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Assessing the impacts of the US-China trade war on Asian economies

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Abstract

The ongoing trade tensions between the United States and China have reverberated globally, sparking concerns about economic stability and growth. What are the most affected industries and economies among Asia? What will happen if the US and China further raise their tariffs? Are there any useful trade policy adjustments for the Asian economies to improve their lots under the not-so-optimistic world trade climate? This paper employs a multi-country, multi-industry, general equilibrium model to analyze the impacts of the US-China trade war and potential further tariff war on 13 Asian regions across 20 industries in the year 2017. The results indicate that, on average, all of these Asian economies (other than China) experience a modest welfare gain of 0.2 percent under the US-China trade war. Furthermore, analysis suggests that if the US and China were to raise their bilateral tariffs further to their bilaterally optimal levels, imputed to be at an average tariff of 74 percent, the other Asian economies would see an average political welfare gain of 0.54 percent. In addition, this paper imputes potential trade policies that the Asian economies could adopt to navigate the heightened trade tensions, particularly those stemming from the US-China trade war. For instance, the paper shows that zero tariffs between Singapore and Japan could benefit both countries in the event of an intensified trade dispute, while Taiwan and Korea could also benefit from a free trade agreement. Furthermore, the study highlights the potential benefits of a free trade agreement between China and Vietnam amid the ongoing trade conflict and any potential escalation.

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1. Introduction

The ongoing trade dispute between the United States and China has garnered considerable attention in recent years due to its potential ramifications for the global economy. This trade conflict, which extends beyond the two principal nations involved, has global repercussions. Notably, Donald Trump, the former United States President, having secured the requisite number of delegates for his party's nomination, is a contender for the 2024 US presidential election. He has consistently advocated for the implementation of a 10 percent tariff on all goods imported to the US, as well as proposing a tariff of up to 60 percent on imports from China, should he be re-elected to the presidency (Lobosco, 2024). The intensifying tensions between the US and China have reverberated across the global economic terrain, emphasizing the imperative to understand the potential economic risks and growth trajectories for Asian economies emanating from measures already implemented as well as from any prospective actions.

This study employs the analytical framework developed by Ossa (2014), which utilizes a comprehensive multi-country, multi-industry general equilibrium model for international trade analysis. This general equilibrium model integrates the concept of Ricardian inter-industry trade, Krugman's (1980) intra-industry trade, and Grossman and Helpman (1994) special interest politics, which could provide a detailed quantitative analysis of the effect of the US-China trade war on the economics of various Asian regions. The analytical scope of this study focuses on a diverse range of economics and sectors, specifically 13 regions and 20 industries in the year 2017. The regions include China, India, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan,

Thailand, the United States, Vietnam, and a residual category termed 'Rest of the World'. The empirical foundation of this research is constructed using industry-level trade and tariff data derived from the World Bank's World Integrated Trade Solutions (WITS) software. Furthermore, the BACI database, which collects detailed international trade data from the United Nations' Comtrade trade data for the period from 2002 to 2017, is utilized to estimate demand elasticities. Lastly, the political economy weights are calibrated using non-cooperative tariff data from the International Trade Centre's Market Access Map (MAcMap).

The structure of this paper is organized as follows: Initially, it begins with an estimation of industry-level Constant Elasticity of Substitution (CES) demand elasticities by employing Feenstra's (1994) methodological framework, applied to data from the BACI database spanning 2002 to 2017. Subsequently, it presents the foundational aspects of the model, including the setup, equilibrium conditions, and outlines the general equilibrium and welfare implications of tariff modifications as conceptualized by Ossa (2014). Following this, the paper progresses to analyze the computation of optimal tariffs and calibrate political weights, matching the cross-industry distribution of optimal tariffs with the distribution of non-cooperative tariffs, as available from MAcMap databases. Finally, the remainder of the paper scrutinizes the general equilibrium effects and welfare effects of counterfactual tariff changes on the Asian economies under study and evaluates the ramifications of potential trade policy developments.

The principal objectives of this paper are to analyze the impacts of the US-China trade war on overall welfare, political welfare, wages, and industry-specific outcomes such as output and trade flows within selected Asian economies. The study aims to investigate trade redirection and identify the most affected industries and economies within the regions under consideration. These insights are intended to assist in the development of strategic approaches to navigating the complexities of trade diversion and in crafting effective response to potential trade conflicts between the US and China, the world's two leading economies.

2. Literature Review

The US-China trade war has become a topic of extensive research in recent years, with scholars exploring various aspects of its impacts on global trade, economic stability, and policy implications. Studies by Amiti et al. (2019), Gentile et al. (2020) and Caliendo and Parro (2022) investigated the direct economic consequences of tariff escalations and trade barriers between the US and China, highlighting sectoral vulnerabilities and shifts in trade patterns.

In their 2022 study, Caliendo and Parro revealed that elevated tariffs have precipitated a reduction in trade activity, leading to a contraction of 0.1 percent in overall US welfare as measured by real income annually. Morover, the trade dispute has resulted in a 0.16 percent decrease in US real wages across the board. Additonally, Gentile et al. (2020) found contractions in trade flows, GDP, employment, consumption, and investment in both economies as well as observed trade diversion to other Asian economies, with Japan, Malaysia, Korea, and Vietnam benefiting the most. These findings highlight the critical need to

discern the distinct sectors and economies in the Asian region that are disproportionately impacted by the trade conflict.

Furthermore, the literature underscores the role of political economy considerations in shaping trade policy responses. Research by Grossman and Helpman (2020) explores how special interest politics influence tariff negotiations, optimal tariff calculations, and the distribution of gains and losses across different sectors and regions within Asia. This study illustrates the need for inclusive policy-making processes and stakeholder engagement in trade policy formulation.

3. Data

This study utilizes the WITS software, developed by the World Bank, as its primary data source, focusing on industry-level trade and tariff data for the year 2017. The trade figures primarily originate from the UN Comtrade database, whereas tariff information is retrieved from Trade Analysis Information System (TRAINS). Notably, the comprehensive datasets for Malaysia and Thailand in 2017 were unavailable, compelling the adoption of the most proximate temporal alternatives - 2016 data for Malaysia and 2015 figures for Thailand.

Additionally, the study incorporates the BACI dataset covering the period from 2002 to 2017 to estimate demand elasticities. Extracted from the UN Comtrade database, the BACI dataset provides an extensive international coverage. The process involved converting data from the Harmonized Systems (HS) 2002 data at the 6-digit level to the International Standard Industrial Classification (ICIS)

Revision 3 format at the4-digit level, using a concordance table available from the WITS. The analysis then involved an additional conversion to the ISIC Revision 4 at the 2-digit level, achieved through a custom-built concordance, grounded in the UN's Statistical Papers concerning ISIC-Rev4. A noteworthy aspect of this conversion process was the merging of original ISIC-Rev4 sectors "manufacturing of furniture" and "other manufacturing" into a new sector, labelled "other manufactures".

Furthermore, the MAcMap database provides direct measures of non-cooperative tariffs, which are essential for calibrating political economy weights. In particular, for the economies of China, Japan, the United States, Vietnam, and Taiwan, this study directly employs data extracted from the MAcMap database. This dataset offers comprehensive and consistent measures of tariff protection globally. The study focuses on the conversion of specific tariffs to their Ad Valorem Equivalents (AVE) values, a process of critical importance for the analysis of agricultural sectors. The original data, categorized at the HS 6-digit level, is transformed to the ISIC-Rev4 sector level using a concordance available from the WITS. In cases where non-cooperative tariffs are unavailable for other regions, trade-weighted average factual tariffs are adopted as an pragmatic substitute.

