0.124	−0.183*	−0.174*
Log ($1+t_{ij}$)	−0.470***	−0.147*	−0.465***	0.0298	−0.213***	0.0647	−0.148**
Conti	1.592***	−0.127	1.147**	0.478	0.869**	0.452	0.391
Comlang	0.233	0.00980	−0.265	0.191	0.492*	0.135	0.0688
Comcol	0.993**	0.936**	0.895*	0.532	0.933***	0.443	0.537*
Log ($Time_t^{Imp}$)_Hat	3.415***	−1.449*	−0.678	−6.069***	−1.296*	−3.997***	−2.188***
Log ($Time_t^{Exp}$)_Hat	−2.733***	−1.074	0.852	−4.001***	−3.110***	−1.796***	0.291
Constant (A)	2.130	10.29	63.74**	−57.24***	−16.18	−43.37**	−17.29
Observations	**240**	**240**	**240**	**240**	**240**	**240**	**240**
R-squared	0.699	0.629	0.615	0.688	0.640	0.774	0.683

Variables	Sector 29	Sector 30	Sector 31	Sector 32	Sector 33	Sector 34	Sector 35
Log (v_j/v_i)	0.635***	0.711***	0.611***	0.685***	0.762***	0.765***	0.687***
Log (p_j)	1.049	−2.236	−0.793	−7.346**	−0.323	−0.859	5.015*
Log (p_i)	3.613*	14.54***	5.240**	2.743	−0.216	0.768	32.07***
Log (d_{ij}/d_{ii})	−0.277***	−0.533***	−0.296***	−0.629***	−0.455***	−0.646***	−0.284**
Log ($1+t_{ij}$)	−0.162**	−0.249**	−0.181*	0.116	−0.313***	−0.234***	−0.373***
Conti	0.144	1.232***	0.882***	1.050***	1.243***	0.705***	1.031***
Comlang	0.0565	−0.481**	0.206	0.539*	−0.0688	−0.0319	−0.245
Comcol	0.451*	0.758***	0.455*	0.484	0.812***	0.153	0.803**
Log ($Time_i^{Imp}$)_Hat	−3.100***	−3.208***	−1.227**	−4.809***	−1.217**	−3.659***	−4.036***
Log ($Time_i^{Exp}$)_Hat	−0.513	−1.352**	−1.733***	−1.623*	−1.738***	−1.078*	−2.042***
Constant (A)	−22.11	−56.38***	−22.68	22.62	2.114	0.414	−170.6***
Observations	**240**	**240**	**240**	**240**	**240**	**240**	**240**
R-squared	0.811	0.706	0.821	0.729	0.881	0.812	0.852

Variables	Sector 36	Sector 37	Sector 38	Sector 39	Sector 40	Sector 41	Sector 42
Log (v_j/v_i)	0.631***	0.729***	0.684***	0.647***	0.665***	0.774***	0.740***
Log (p_j)	−5.693*	3.178	−7.812***	−7.884***	0.976	−1.137	−4.442*
Log (p_i)	5.019	11.51***	3.261	−5.413*	8.654***	8.316***	−4.315
Log (d_{ij}/d_{ii})	−0.339**	−0.672***	−0.209*	−0.148	−0.553***	−0.487***	−0.135
Log ($1+t_{ij}$)	0.0173	−0.0575	−0.170*	−0.0347	−0.450***	−0.0763	−0.337***
Conti	1.412***	0.699**	0.570	1.051***	0.762**	0.697**	0.565*
Comlang	−0.0513	−0.300	0.193	0.213	0.102	0.145	0.155
Comcol	0.709**	0.509*	0.739**	0.498	0.0739	0.663**	0.955***
Log ($Time_i^{Imp}$)_Hat	−4.948***	−3.369***	−2.360***	−1.581**	−3.568***	−4.050***	−1.525**
Log ($Time_i^{Exp}$)_Hat	−2.768***	0.178	−1.221	0.393	−1.868**	−2.311***	−1.014
Constant (A)	7.287	−69.38***	19.99	58.23***	−42.87**	−30.46*	38.06**
Observations	**240**	**240**	**240**	**240**	**240**	**240**	**240**
R-squared	0.662	0.843	0.832	0.793	0.782	0.867	0.783

Notes: *, **, and *** show the level of significance at 10, 5, and 1 percent level, respectively
Source: Authors' calculations

Table 6.6 Sectorwide intra-RCEP trade share and AVEs of time to import and export for RCEP countries (in percent)