4. Methodology

4.1. Model Setup

This study employs the analytical framework established by Ossa (2014). It considers a model featuring *N* countries, indexed by *i* or *j*, and *S* industries, each denoted by index *s*. Within this framework, consumers have access to a continuum of differentiated products and exhibit Cobb-Douglas preferences across various sectors. Each sector is modelled according to the set up proposed by the Krugman (1980):

$$U_j = \prod_s \left(\sum_i \int_0^{M_{is}} x_{ijs}(\nu_{is})^{\frac{\sigma_s - 1}{\sigma_s}} d\nu_{is} \right)^{\frac{\sigma_s}{\sigma_s - 1}\mu_{js}}$$

The variables in this equation are defined as follows: x_{ijs} represents the quantity of industry *s* variety that country *i* consumes in country *j*; $M_{is}$is the mass of varieties produced in industry s of country *i*; σ_s denotes the elasticity of substitution between varieties within industry *s*, where $\sigma_s > 1$; and μ_{js} is the fraction of income in country *j* spent on varieties from industry *s*. Each variety is associated with a specific firm, and firms within industries are homogeneous. This implies that all firms within the same industry *s* in country *i* have the same iceberg trade cost d_{ijs} and productivity parameters φ_{is}. The preferences of the government are encapsulated by the following objective function:

$$G_j = \sum_s \lambda_{js} W_{js}$$

In the equation, W_{js} denotes the welfare of industry *s* in country *j*, while λ_{js} (where $\lambda_{js} \geq 0$) represents the political economy weight assigned to industry *s*

in country *j*. These weights are scaled such that $\frac{1}{S}\sum_s \lambda_{js}=1$. In this context, welfare is conceptualized as real income, defined by $W_j \equiv \frac{X_j}{P_j}$, where X_j symbolizes the nominal income of country *j*, comprising labor income, industry profit, and tariff revenue, P_j indicates the ideal price index in country *j*. The political economy weights signify that each dollar of income generated by industry *s* in country *j* is valued at λ_{js} times the importance of a dollar of income from an industry with average political support in the government's objective function. This concept of government preferences is an adoption of Grossman and Helpman's (1994) "protection for sale" theory, where industries with higher political weights receives greater consideration in the government's trade policy deliberations.

4.2 General Equilibrium Effects of Tariff Changes

To address the challenges associated with parameter estimation, this study adopts a methodology similar to that of Ossa (2014). The methodology involves reformulating the system to focus on changes, a technique previously utilized by Dekle et al. (2007). It is worth noting that in this system, industry profits and labor income are proportional to industry sales such that $X_j = \sum_i \sum_s \tau_{ijs} T_{ijs}$ and $\pi_{is} = \frac{1}{\sigma_s}\sum_j T_{ijs}$, in environment where markups are constant. Define $T_{ijs} \equiv M_{is}\tau_{ijs}^{-\sigma_s}\left(\frac{\sigma_s}{\sigma_s-1}\frac{d_{ijs}}{\varphi_{is}}\frac{w_i}{P_{js}}\right)^{1-\sigma_s}\mu_{js}X_j$, which represents the factual value of trade flow between country *i* and country *j* in the industry *s* evaluated at world prices. Next, define the share of export sales from country *i* to *j* as $\alpha_{ijs} \equiv T_{ijs}/\sum_n T_{ins}$, the share of import spending from country *j* to the source *i* as $\gamma_{ijs} \equiv$

$\left(\tau_{ijs}T_{ijs}\right)/\left(\sum_m \tau_{mjs}T_{mjs}\right)$, and the share of wage cost of sector *s* in country *i* as $\delta_{is} \equiv \left(\sum_j \frac{\sigma_s-1}{\sigma_s}T_{ijs}\right)/\left(\sum_t \sum_n \frac{\sigma_t-1}{\sigma_t}T_{int}\right)$. Subsequently, the equilibrium conditions can be expressed in terms of changes as follows:

$$\hat{\pi}_{is} = \sum_j \alpha_{ijs}\left(\hat{\tau}_{ijs}\right)^{-\sigma_s}\left(\frac{\widehat{w}_i}{\hat{P}_{js}}\right)^{1-\sigma_s}\hat{X}_j$$

$$\widehat{w}_i = \sum_s \delta_{is}\hat{\pi}_{is}$$

$$\hat{P}_{js} = \left(\sum_i \gamma_{ijs}\left(\widehat{w}_i\hat{\tau}_{ijs}\right)^{1-\sigma_s}\right)^{\frac{1}{1-\sigma_s}}$$

$$\hat{X}_j = \frac{w_jL_j}{X_j}\widehat{w}_j + \sum_i\sum_s \frac{t_{ijs}T_{ijs}}{X_j}\hat{t}_{ijs}\left(\hat{\tau}_{ijs}\right)^{-\sigma_s}\left(\frac{\widehat{w}_i}{\hat{P}_{js}}\right)^{1-\sigma_s}\hat{X}_j + \sum_s \frac{\pi_{js}}{X_j}\hat{\pi}_{js}$$

A notable limitation of the four reformulated equations lies in their reliance on a static model, which fails to account for aggregate trade imbalances. To mitigate this issue, the original data are adjusted by neutralizing aggregate trade imbalances. This adjustment is achieved by incorporating these imbalances as nominal transfers into budget constraints, allowing for their exogenous changes. As a result, the nominal income equation is transformed into the following form:

$$\hat{X}_j = \frac{w_jL_j}{X_j}\widehat{w}_j + \sum_i\sum_s \frac{t_{ijs}T_{ijs}}{X_j}\hat{t}_{ijs}\left(\hat{\tau}_{ijs}\right)^{-\sigma_s}\left(\frac{\widehat{w}_i}{\hat{P}_{js}}\right)^{1-\sigma_s}\hat{X}_j + \sum_s \frac{\pi_{js}}{X_j}\hat{\pi}_{js} - \frac{NX_j}{X_j}\widehat{NX}_j$$

,where $NX_i \equiv \sum_j \sum_s \left(T_{ijs} - T_{jis}\right)$ is taken from data.

4.3 Welfare Effects of Tariff Changes

The welfare effects can be then derived from $\widehat{W}_j = \hat{X}_j / \hat{P}_j$, where $\hat{P}_j = \prod_s (\hat{P}_{js})^{\mu_{js}}$ represents the aggregate changes in price index. The welfare in country *j* can approximately be broken down into to three elements: traditional terms-of-trade effects, new trade profits shifts resulting from changes in industry output, and a combined trade volume effect stemming from changes in import volume, like the approach Ossa (2014) adopted in his framework. Specifically, the percentage change in country *j*'s welfare is expressed as follows:

$$\frac{\Delta W_j}{W_j} \approx \sum_i \sum_s \frac{T_{ijs}}{X_j}\left(\frac{\Delta p_{js}}{p_{js}} - \frac{\Delta p_{is}}{p_{is}}\right) + \sum_s \frac{\pi_{js}}{X_j}\left(\frac{\Delta \pi_{js}}{\pi_{js}} - \frac{\Delta p_{js}}{p_{js}}\right) + \sum_i \sum_s \frac{t_{ijs} T_{ijs}}{X_j}\left(\frac{\Delta T_{ijs}}{T_j} - \frac{\Delta p_{is}}{p_{is}}\right)$$

5. Results and Discussion

5.1 Elasticity Estimation

It necessary to address the industry-level country-invariant CES demand elasticities at the outset. These elasticities are estimated following the methodology outlined by Feenstra (1994), with detailed procedures described in Feenstra (2010). The result are presented in Table 1.

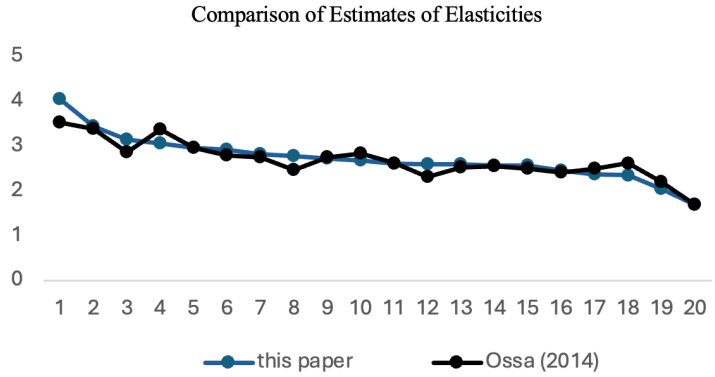
TABLE 1. PARAMETERS ESTIMATES

	σ_s	Low	Med	High
Other manufactures	4.06	4.15	5.93	7.71
Wearing apparel	3.45	3.53	5.04	6.56
Textiles	3.15	3.22	4.60	5.98
Leather products	3.07	3.14	4.49	5.83
Rubber and Plastics	2.97	3.04	4.34	5.65
Basic metal	2.92	3.00	4.28	5.57
Electrical equipment	2.83	2.90	4.14	5.38
Machinery and equipment	2.78	2.84	4.06	5.28
Motor vehicles and parts	2.73	2.79	3.98	5.18
Other transport equipment	2.69	2.75	3.93	5.11
Paper products	2.62	2.68	3.82	4.97
Wood products	2.60	2.66	3.80	4.94
Electronic and optical	2.59	2.65	3.79	4.93
Coke and refined petroleum	2.57	2.63	3.76	4.89
Agriculture and animals	2.57	2.63	3.76	4.89
Chemical products	2.45	2.51	3.58	4.66
Fabricated metal	2.37	2.42	3.46	4.50
Food and beverage	2.35	2.41	3.44	4.47
Forestry and logging	2.05	2.10	3.00	3.90
Other non-metallic mineral	1.69	1.73	2.48	3.22
Mean	2.73	2.79	3.98	5.18

Notes: The entries under "σ_s" are the estimated elasticities of substitution. The entries under "Low" until "High" are the recalculates using scaled versions of the original elasticity estimates for the later sensitivity test.

The observed variability in the elasticities aligns with the patterns seen in Ossa (2014), as illustrated in Figure 1. Additionally, the mean elasticity value of 2.73 is consistent with previous empirical findings in the literature. Columns 3 to 5 in Table 1 represent different scaling factors used for sensitivity analysis; these columns recalibrate the original elasticity estimates from column 1 using scaled versions based on the rage of aggregate trade elasticities suggested by Simonovska and Waugh (2014).

FIGURE 1. ESTIMATES OF ELASTICITIES



5.2 Political Weights Calibration

To calibrate the political weights, it is essential to match the cross-industry distribution of optimal tariffs with the distribution of non-cooperative tariffs, whenever such data are available. The political economy weights derived from this calibration are displayed in Table 2. The estimates generated from this process are highly credible. For instance, the three most favored US industries identified are wearing apparel, textiles, other manufacture, which aligns with the findings in Ossa's study. There is also significant correlation between the ranking of these political weights and the elasticities. This correlation can be understood by noting that governments without political motivations tend to impose lower tariffs on industries with higher elasticity due to profit shifting effects, as higher elasticity reduces the industry profitability. As a result, a completely flat schedule of observed non-cooperative tariffs could only be rationalized with higher political economy weights in higher elasticity industries. Furthermore, it is observed that non-cooperative tariffs are typically higher in industries with greater elasticity, as evidenced by the ranking of industry political weights in Table 2, suggesting that industries with higher elasticities tend to receive higher political weights.

TABLE 2. POLITICAL WEIGHTS

	λ_{CHN}	λ_{IND}	λ_{IDN}	λ_{JPN}	λ_{KOR}	λ_{MYS}	λ_{PHL}	λ_{ROW}	λ_{SGP}	λ_{TWN}	λ_{THA}	λ_{USA}	λ_{VNM}
Other manufactures	1.38	1.21	1.20	1.16	1.13	1.14	1.19	1.25	1.12	1.15	1.17	1.26	1.21
Wearing apparel	1.46	1.16	1.18	1.21	1.08	1.04	1.12	1.21	1.06	1.16	1.11	1.45	1.19
Textiles	1.32	1.11	1.08	1.10	1.06	1.10	1.10	1.14	1.02	1.10	1.07	1.25	1.08
Leather products	1.24	1.10	1.09	1.33	1.04	0.99	1.08	1.14	1.04	1.06	1.10	1.08	1.16
Rubber and plastics	1.03	1.08	1.08	1.04	1.02	1.13	1.08	1.07	1.00	1.05	1.04	1.11	1.10
Basic metal	0.70	1.04	1.04	1.04	0.99	1.05	1.03	0.99	1.00	1.00	0.97	0.97	1.00
Electrical equipment	1.01	1.04	1.02	0.98	0.99	0.96	1.02	0.99	1.00	1.00	0.98	1.09	1.07
Machinery and equipment	0.81	0.99	0.98	0.98	0.98	0.98	1.01	0.98	1.00	1.00	0.97	1.06	0.40
Motor vehicles and parts	1.30	1.05	1.01	0.97	0.98	1.11	1.02	1.03	1.00	1.06	1.14	0.97	1.19
Other transport equipment	0.85	1.00	0.99	0.94	0.93	0.97	1.02	0.98	1.00	0.98	0.98	0.97	1.07
Paper products	0.92	0.98	0.98	0.97	0.93	1.03	1.00	0.99	1.00	0.95	0.98	0.95	1.05
Wood products	0.94	0.95	0.98	0.98	0.98	1.08	0.99	1.00	1.00	0.97	0.98	0.93	1.03
Electronic and optical products	0.92	0.90	0.97	0.93	0.94	0.90	0.98	0.86	1.00	0.97	0.98	1.10	0.74
Coke and refined petroleum	0.72	0.96	0.99	0.94	0.91	0.93	0.97	0.97	1.00	0.96	0.98	0.76	0.96
Agriculture and animals	1.00	1.11	0.98	1.03	1.15	0.96	1.02	0.99	1.00	1.05	1.02	0.80	1.06
Chemical products	0.79	0.93	0.93	0.95	0.89	0.93	0.95	0.93	0.99	0.92	0.93	0.97	0.86
Fabricated metal	0.94	0.93	0.92	0.91	0.90	1.00	0.94	0.97	0.98	0.95	0.96	0.99	1.02
Food and beverage	1.12	0.99	1.12	1.10	1.21	0.96	0.97	0.99	0.97	1.06	1.04	0.76	1.06
Forestry and logging	0.82	0.81	0.82	0.81	1.22	0.82	0.84	0.81	0.95	0.85	0.87	0.73	0.88
Other mom-metallic mineral	0.72	0.66	0.65	0.64	0.68	0.93	0.67	0.71	0.85	0.76	0.72	0.80	0.88

5.3 Equilibrium Effects of 2019 US-China Trade War

The origin of the trade dispute can be traced to the growing US trade deficit with the People's Republic of China (PRC), which precipitated the conflict's commencement on March 22, 2018. By May 31, 2019, the US government had levied tariffs on Chinese goods amounting to $250 billion and threatened to impose additional tariffs on another $300 billion worth of imports. In retaliation, the PRC government implemented to impose additional tariffs on $110 billion worth of US goods and contemplated curtailing exports of rare-earth minerals to the US (Gentile et al., 2020). This section aims to perform a counterfactual analysis using the 2019 bilateral tariff escalations between the US and China to evaluate the trade war's repercussions on the selected Asian economies. The increased tariff rates, which include an additional 25 percent imposed by the PRC on nearly all US imports and reciprocal tariffs of 25 percent on specific categories of imports from China by the US, along with a 7.5 percent tariff on

other categories, are documented in official government publications (US Government, 2019; China Government, 2019).

TABLE 3. WELFARE AND WAGE EFFECTS OF 2019 US-CHINA TRADE WAR

	Δ Welfare	Δ Gvt. Welfare	Δ Terms-of-trade	ΔProfit shifting	Δ Wage
China	-0.29	-0.43	-13.42	4.82	-0.51
India	0.10	0.11	9.49	-1.07	0.63
Indonesia	0.09	0.11	10.35	-1.38	0.45
Japan	0.13	0.12	11.95	0.18	0.31
Korea	0.20	0.20	18.32	0.03	0.35
Malaysia	0.27	0.25	24.96	-0.42	0.46
Philippines	0.13	0.14	13.49	-0.74	0.44
ROW	0.01	0.01	0.68	0.00	0.53
Singapore	0.21	0.21	19.72	0.77	0.36
Taiwan	0.26	0.26	25.28	-0.15	0.38
Thailand	0.23	0.22	22.09	-0.35	0.41
US	-0.48	-0.29	-3.63	-4.69	-0.17
Vietnam	0.58	0.76	61.08	-4.68	0.82
Mean	0.11	0.13	15.41	-0.59	0.34

Notes: the entries under "Welfare" are the percentage changes in W, The entries under "Gvt. welfare" are the percentage changes in G, the entries under "Terms-of-trade" are the percentage changes in traditional terms-of-trade effects, the entries under "Profit shifting" are the percentage changes in new trade profits shifts resulting from changes in industry output, and the entries under "Wage" are the percentage changes in w normalized such that the average wage change across all countries is zero, and The last row reports averages.