S. No.	Sector	Intra-RCEP trade	One day ad valorem equivalent of	
		Imports share in total goods imports	Time to import (AVE$_{TI}$)	Time to export (AVE$_{TE}$)
1	Paddy rice	0.01	191.90	34.99
2	Wheat	0.15	29.78	52.38
3	Cereal grains	0.10	62.60	10.51
4	Vegetables, fruit, nuts	0.60	81.28	26.23
5	Oil seeds	0.06	18.15	35.14
6	Sugar cane and beets	0.00	52.85	15.36
7	Plant-based fibers	0.17	49.01	23.44
8	Crops	0.25	22.82	4.08
9	Bovine cattle, sheep and goats, horses	0.08	36.41	48.38
10	Animal products	0.13	50.73	306.69
11	Raw milk	–	15.68	95.25
12	Wool, silk-worm cocoons	0.08	51.87	40.30
13	Forestry	0.28	21.51	16.97
14	Fishing	0.13	125.78	46.85
15	Coal	2.40	8.01	47.55
16	Oil	1.86	31.85	49.35
17	Gas	2.49	31.23	282.63
18	Minerals	4.18	23.07	32.37
19	Bovine meat products	0.29	16.24	6.52
20	Meat products	0.14	5.00	34.48
21	Vegetable oils and fats	0.85	17.36	3.50
22	Dairy products	0.39	444.93	90.09
23	Processed rice	0.11	16.74	19.99
24	Sugar	0.15	121.90	5.55
25	Food products	1.70	109.16	51.37
26	Beverages and tobacco products	0.23	74.12	241.48
27	Textiles	2.61	45.30	251.59
28	Wearing apparel	1.52	57.33	35.65
29	Leather products	0.94	85.81	48.92
30	Wood products (lumber)	1.25	22.06	60.45
31	Paper products, publishing	0.94	23.42	218.66
32	Petroleum, coal products	6.34	175.30	22.09

Table 6.6 (continued)

S. No.	Sector	Intra-RCEP trade	One day ad valorem equivalent of	
		Imports share in total goods imports	Time to import (AVE$_{TI}$)	Time to export (AVE$_{TE}$)
33	Chemical, rubber, plastic products	12.11	563.54	537.35
34	Mineral products (nonmetallic)	1.12	476.26	125.46
35	Ferrous metals (iron and steel)	3.62	12.58	40.71
36	Metals (nonferrous)	3.15	98.58	48.61
37	Metal products (fabricated)	2.08	29.27	5.61
38	Motor vehicles and parts	3.37	72.38	15.63
39	Transport equipment	0.83	29.21	4.98
40	Electronic equipment	19.67	41.22	191.27
41	Machinery and equipment	21.34	48.69	203.33
42	Manufactures	2.25	35.34	22.82
Average		–	**83.96**	**82.25**

Source: Authors' calculations

importance of adopting trade facilitation measures (TFMs) by RCEP countries to get more benefits from bilateral trade.

In addition, the multiplication of total number of days required to import or export a good from one country to another with the value of a one day tariff equivalent provides the countrywide AVEs. Table 6.7 shows the countrywide average AVEs of time to import and time to export for the year 2015. Results reveal that the AVE is lowest for Singapore because it takes the least time to import, followed by South Korea, Australia, Malaysia, New Zealand, Japan, Thailand, Brunei, the Philippines, India, Vietnam, Burma, China, Cambodia, Indonesia, and Laos. On the exporting side, Singapore is again in the top rank because it takes the least number of days to export, followed by South Korea, Australia, New Zealand, Japan, Malaysia, Thailand, the Philippines, India, Indonesia, Brunei, Burma, China, Vietnam, Cambodia, and Laos. Further, Table 6.8 shows the countrywide differences of AVEs over a total of 42 GTAP sectors taken for the purposes of analysis.

Table 6.7 Countrywide AVEs of time to import and time to export for RCEP members

S. No.	Region	AVE MFN applied tariff	Time to import (In days)	AVE$_{TI}$ (in %)	Time to export (in days)	AVE$_{TE}$ (in %)
1.	Australia	2.7	8	671.68	9	740.25
2.	China	9.6	24	2015.04	21	1727.25
3.	India	13.5	21	1763.16	17	1398.25
4.	Japan	4.2	11	923.56	11	904.75
5.	New Zealand	2.0	9	755.64	10	822.5
6.	South Korea	13.3	7	587.72	8	658
7.	Brunei	1.2	15	1259.4	19	1562.75
8.	Burma	5.6$^{\#}$	22*	1847.12	20	1645
9.	Cambodia	11.2	24	2015.04	22	1809.5
10.	Indonesia	6.9	26	2182.96	17	1398.25
11.	Laos PDR	10	26	2182.96	23	1891.75
12.	Malaysia	6.1	8	671.68	11	904.75
13.	Philippines	6.3	15	1259.4	15	1233.75
14.	Singapore	0.2	4	335.84	6	493.5
15.	Thailand	11.6	13	1091.48	14	1151.5
16.	Vietnam	9.5	21	1763.16	21	1727.25