Table 3 provides an overview of the key welfare and wage effects resulting from this trade policy counterfactual, where both the US and China experience declines in welfare and government welfare. Conversely, all other Asian economies witness improvements. Among these economies, Vietnam stands out with a notable 0.58 percent increase in its country welfare, potentially indicating significant benefits derived from the trade dispute.

In Table 3, in columns 4 and 5, offers a breakdown of the welfare effects into terms-of-trade effects and profit shifting effects. The terms-of-trade effects are directly associated with changes in relative wages. For instance, the negative terms-of-trade effects in China are due to a reduction in its relative wage,

whereas the positive effects in India arise from an increase in its relative wage. Differential profit shifting effects are resulted from variations in markups across industries, driven by differences in the elasticity of substitution. Specifically, when a country's output in a particular industry increases, the corresponding profit changes originating from changes in the industry output are uniformly positive for that industry, and conversely negative when output decreases. The aggregate profit shifting effect hinges on the net impact, being positive if more output increases occur in high-profitability sectors like chemicals and electronics, and negative if they occur in low-profitability sectors such as apparel, textiles, and leather products.

TABLE 4. OUTPUT CHANGE IN PERCENTAGE

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
Other manufactures	-3.41	-0.21	-0.15	-0.31	-0.48	-0.36	-0.23	-0.49	-0.18	0.01	-0.17	3.92	-0.80
Wearing apparel	-0.80	0.84	1.48	-1.01	-0.27	0.44	0.87	-0.01	-0.42	-0.31	0.24	7.40	0.37
Textiles	-2.46	3.04	1.28	-0.27	0.14	0.54	0.68	0.02	0.06	0.13	0.04	11.40	1.21
Leather products	-4.10	0.92	3.52	-0.61	-0.12	-0.74	1.98	0.00	-0.12	0.45	0.45	16.38	6.08
Rubber and plastics	0.77	-0.24	-0.22	-0.10	-0.09	-0.27	-0.26	-0.28	-0.14	-0.06	0.03	-0.54	-1.27
Basic metal	1.67	-0.53	-0.62	-0.18	-0.37	-0.52	-0.62	-0.79	-0.62	-0.51	-0.35	-7.23	-1.52
Electrical equipment	0.86	-0.34	-0.27	0.06	-0.01	-0.15	-0.07	0.26	-0.16	0.02	-0.05	-2.40	-1.16
Machinery and equipment	-1.18	-0.34	-0.54	0.28	0.27	0.08	0.02	1.05	0.05	0.34	0.37	0.81	-1.14
Motor vehicles and parts	-0.03	-0.13	-0.12	0.15	0.21	-0.28	-0.16	-0.14	0.05	-0.01	-0.17	0.99	-1.21
Other transport equipment	12.27	-0.46	0.20	0.11	0.11	-0.17	-0.23	3.19	0.22	0.53	-0.04	-5.68	-1.02
Paper products	1.26	-0.18	-0.45	-0.07	-0.13	-0.32	-0.24	-0.77	0.01	-0.31	-0.27	-0.71	-1.08
Wood products	1.81	-0.05	-0.13	-0.04	-0.08	-0.32	-0.27	-0.43	-0.15	-0.18	-0.12	-2.13	-1.20
Electronic and optical products	-4.87	-0.67	-0.05	-0.07	-0.01	0.69	0.11	0.71	0.01	-0.06	0.63	4.60	-0.26
Coke and refined petroleum	1.37	-0.19	-0.06	-0.07	-0.21	-0.20	-0.40	-0.01	0.09	-0.07	-0.06	-0.39	-0.83
Agriculture and animals	0.62	-0.03	-0.09	-0.13	-0.16	-0.20	-0.07	0.00	0.09	-0.20	-0.45	0.14	-0.78
Chemical products	1.49	-0.26	-0.14	0.11	0.26	-0.07	-0.20	0.07	0.28	0.27	0.12	-3.19	-0.91
Fabricated metal	0.20	-0.18	-0.41	-0.15	-0.19	-0.52	-0.31	-0.54	-0.28	-0.12	-0.27	1.17	-1.09
Food and beverage	0.84	-0.16	-0.12	-0.10	-0.27	-0.36	-0.15	0.00	-0.06	-0.20	-0.24	-0.11	-1.02
Forestry and logging	0.49	-0.01	-0.02	0.00	0.00	-0.02	-0.01	0.00	-0.17	-0.01	0.00	0.62	-0.11
Other mom-metallic mineral	0.44	-0.04	-0.13	-0.08	-0.23	-0.51	-0.09	-0.22	-0.21	-0.35	-0.10	0.56	-0.50

Table 4 details the industry output changes as a percentage, ranking industries from those with the highest to lowest elasticities. The table reveals that several economies—including India, Indonesia, Malaysia, the Philippines, the United States, and Vietnam—experience output increases predominantly in low-profitability sectors like textiles, apparel, and leather products. Consequently, their profit shifting effects are negative, attributed to the higher elasticities

within these sectors. In contrast, even though Taiwan and Thailand observe increases in chemicals and electronics, their predominant output growth in low-profitability areas results in negative profit shifting effects. On the other hand, Japan, Korea, and Singapore benefit from output increases in higher-profitability sectors such as chemicals, electrical equipment, and machinery, which leads to positive profit shifting effects. China's output growth is concentrated in sectors with lower elasticities, such as chemicals, refined petroleum, metals, and other transport equipment, leading to positive profit shifting effects for China.

The overall welfare effects differ from the sum of the terms-of-trade and profit-shifting effects across all examined economics. A significant contributing factor overlooked is the trade volume effect, as detailed in Section 4.3. However, attributing the entire discrepancy to this factor alone would be inadequate. The decrease in import volumes in the protected industries results in a loss of tariff revenue, which is roughly counterbalanced by gains in tariff revenue from increased import volumes in other industries. This discrepancy primarily stems from the fact that the equation in Section 4.3 provides a rough approximation, being derived from a linearization around factual data. Specifically, the overall reduction in imports resulting from increased tariffs also diminishes the import shares, subsequently impacts the leverage on the improvements in relative world prices. This consequential effect is not accounted for in the equation presented in Section 4.3, as changes in import shares are considered second-order effects.

TABLE 5. TRADE FLOW CHANGE IN PERCENT

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.99	2.05	1.67	1.46	1.51	1.56	1.70	1.54	1.49	1.44	1.49	-28.98	1.81
India	-0.93	0.50	-0.19	-0.64	-0.57	-0.27	-0.17	-0.45	-0.33	-0.35	-0.44	4.85	0.02
Indonesia	-0.36	0.74	0.33	-0.24	-0.14	0.10	0.23	0.15	-0.09	-0.14	-0.07	6.19	0.41
Japan	0.28	0.73	0.27	0.14	0.06	0.19	0.33	-0.01	0.10	0.03	0.08	3.27	0.40
Korea	0.36	0.69	0.17	0.04	0.07	0.14	0.25	-0.08	0.10	-0.01	0.00	3.51	0.29
Malaysia	0.11	0.57	0.07	-0.19	-0.19	0.20	0.09	-0.25	-0.10	-0.18	-0.15	4.94	0.36
Philippines	0.15	0.50	0.12	-0.19	-0.20	-0.05	0.27	-0.24	-0.08	-0.25	-0.15	5.09	0.27
ROW	0.21	0.50	0.05	-0.31	-0.29	-0.14	0.00	0.53	-0.22	-0.31	-0.25	2.69	0.31
Singapore	0.46	0.54	0.20	-0.01	-0.04	0.17	0.25	-0.11	-0.04	-0.08	0.02	2.90	0.60
Taiwan	0.32	0.53	0.08	-0.07	-0.07	0.02	0.17	-0.20	0.04	0.04	-0.08	3.94	0.22
Thailand	-0.01	0.57	0.21	-0.09	-0.05	0.12	0.28	-0.10	-0.01	-0.08	0.19	4.29	0.40
US	-36.50	1.62	1.13	0.88	0.87	0.96	1.13	0.89	0.79	0.79	0.89	3.55	1.42
Vietnam	-0.93	-0.11	-0.69	-1.17	-0.88	-0.64	-0.44	-0.70	-0.72	-0.85	-0.73	7.78	0.20

Table 5 shows the impact of trade conflict between the US and China on international trade flows. The findings reveal that in response to reduced import form China, the US has predominantly shifted its sourcing to Indonesia, the Philippines, and Vietnam. Conversely, China has replaced its imports previously sourced from the US with goods from Singapore, Korea, Taiwan, and Japan. Additionally, almost all economies experienced an expansion in their exports to the US, serving as substitutes for goods previously imported from China.

Moreover, China's exports to India, Vietnam, and the rest of the world (ROW) have seen substantial increases. Similarly, domestic trade within the US has expanded significantly, outpacing its exports to other countries. Detailed industry-level changes in trade flows are documented in the Appendix. Notably, China increases its imports of wood products, chemicals, rubber and plastics, electronics, electrical equipment, machinery, and other transport equipment from Japan, Korea, Taiwan, and Singapore.

5.4 Equilibrium Effects of US-China Applying Optimal Tariffs

The computation of optimal tariffs, as depicted in Figure 2 and 3 using the mathematical programming method proposed by Su and Judd (2012), provides valuable insights into the tariff dynamics between the US and China. These bilaterally optimal tariffs represent the levels that each country would theoretically impose in the absence of any fear of retaliation. The results reveal that China's average optimal tariff is 74.9 percent without lobbying influences, which escalates to 77.8 percent when lobbying is considered. Conversely, the average optimal tariff for the US is 70.4 percent without lobbying, increasing to 74.6 percent with lobbying. Notably, the actual trade war tariffs enforced by both countries are substantially lower than these optimal tariff levels. Specifically, the existing tariffs that China imposes on US imports are approximately 40 percent below the calculated optimal level, while the US's current tariffs on China imports have are about 53 percent lower.

FIGURE 2. OPTIMAL TARIFFS WITHOUT LOBBYING

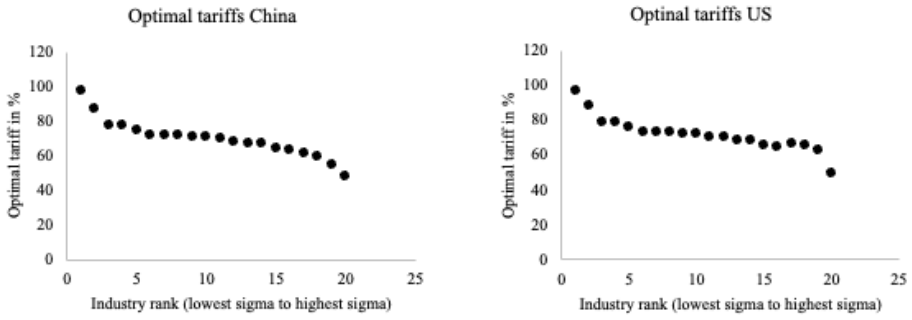
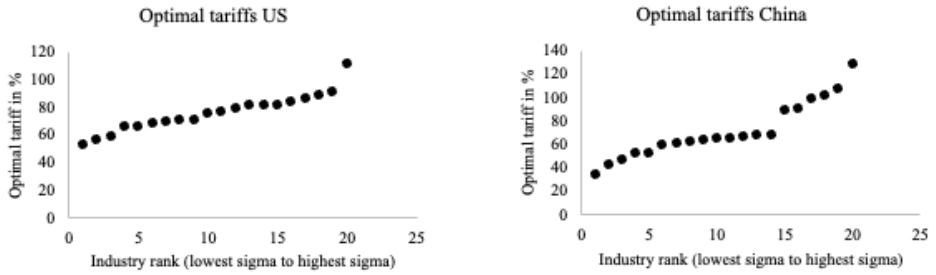


FIGURE 3. OPTIMAL TARIFFS WITH LOBBYING



Considering the statements from the US former President Donald Trump, who has secured enough delegates to win his party's presidential nominations and is set for the 2024 election, concerning a potential escalation of tariffs on imports from China up to 60 percent, it is imperative to analyze the potential impacts on Asian economies if both the US and China further increase their tariffs to the optimal level. This analysis is critically important for understanding the broader economic ramifications and strategic implications for Asian economies amidst escalating trade tensions between the world's two largest economies.

TABLE 6. WELFARE AND WAGE EFFECTS OF ESCALATED TARIFFS

	Δ Welfare	Δ Gvt. welfare	Δ Terms-of-trade	ΔProfit shifting	Δ Wage
Panel A. US and China apply optimal tariffs without lobbying					
China	-1.13	-1.13	-53.09	11.46	-2.15
India	0.28	0.28	28.44	-4.64	1.85
Indonesia	0.25	0.25	29.85	-5.64	1.06
Japan	0.27	0.27	23.17	0.88	0.62
Korea	0.27	0.27	23.44	-0.82	0.57
Malaysia	0.56	0.56	52.84	-3.94	0.94
Philippines	0.30	0.30	31.95	-3.13	1.01
ROW	0.02	0.02	1.46	-0.01	1.45
Singapore	0.08	0.08	4.21	1.91	0.59
Taiwan	0.22	0.22	21.07	-1.48	0.52
Thailand	0.47	0.47	48.78	-3.17	0.83
United States	-1.81	-1.81	54.64	-16.89	1.74
Vietnam	1.62	1.62	176.42	-21.49	2.04
Mean	0.11	0.11	34.09	-3.61	0.85
Panel B. US and China apply optimal tariffs with lobbying					
China	-1.21	-1.56	-69.75	13.60	-2.88
India	0.35	0.44	36.69	-6.98	2.38
Indonesia	0.32	0.40	37.81	-8.27	1.24
Japan	0.27	0.25	21.94	1.06	0.60
Korea	0.18	0.21	14.12	-1.69	0.46
Malaysia	0.58	0.59	54.56	-5.18	0.95
Philippines	0.32	0.36	35.54	-4.51	1.08
ROW	0.02	0.02	1.51	-0.04	1.68
Singapore	-0.15	-0.15	-21.04	2.10	0.48
Taiwan	0.02	0.06	1.47	-2.70	0.34
Thailand	0.49	0.53	52.34	-5.13	0.85
United States	-2.07	-1.43	92.32	-21.73	3.01
Vietnam	2.06	3.25	228.54	-31.91	2.52
Mean	0.09	0.23	37.31	-5.54	0.95
σ_{mean}	Δ Welfare	Δ Gvt. welfare	Δ Terms-of-trade	ΔProfit shifting	Δ Wage
Panel C. Sensitivity of optimal tariffs w.r.t. σ_s					
Without lobbying (all values are means)					
2.79	0.10	0.10	33.85	-3.57	0.84
3.98	0.05	0.05	29.31	-2.90	0.70
5.18	0.02	0.02	25.27	-2.42	0.59
With lobbying (all values are means)					
2.79	0.09	0.23	37.00	-5.43	0.97
3.98	0.04	0.17	31.26	-3.89	0.77
5.18	0.01	0.13	26.35	-2.95	0.63

Notes: the entries under "Welfare" are the percentage changes in *W*, The entries under "Gvt. welfare" are the percentage changes in *G*, the entries under "Terms-of-trade" are the percentage changes in traditional terms-of-trade effects, the entries under "Profit shifting" are the percentage changes in new trade profits shifts resulting from changes in industry output, and the entries under "Wage" are the percentage changes in *w* normalized such that the average wage change across all countries is zero, and The last rows of panel A and panel B report averages. Panel C reports only such averages.

Panel A of Table 6 delineates the aggregate welfare and wage effects under the baseline scenario, wherein political economy weights (λ_{is}) are standardized at unity across all industries and nations, ensuring parity between changes in government welfare and overall welfare. In this scenario of an escalated trade

war, the US and China both incur further welfare reductions. Conversely, with the exception of Taiwan and Singapore, other Asian economies register elevated welfare gains relative to those observed during the 2019 trade war, as detailed in Panel A of Table 3.