Notes: Entries marked with * represent data from the year 2014 and # represents data for the year 2013. The least time taken for a country to import and export is 4 and 6 days, respectively. The one day tariff equivalent of time to import and time to export are 83.96 and 82.25 percent, respectively

Source: Authors' calculations using data from *Doing Business* indicators, World Tariff Profile, 2015, and estimated results

6.5   CONCLUSION

In the present chapter, an attempt has been made to evaluate the impact of TFs in RCEP member countries on their bilateral trade flows. Using an econometric approach, the study concluded that TF in RCEP member countries has a positive impact on their bilateral trade. The results also reveal that the policy of trade liberalization should be a mixture of the reduction of TTCs as well as the reduction of tariff barriers. If both e policies can be adopted together, then RCEP member economies can gain more than changes in an individual policy set-up. Hence, trade liberalization between RCEP countries would become more successful if all types of barriers to trade could be focused simultaneously.

Table 6.8 Sectorwide AVEs of time to import and time to export for RCEP members (in %)

Region sector	Australia		China		India		Japan		New Zealand		South Korea	
	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$
1	1535.19	314.90	4605.56	734.77	4029.87	594.81	2110.88	384.88	1727.09	349.89	1343.29	279.91
2	238.26	471.46	714.79	1100.07	625.44	890.53	327.61	576.22	268.05	523.84	208.48	419.07
3	500.80	94.55	1502.40	220.63	1314.60	178.60	688.60	115.57	563.40	105.06	438.20	84.05
4	650.26	236.07	1950.77	550.83	1706.93	445.91	894.10	288.53	731.54	262.30	568.98	209.84
5	145.17	316.26	435.51	737.95	381.07	597.39	199.61	386.54	163.32	351.40	127.02	281.12
6	422.81	138.22	1268.44	322.51	1109.88	261.08	581.37	168.93	475.66	153.57	369.96	122.86
7	392.10	210.96	1176.29	492.23	1029.26	398.47	539.13	257.83	441.11	234.39	343.09	187.52
8	182.54	36.74	547.61	85.73	479.16	69.40	250.99	44.91	205.35	40.82	159.72	32.66
9	291.29	435.39	873.87	1015.90	764.64	822.40	400.53	532.14	327.70	483.76	254.88	387.01
10	405.81	2760.17	1217.44	6440.40	1065.26	5213.66	558.00	3373.54	456.54	3066.86	355.09	2453.49
11	125.46	857.22	376.39	2000.19	329.35	1619.20	172.51	1047.72	141.15	952.47	109.78	761.98
12	415.00	362.69	1245.00	846.28	1089.37	685.09	570.62	443.29	466.87	402.99	363.12	322.39
13	172.09	152.69	516.27	356.27	451.74	288.41	236.62	186.62	193.60	169.65	150.58	135.72
14	1006.24	421.65	3018.73	983.85	2641.39	796.45	1383.58	515.35	1132.02	468.50	880.46	374.80
15	64.06	427.98	192.19	998.63	168.17	808.41	88.09	523.09	72.07	475.54	56.06	380.43
16	254.84	444.13	764.51	1036.31	668.95	838.92	350.40	542.83	286.69	493.48	222.98	394.78
17	249.80	2543.68	749.41	5935.25	655.74	4804.72	343.48	3108.94	281.03	2826.31	218.58	2261.05
18	184.52	291.31	553.56	679.72	484.37	550.25	253.72	356.04	207.59	323.67	161.46	258.94
19	129.94	58.67	389.81	136.89	341.08	110.82	178.66	71.71	146.18	65.19	113.69	52.15
20	40.02	310.33	120.07	724.09	105.06	586.17	55.03	379.29	45.03	344.81	35.02	275.84
21	138.87	31.50	416.61	73.49	364.53	59.50	190.94	38.50	156.23	35.00	121.51	28.00

Table 6.8 (continued)