Such outcome denotes diminished terms-of-trade effects for Singapore and Taiwan. Operating within the framework of a constant markup, these terms-of-trade effects parallel relative wage effects. Table 6 shows that both Taiwan and Singapore exhibit the minimal increases in relative wage, indicating lower benefits from the relative gains in the world prices of their production bundles. In this escalated trade war scenario, Taiwan endures exacerbated negative profit shifting effects in comparison to the tariffs from the 2019 trade war. Conversely, Singapore sees an increase in profit shifting effects relative to the 2019 baseline. The divergent outcomes between the two economies are reflective of differences in their industrial compositions: Taiwan augments its output more substantially in sectors with higher elasticities, such as wearing apparel, leather products, and other manufactures, as evidenced in Table 7. Singapore, on the contrary, heightens its output in sectors of greater profitability yet lower elasticities, such as paper products and chemicals.

Intuitively, the reasons for Taiwan and Singapore benefiting less in the more intensified trade war scenario compared to the 2019 situation can be multifaceted. Primarily, industries within these countries, particularly electronics and technology, are subjected to steeper tariffs due to their low elasticities, as depicted in Figure 2. This aspect is crucial given their robust

engagement in these sectors, which heightens their vulnerability to tariff hikes. Additionally, their roles as intermediaries in the US-China trade disputes, encompassing product assembly and value-adding services, render them more sensitive to trade disruptions and resultant cost increments. Lastly, their considerable reliance on trade flows between the US and China predisposes them to the detrimental impacts of heightened tariffs levied by these principal trade entities.

TABLE 7. OUTPUT CHANGE IN PERCENTAGE WITHOUT LOBBYING

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
Other manufactures	-14.40	2.27	1.35	-0.83	-0.71	1.24	-0.21	0.40	1.30	3.76	1.17	13.13	2.68
Wearing apparel	-5.45	5.49	9.91	-3.42	-0.62	5.72	5.70	0.01	-0.75	0.71	2.80	29.02	7.86
Textiles	-2.77	5.01	1.38	-2.17	-0.37	0.06	0.92	0.02	-0.50	-0.53	-0.76	19.09	0.00
Leather products	-5.94	1.24	6.21	-2.27	-0.76	-2.36	3.63	-0.02	-0.60	0.64	0.35	27.91	10.33
Rubber and plastics	-1.71	-0.48	0.10	-0.47	0.17	0.83	-0.33	1.25	-0.29	1.27	1.92	3.45	-2.04
Basic metal	3.29	-1.86	-2.56	-0.82	-0.90	-1.13	-2.15	-2.73	-3.34	-1.29	-0.46	-11.65	-3.91
Electrical equipment	-1.25	-0.60	-0.65	0.47	0.73	0.24	0.17	3.66	0.16	0.21	0.22	-0.86	-2.36
Machinery and equipment	-0.51	-1.61	-1.73	0.24	0.25	0.00	-0.47	1.41	-0.10	0.32	0.42	0.54	-4.93
Motor vehicles and parts	3.09	-0.37	-0.36	1.08	1.91	-0.64	-0.44	0.51	0.91	1.15	-0.18	-5.46	-3.21
Other transport equipment	26.21	-0.56	0.97	2.65	1.97	1.05	0.42	7.16	3.53	4.18	1.84	-11.71	-1.23
Paper products	2.22	-0.46	-1.79	-0.10	-0.01	-0.75	-0.35	-2.13	0.41	-0.34	-0.79	-1.45	-3.14
Wood products	2.55	-0.11	-0.45	-0.08	-0.16	-0.82	-0.83	-0.89	-0.19	-0.12	-2.17	-2.49	-4.41
Electronic and optical products	-7.12	-2.47	-0.65	-0.77	-0.86	1.09	-0.63	1.01	-0.38	-0.81	1.23	8.49	-1.69
Coke and refined petroleum	2.63	-0.58	-0.11	0.15	-0.02	-0.33	-1.35	-0.02	0.35	0.51	-0.16	-1.43	-2.58
Agriculture and animals	1.14	-0.07	-0.20	0.17	0.27	-0.57	-0.16	0.00	0.78	0.26	-1.54	-1.26	-1.66
Chemical products	4.15	-0.88	-0.98	0.08	-0.12	-0.89	-0.67	-0.20	0.58	0.02	-0.66	-7.20	-3.47
Fabricated metal	-2.01	-0.21	-1.00	-0.44	-0.30	-1.14	-0.72	-0.45	-0.46	1.47	0.05	5.20	-2.33
Food and beverage	1.67	-0.53	-0.34	-0.02	0.04	-0.86	0.17	0.00	0.27	0.27	-0.32	-1.09	-2.97
Forestry and logging	0.72	-0.03	-0.07	0.01	-0.01	-0.05	-0.04	0.00	0.05	-0.02	-0.04	0.74	-0.40
Other mom-metallic mineral	0.04	-0.06	-0.45	-0.24	-0.72	-1.81	-0.28	0.24	-0.52	-0.90	-0.25	2.66	-1.34

Panel B of Table 6 presents the implications for welfare and relative wages emanating from the implementation of optimal tariffs, as calculated using the estimated political economy weights for the US and China. The optimal tariff with lobbying is depicted in Figure 3. The structure of Panel B in Table 6 is congruent with that of Panel A, allowing for a comparative analysis of the ramifications of optimal tariffs with and without the influence lobbying. Upon comparing the last rows of Panel A and Panel B, and considering the average optimal tariffs depicted in Figure 2 and 3, it becomes apparent that the aggregate implications of optimal tariffs with lobbying are similar to those of optimal

tariffs without lobbying. Nevertheless, discernible differences are present. The average optimal tariffs are marginally elevated under lobbying, indicative of a distribution of tariffs skewed by political considerations. A salient consequence of the optimal tariffs with lobbying is the near elimination of profit shifting effects. This change occurs because the cross-industry distribution of tariffs is now primarily influenced by political factors rather than economic considerations alone.

Panel C of Table 6 offers a sensitivity analysis of the results presented in panel A and B, scrutinizing the varying scaling versions of the elasticity of substitution. This examination utilizes the data from Table 1, columns 3 to 5. The welfare effects observed in Panel B demonstrate a decreasing trend with elasticities, which aligns with the intuition that lower elasticities grant countries more monopoly power, enabling them to benefit more in global markets.

Panel A of Table 8 provides an analysis of the impacts of an escalation in tariffs on international trade flows without lobbying. The observed outcome, which are of greater magnitude relative to those of the 2019 trade war, signal pronounced shifts in trade patterns. Notably, the US has redirected imports previously obtained from China, with Vietnam, Indonesia, and the Philippines filling the void, noting increases of 24.95 percent, 22.62 percent, and 20.57 percent, respectively. In tandem, nearly all economies experience an expansion in their exports to the US as substitutes for the imports formerly sourced from China. Additionally, China's export dynamics shift, with marked increases in

trade with India, Vietnam, and the ROW, alongside a notable uptick in its internal trade, which outstrips its exports to other nations.