Region sector	Australia		China		India		Japan		New Zealand		South Korea	
	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$
22	3559.46	810.79	10678.37	1891.84	9343.57	1531.49	4894.25	990.96	4004.39	900.88	3114.52	720.70
23	133.94	179.91	401.82	419.80	351.59	339.84	184.17	219.89	150.68	199.90	117.20	159.92
24	975.18	49.98	2925.54	116.62	2559.85	94.41	1340.87	61.09	1097.08	55.53	853.28	44.43
25	873.25	462.35	2619.76	1078.81	2292.29	873.32	1200.73	565.09	982.41	513.72	764.10	410.97
26	593.00	2173.33	1778.99	5071.09	1556.62	4105.17	815.37	2656.29	667.12	2414.81	518.87	1931.84
27	362.43	2264.35	1087.30	5283.49	951.39	4277.11	498.35	2767.54	407.74	2515.95	317.13	2012.76
28	458.67	320.86	1376.00	748.68	1204.00	606.07	630.67	392.17	516.00	356.51	401.33	285.21
29	686.50	440.26	2059.50	1027.27	1802.06	831.60	943.94	538.09	772.31	489.18	600.69	391.34
30	176.49	544.05	529.46	1269.46	463.28	1027.66	242.67	664.96	198.55	604.51	154.43	483.60
31	187.38	1967.90	562.14	4591.77	491.87	3717.15	257.65	2405.22	210.80	2186.56	163.96	1749.25
32	1402.38	198.80	4207.15	463.86	3681.25	375.51	1928.28	242.97	1577.68	220.89	1227.08	176.71
33	4508.28	4836.14	13524.85	11284.34	11834.24	9134.94	6198.89	5910.84	5071.82	5373.49	3944.75	4298.79
34	3810.10	1129.11	11430.29	2634.60	10001.50	2132.77	5238.88	1380.03	4286.36	1254.57	3333.83	1003.66
35	100.66	366.37	301.99	854.86	264.24	692.03	138.41	447.79	113.25	407.08	88.08	325.66
36	788.62	437.52	2365.87	1020.88	2070.13	826.43	1084.36	534.75	887.20	486.13	690.04	388.91
37	234.14	50.52	702.41	117.89	614.61	95.43	321.94	61.75	263.40	56.14	204.87	44.91
38	579.01	140.66	1737.02	328.21	1519.89	265.69	796.13	171.92	651.38	156.29	506.63	125.03
39	233.68	44.84	701.05	104.62	613.42	84.69	321.31	54.80	262.89	49.82	204.47	39.85
40	329.78	1721.46	989.34	4016.75	865.67	3251.65	453.45	2104.01	371.00	1912.74	288.56	1530.19
41	389.55	1829.98	1168.66	4269.96	1022.58	3456.64	535.64	2236.65	438.25	2033.32	340.86	1626.65
42	282.71	205.37	848.14	479.19	742.13	387.92	388.73	251.00	318.05	228.19	247.38	182.55

Region sector	Brunei		Burma		Cambodia		Indonesia		Laos	
	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}
1	2878.48	664.79	4221.77	699.78	4605.56	769.76	4989.36	594.81	4989.36	804.74
2	446.75	995.30	655.23	1047.68	714.79	1152.45	774.36	890.53	774.36	1204.83
3	939.00	199.61	1377.20	210.12	1502.40	231.13	1627.60	178.60	1627.60	241.64
4	1219.23	498.37	1788.21	524.60	1950.77	577.06	2113.34	445.91	2113.34	603.29
5	272.19	667.67	399.22	702.81	435.51	773.09	471.80	597.39	471.80	808.23
6	792.77	291.79	1162.73	307.15	1268.44	337.86	1374.14	261.08	1374.14	353.22
7	735.18	445.35	1078.27	468.79	1176.29	515.67	1274.32	398.47	1274.32	539.11
8	342.25	77.57	501.97	81.65	547.61	89.81	593.24	69.40	593.24	93.90
9	546.17	919.15	801.05	967.53	873.87	1064.28	946.70	822.40	946.70	1112.65
10	760.90	5827.03	1115.99	6133.72	1217.44	6747.09	1318.90	5213.66	1318.90	7053.78
11	235.25	1809.70	345.03	1904.94	376.39	2095.44	407.76	1619.20	407.76	2190.68
12	778.12	765.68	1141.25	805.98	1245.00	886.58	1348.75	685.09	1348.75	926.88
13	322.67	322.34	473.25	339.30	516.27	373.23	559.29	288.41	559.29	390.20
14	1886.70	890.15	2767.17	937.00	3018.73	1030.70	3270.29	796.45	3270.29	1077.55
15	120.12	903.52	176.17	951.07	192.19	1046.18	208.21	808.41	208.21	1093.73
16	477.82	937.61	700.80	986.96	764.51	1085.65	828.22	838.92	828.22	1135.00
17	468.38	5369.99	686.96	5652.62	749.41	6217.88	811.86	4804.72	811.86	6500.51
18	345.98	614.98	507.43	647.35	553.56	712.08	599.69	550.25	599.69	744.45
19	243.63	123.86	357.32	130.38	389.81	143.41	422.29	110.82	422.29	149.93
20	75.05	655.13	110.07	689.61	120.07	758.57	130.08	586.17	130.08	793.05
21	260.38	66.49	381.89	69.99	416.61	76.99	451.32	59.50	451.32	80.49
22	6673.98	1711.67	9788.50	1801.75	10678.37	1981.93	11568.23	1531.49	11568.23	2072.02