TABLE 8. TRADE FLOW CHANGEIN PERCENTAGE OF AN ESCALATION IN TARIFFS

Panel A. Trade flow change in % without lobbying

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.97	7.12	5.35	4.79	4.82	5.00	5.49	5.89	5.08	4.59	4.81	-68.03	5.42
India	-6.56	1.44	-1.32	-2.52	-2.56	-1.68	-1.11	-0.95	-1.24	-1.93	-1.98	17.50	-0.96
Indonesia	-3.92	2.50	0.71	-0.96	-0.90	-0.17	0.52	1.06	-0.33	-0.93	-0.46	22.62	0.66
Japan	-2.10	2.50	0.47	0.29	-0.05	0.21	0.77	1.14	0.45	-0.16	-0.08	12.63	0.52
Korea	-1.77	2.78	0.50	0.32	0.17	0.53	0.87	1.19	0.36	-0.07	0.01	13.74	0.50
Malaysia	-2.46	2.21	0.14	-0.47	-0.59	0.32	0.32	-0.10	-0.09	-0.65	-0.48	17.74	0.73
Philippines	-2.70	1.78	0.04	-0.73	-0.85	-0.32	0.56	-0.25	-0.66	-0.92	-0.80	20.57	0.25
ROW	-2.96	1.67	-0.37	-1.24	-1.37	-1.01	-0.37	1.45	-0.70	-1.59	-1.20	11.37	0.15
Singapore	-1.77	2.21	0.60	0.31	0.03	0.47	0.90	0.75	0.64	-0.06	0.41	12.73	1.43
Taiwan	-1.75	2.39	0.45	0.22	0.00	0.39	0.92	0.51	0.33	0.14	0.02	16.85	0.57
Thailand	-2.85	2.12	0.46	-0.27	-0.31	0.14	0.72	0.70	0.09	-0.42	0.34	16.58	0.71
US	-70.41	0.98	-0.89	-1.31	-1.59	-1.44	-0.69	-0.45	-0.97	-1.59	-1.39	10.10	-0.16
Vietnam	-5.48	0.13	-2.20	-3.59	-2.91	-2.05	-1.32	-1.70	-2.21	-2.92	-2.27	24.95	0.35

Panel B. Trade flow change in % with lobbying

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.29	9.41	6.79	5.96	5.94	6.21	6.81	7.66	6.37	5.63	5.99	-73.75	6.79
India	-9.51	1.84	-2.03	-3.64	-3.76	-2.66	-1.85	-1.36	-1.91	-3.00	-2.96	23.75	-1.61
Indonesia	-6.13	3.38	0.79	-1.46	-1.46	-0.52	0.41	1.33	-0.60	-1.53	-0.81	31.12	0.68
Japan	-3.83	3.53	0.60	0.29	-0.18	0.14	0.85	1.85	0.60	-0.34	-0.19	16.32	0.58
Korea	-3.46	4.06	0.76	0.46	0.18	0.71	1.11	2.02	0.44	-0.12	0.05	17.90	0.69
Malaysia	-4.18	3.22	0.28	-0.59	-0.78	0.28	0.37	0.09	-0.08	-0.89	-0.62	22.75	0.96
Philippines	-4.45	2.63	0.08	-0.99	-1.16	-0.47	0.57	-0.14	-1.01	-1.25	-1.10	26.69	0.28
ROW	-5.42	2.51	-0.46	-1.65	-1.87	-1.43	-0.60	1.67	-0.86	-2.23	-1.62	15.26	0.17
Singapore	-3.65	3.26	0.91	0.52	0.11	0.61	1.18	1.37	1.09	-0.02	0.68	16.66	1.86
Taiwan	-3.24	3.59	0.80	0.43	0.08	0.63	1.30	1.07	0.47	0.16	0.16	21.93	0.89
Thailand	-4.68	3.05	0.62	-0.40	-0.49	0.06	0.79	1.20	0.10	-0.66	0.31	21.78	0.89
US	-67.44	0.00	-2.59	-3.15	-3.59	-3.43	-2.45	-1.80	-2.52	-3.53	-3.26	11.76	-1.66
Vietnam	-8.07	0.32	-2.98	-4.83	-4.06	-2.88	-1.96	-2.32	-3.08	-4.10	-3.15	33.36	0.34

In Panel B of Table 8, the examination of the impacts of an escalation in tariffs on international trade flows with lobbying, reveals analogous trends. The proportion of US imports previously sourced from China is once again predominantly redirected to Vietnam, Indonesia, and the Philippines, this time with even larger increases of 33.36 percent, 31.12 percent, and 26.69 percent, respectively. Correspondingly, China's exports to India, Vietnam, and the Rest of the World (ROW) exhibit higher growth compared to Panel A, with specific increments of 9.41 percent, 6.79 percent, and 7.33 percent, respectively.

In summary, the structure of trade diversion to other Asian economies under an escalated tariff war mirrors that of the 2019 trade war, but with higher magnitudes, except for Singapore and Taiwan. Vietnam, Indonesia, the Philippines, and Malaysia benefit significantly from export-competing sectors to China, such as textiles, wearing apparel, and leather products. Conversely, Japan, Korea, Singapore, and Taiwan gain from export-competing sectors to the US, such as electronics, electrical equipment, chemicals, and motor vehicles. However, sectors that supply to China might confront adversities, particularly those within basic metals, fabricated metal, and other non-metallic minerals.

6. Potential Trade Policies

6.1 Zero Tariffs Between Japan and Singapore

Despite the existing free trade agreement between Japan and Singapore, Japanese tariffs on imports from Singapore are not entirely eliminated. This section discusses the potential removal of these tariffs, considering the comparatively lower welfare gains for Singapore during a heightened tariff conflict, akin to the 2019 US-China trade war.

The analysis conducted in this paper indicates that if Japan were to remove tariffs from the imports from Singapore, the overall welfare of Singapore would substantially increase without negatively impacting Japan. Specifically, the overall welfare of Singapore, without lobbying efforts, would increase from 0.08 percent to 0.26 percent under the intensified US-China trade war scenario, as illustrated in panel A of Table 9. This improvement is primarily driven by favorable terms-of-trade and profit-shifting effects, particularly benefiting

sectors where Singapore holds a comparative advantage, such as electronics, precision machinery, and equipment. Consequently, output in these sectors would likely increase. The potential economic benefits of a truly tariff-free agreement with Japan are substantial, especially in the context of global trade tensions. Additionally, the paper considers the impact of lobbying efforts, which could further mitigate welfare losses in Singapore from -0.15 percent to -0.02 percent, as shown in Panel B of Table 9, without detriment to Japan.

TABLE 9. EFFECTS OF FREE TRADE AGREEMENT BETWEEN SINGAPORE AND JAPAN

	Δ Welfare	Δ Gvt. welfare	Δ Terms-of-trade	ΔProfit shifting	Δ Wage
Panel A. Without lobbying					
China	-1.13	-1.13	-53.16	11.46	-2.15
India	0.28	0.28	28.41	-4.64	1.85
Indonesia	0.24	0.24	28.80	-5.88	1.03
Japan	0.27	0.27	22.67	0.75	0.61
Korea, Rep.	0.27	0.27	23.41	-0.82	0.57
Malaysia	0.55	0.55	52.34	-3.96	0.95
Philippines	0.30	0.30	31.77	-3.12	1.01
ROW	0.02	0.02	1.46	-0.01	1.45
Singapore	0.26	0.26	19.18	5.06	0.75
Taiwan, China	0.22	0.22	20.95	-1.48	0.52
Thailand	0.47	0.47	48.35	-3.21	0.83
United States	-1.81	-1.81	54.66	-16.90	1.74
Vietnam	1.61	1.61	175.99	-21.46	2.04
Mean	0.12	0.12	34.99	-3.40	0.86
Panel B. With lobbying					
China	-1.21	-1.56	-69.80	13.60	-2.88
India	0.35	0.44	36.67	-6.97	2.38
Indonesia	0.31	0.40	37.68	-8.26	1.25
Japan	0.26	0.24	21.44	0.93	0.59
Korea, Rep.	0.18	0.21	14.12	-1.68	0.46
Malaysia	0.58	0.59	54.23	-5.82	0.96
Philippines	0.32	0.36	34.37	-4.50	1.08
ROW	0.02	0.02	1.50	-0.04	1.68
Singapore	-0.02	-0.03	-10.75	4.39	0.59
Taiwan, China	0.02	0.06	1.42	-2.71	0.34
Thailand	0.49	0.52	52.08	-5.15	0.85
United States	-2.07	-1.43	92.32	-21.73	3.01
Vietnam	2.06	3.24	228.23	-31.89	2.52
Mean	0.10	0.24	37.96	-5.37	0.99

Notes: the entries under "Welfare" are the percentage changes in *W*, The entries under "Gvt. welfare" are the percentage changes in *G*, the entries under "Terms-of-trade" are the percentage changes in traditional terms-of-trade effects, the entries under "Profit shifting" are the percentage changes in new trade profits shifts resulting from changes in industry output, and the entries under "Wage" are the percentage changes in *w* normalized such that the average wage change across all countries is zero, and The last rows in panel A and panel B report averages.

Overall, the implementation of zero-tariff trade relations between Japan and Singapore is a strategic approach that holds considerable promise in enhancing

Singapore’s economic welfare and fortifying its economic resilience amidst escalating global trade tensions between the US and China.