(*continued*)

Table 6.8 (continued)

Region sector	Brunei		Burma		Cambodia		Indonesia		Laos	
	AVE_{TT}	AVE_{TE}	AVE_{TT}	AVE_{TE}	AVE_{TT}	AVE_{TE}	AVE_{TT}	AVE_{TE}	AVE_{TT}	AVE_{TE}
23	251.14	379.82	368.33	399.81	401.82	439.79	435.30	339.84	435.30	459.78
24	1828.46	105.51	2681.74	111.07	2925.54	122.17	3169.33	94.41	3169.33	127.73
25	1637.35	976.07	2401.45	1027.44	2619.76	1130.18	2838.08	873.32	2838.08	1181.55
26	1111.87	4588.13	1630.74	4829.61	1778.99	5312.57	1927.24	4105.17	1927.24	5554.05
27	679.56	4780.30	996.69	5031.90	1087.30	5535.09	1177.91	4277.11	1177.91	5786.68
28	860.00	677.38	1261.33	713.03	1376.00	784.33	1490.67	606.07	1490.67	819.98
29	1287.19	929.43	1887.88	978.35	2059.50	1076.19	2231.13	831.60	2231.13	1125.10
30	330.91	1148.56	485.34	1209.01	529.46	1329.91	573.58	1027.66	573.58	1390.36
31	351.34	4154.46	515.30	4373.12	562.14	4810.43	608.99	3717.15	608.99	5029.09
32	2629.47	419.68	3856.55	441.77	4207.15	485.95	4557.74	375.51	4557.74	508.04
33	8453.03	10209.64	12397.78	10746.99	13524.85	11821.69	14651.92	9134.94	14651.92	12359.03
34	7143.93	2383.69	10477.77	2509.14	11430.29	2760.06	12382.82	2132.77	12382.82	2885.51
35	188.74	773.45	276.83	814.15	301.99	895.57	327.16	692.03	327.16	936.28
36	1478.67	923.65	2168.71	972.26	2365.87	1069.49	2563.02	826.43	2563.02	1118.10
37	439.00	106.66	643.87	112.27	702.41	123.50	760.94	95.43	760.94	129.11
38	1085.63	296.95	1592.26	312.58	1737.02	343.84	1881.77	265.69	1881.77	359.47
39	438.15	94.65	642.63	99.63	701.05	109.60	759.47	84.69	759.47	114.58
40	618.34	3634.20	906.89	3825.47	989.34	4208.02	1071.78	3251.65	1071.78	4399.29
41	730.41	3863.30	1071.27	4066.63	1168.66	4473.29	1266.05	3456.64	1266.05	4676.62
42	530.09	433.55	777.47	456.37	848.14	502.01	918.82	387.92	918.82	524.83

Region sector	Malaysia		Philippines		Singapore		Thailand		Vietnam	
	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}	AVE_{TI}	AVE_{TE}
1	1535.19	384.88	2878.48	524.83	767.59	209.93	2494.68	489.84	4029.87	734.77
2	238.26	576.22	446.75	785.76	119.13	314.30	387.18	733.38	625.44	1100.07
3	500.80	115.57	939.00	157.59	250.40	63.04	813.80	147.08	1314.60	220.63
4	650.26	288.53	1219.23	393.45	325.13	157.38	1056.67	367.22	1706.93	550.83
5	145.17	386.54	272.19	527.10	72.59	210.84	235.90	491.96	381.07	737.95
6	422.81	168.93	792.77	230.36	211.41	92.14	687.07	215.00	1109.88	322.51
7	392.10	257.83	735.18	351.59	196.05	140.64	637.16	328.15	1029.26	492.23
8	182.54	44.91	342.25	61.24	91.27	24.49	296.62	57.15	479.16	85.73
9	291.29	532.14	546.17	725.64	145.65	290.26	473.35	677.27	764.64	1015.90
10	405.81	3373.54	760.90	4600.29	202.91	1840.12	659.45	4293.60	1065.26	6440.40
11	125.46	1047.72	235.25	1428.71	62.73	571.48	203.88	1333.46	329.35	2000.19
12	415.00	443.29	778.12	604.49	207.50	241.80	674.37	564.19	1089.37	846.28
13	172.09	186.62	322.67	254.48	86.05	101.79	279.65	237.51	451.74	356.27
14	1006.24	515.35	1886.70	702.75	503.12	281.10	1635.14	655.90	2641.39	983.85
15	64.06	523.09	120.12	713.31	32.03	285.32	104.10	665.75	168.17	998.63
16	254.84	542.83	477.82	740.22	127.42	296.09	414.11	690.87	668.95	1036.31
17	249.80	3108.94	468.38	4239.46	124.90	1695.78	405.93	3956.83	655.74	5935.25
18	184.52	356.04	345.98	485.51	92.26	194.20	299.85	453.14	484.37	679.72
19	129.94	71.71	243.63	97.78	64.97	39.11	211.15	91.26	341.08	136.89
20	40.02	379.29	75.05	517.21	20.01	206.88	65.04	482.73	105.06	724.09
21	138.87	38.50	260.38	52.50	69.43	21.00	225.66	49.00	364.53	73.49
22	3559.46	990.96	6673.98	1351.32	1779.73	540.53	5784.12	1261.23	9343.57	1891.84

(*continued*)

Table 6.8 (continued)

Region sector	Malaysia		Philippines		Singapore		Thailand		Vietnam	
	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$	AVE$_{TI}$	AVE$_{TE}$
23	133.94	219.89	251.14	299.86	66.97	119.94	217.65	279.86	351.59	419.80
24	975.18	61.09	1828.46	83.30	487.59	33.32	1584.67	77.75	2559.85	116.62
25	873.25	565.09	1637.35	770.58	436.63	308.23	1419.04	719.21	2292.29	1078.81
26	593.00	2656.29	1111.87	3622.21	296.50	1448.88	963.62	3380.73	1556.62	5071.09
27	362.43	2767.54	679.56	3773.92	181.22	1509.57	588.96	3522.33	951.39	5283.49
28	458.67	392.17	860.00	534.77	229.33	213.91	745.33	499.12	1204.00	748.68
29	686.50	538.09	1287.19	733.76	343.25	293.51	1115.56	684.85	1802.06	1027.27
30	176.49	664.96	330.91	906.76	88.24	362.70	286.79	846.31	463.28	1269.46
31	187.38	2405.22	351.34	3279.84	93.69	1311.94	304.49	3061.18	491.87	4591.77
32	1402.38	242.97	2629.47	331.33	701.19	132.53	2278.87	309.24	3681.25	463.86
33	4508.28	5910.84	8453.03	8060.24	2254.14	3224.10	7325.96	7522.89	11834.24	11284.34
34	3810.10	1380.03	7143.93	1881.86	1905.05	752.74	6191.41	1756.40	10001.50	2634.60
35	100.66	447.79	188.74	610.62	50.33	244.25	163.58	569.91	264.24	854.86
36	788.62	534.75	1478.67	729.20	394.31	291.68	1281.51	680.59	2070.13	1020.88
37	234.14	61.75	439.00	84.21	117.07	33.68	380.47	78.59	614.61	117.89
38	579.01	171.92	1085.63	234.44	289.50	93.77	940.88	218.81	1519.89	328.21
39	233.68	54.80	438.15	74.73	116.84	29.89	379.73	69.74	613.42	104.62
40	329.78	2104.01	618.34	2869.10	164.89	1147.64	535.89	2677.83	865.67	4016.75
41	389.55	2236.65	730.41	3049.97	194.78	1219.99	633.02	2846.64	1022.58	4269.96
42	282.71	251.00	530.09	342.28	141.36	136.91	459.41	319.46	742.13	479.19

Notes: See Table 6.6 for sector description
Source: Authors' calculations

NOTE

1. The study used a level of corruption index ranging from 1 to 10, where 1 represents most corrupted and 10 represents least corrupted.

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