6.2 Free trade agreement between Taiwan and Korea

In section 5.4, the paper highlights the comparatively modest welfare gains for Taiwan under an escalated tariff war, in contrast to the dynamics witnessed during the 2019 US-China trade dispute. In light of these findings, the paper contemplates the advantages that could accrue from a free trade agreement between Taiwan and Korea.

The study indicates that the establishment of a free trade agreement between Taiwan and Korea could yield significant welfare benefits. In the absence of lobbying, the projection is that Taiwan's welfare could rise from 0.22 percent to 0.43 percent, even under the scenario of an escalated US-China trade conflict. The assessment incorporating lobbying activities suggests a potential increase in Taiwan’s welfare from 0.02 percent to 0.23 percent, with no detrimental effects on Korea. These projections are illustrated in Panels A and B of Table 10, respectively.

The underlying rationale for these enhancements lies in the close trade relations between Taiwan and Korea, particularly in sectors such as semiconductor and memory manufacturing where both nations' industries are mutually complementary. Taiwan's intermediary functions in the electronics and precision equipment sectors, with product assembly and the provision of value-added services, align with Korea's requirements. Given that both countries hold

competitive strengths in technologically advanced products, the proposed free trade agreement is anticipated to be reciprocal in its economic benefits.

TABLE 10. EFFECTS OF FREE TRADE AGREEMENT BETWEEN TAIWAN AND KOREA

	Δ Welfare	Δ Gvt. welfare	Δ Terms-of-trade	ΔProfit shifting	Δ Wage
Panel A. Without lobbying					
China	-1.14	-1.14	-53.70	11.46	-2.16
India	0.28	0.28	28.33	-4.64	1.84
Indonesia	0.25	0.25	29.64	-5.64	1.05
Japan	0.26	0.26	22.58	0.85	0.61
Korea, Rep.	0.27	0.27	22.36	-0.34	0.55
Malaysia	0.55	0.55	51.95	-3.95	0.94
Philippines	0.30	0.30	31.51	-3.13	1.01
ROW	0.02	0.02	1.46	-0.01	1.44
Singapore	0.04	0.04	0.54	1.92	0.58
Taiwan, China	0.43	0.43	41.45	-1.69	0.79
Thailand	0.47	0.47	48.03	-3.18	0.83
United States	-1.82	-1.82	54.22	-16.92	1.73
Vietnam	1.59	1.59	174.02	-21.51	2.03
Mean	0.12	0.12	34.80	-3.60	0.86
Panel B. With lobbying					
China	-1.21	-1.56	-70.36	13.60	-2.88
India	0.35	0.44	36.58	-6.99	2.37
Indonesia	0.31	0.40	37.61	-8.27	1.24
Japan	0.26	0.24	21.35	1.03	0.59
Korea, Rep.	0.18	0.21	13.03	-1.21	0.45
Malaysia	0.57	0.58	53.67	-5.82	0.95
Philippines	0.31	0.36	34.09	-4.50	1.08
ROW	0.02	0.02	1.50	-0.04	1.67
Singapore	-0.18	-0.18	-24.72	2.10	0.47
Taiwan, China	0.23	0.27	21.86	-2.90	0.61
Thailand	0.49	0.52	51.60	-5.13	0.85
United States	-2.08	-1.44	91.91	-21.75	3.00
Vietnam	2.04	3.23	226.15	-31.94	2.50
Mean	0.10	0.24	38.02	-5.52	0.99

Notes: the entries under "Welfare" are the percentage changes in *W*, The entries under "Gvt. welfare" are the percentage changes in *G*, the entries under "Terms-of-trade" are the percentage changes in traditional terms-of-trade effects, the entries under "Profit shifting" are the percentage changes in new trade profits shifts resulting from changes in industry output, and the entries under "Wage" are the percentage changes in *w* normalized such that the average wage change across all countries is zero, and The last rows in panel A and panel B report averages.

6.3 Zero Tariffs between China and Vietnam

Within the landscape of the US-China trade conflict, Vietnam is posited as the primary beneficiary among the selected Asian economies, even in the intensified trade war scenario. It is intriguing to consider the strategies Vietnam might leverage to augment its advantageous position amidst this trade war. This paper's analysis posits that the adoption of a zero-tariff policy between Vietnam and China could confer reciprocal benefits: curtailing China's trade losses and amplifying Vietnam's economic gains.

TABLE 11. EFFECTS OF FREE TRADE AGREEMENT BETWEEN CHINA AND VIETNAM

	Δ Welfare	Δ Gvt. welfare	Δ Terms-of-trade	ΔProfit shifting	Δ Wage
Panel A. Under the 2019 US-China Trade War					
China	-0.28	-0.42	-12.58	4.60	-0.48
India	0.10	0.11	9.25	-1.10	0.61
Indonesia	0.09	0.10	9.93	-1.41	0.43
Japan	0.12	0.12	11.35	0.20	0.29
Korea, Rep.	0.18	0.17	15.94	0.35	0.31
Malaysia	0.25	0.24	23.99	-0.39	0.44
Philippines	0.13	0.14	13.42	-0.76	0.43
ROW	0.01	0.01	0.67	0.00	0.52
Singapore	0.20	0.20	18.74	0.71	0.33
Taiwan, China	0.24	0.24	23.44	0.21	0.35
Thailand	0.21	0.20	19.90	-0.27	0.37
United States	-0.48	-0.29	-4.07	-4.73	-0.18
Vietnam	0.67	0.87	66.29	-1.47	0.88
Mean	0.11	0.13	15.10	-0.31	0.33
Panel B. Without lobbying					
China	-1.12	-1.12	-52.13	11.24	-2.12
India	0.28	0.28	28.17	-4.66	1.83
Indonesia	0.25	0.25	29.42	-5.66	1.04
Japan	0.26	0.26	22.58	0.89	0.61
Korea, Rep.	0.25	0.25	21.05	-0.48	0.52
Malaysia	0.55	0.55	51.86	-3.91	0.92
Philippines	0.30	0.30	31.90	-3.14	1.00
ROW	0.02	0.02	1.45	-0.01	1.44
Singapore	0.07	0.07	3.30	1.84	0.57
Taiwan, China	0.20	0.20	19.30	-1.12	0.48
Thailand	0.45	0.45	46.52	-3.09	0.79
United States	-1.82	-1.82	54.01	-16.93	1.72
Vietnam	1.69	1.69	180.55	-18.53	2.09
Mean	0.11	0.11	33.69	-3.35	0.84
Panel C. With lobbying					
China	-1.20	-1.54	-68.76	13.38	-2.84
India	0.35	0.43	36.42	-7.00	2.36
Indonesia	0.31	0.40	37.37	-8.29	1.22
Japan	0.26	0.24	21.35	1.07	0.59
Korea, Rep.	0.16	0.19	11.71	-1.34	0.42
Malaysia	0.57	0.58	53.57	-5.77	0.93
Philippines	0.32	0.36	34.49	-4.52	1.07
ROW	0.02	0.02	1.49	-0.04	1.66
Singapore	-0.16	-0.16	-21.96	2.03	0.46
Taiwan, China	0.01	0.04	-0.31	-2.34	0.30
Thailand	0.47	0.50	50.05	-5.05	0.81
United States	-2.08	-1.44	91.67	-21.75	2.99
Vietnam	2.13	3.33	232.20	-29.07	2.56
Mean	0.09	0.23	36.87	-5.28	0.96

Notes: the entries under "Welfare" are the percentage changes in *W*, The entries under "Gvt. welfare" are the percentage changes in *G*, the entries under "Terms-of-trade" are the percentage changes in traditional terms-of-trade effects, the entries under "Profit shifting" are the percentage changes in new trade profits shifts resulting from changes in industry output, and the entries under "Wage" are the percentage changes in *w* normalized such that the average wage change across all countries is zero. The last rows of panel A, B, and C report averages.

Table 11 shows the impact of the 2019 US-China trade war on welfare and wages. Panel A demonstrates that under this scenario, Vietnam's overall welfare would incrementally increase from 0.58 percent to 0.67 percent, while China's economic losses would marginally diminish from -0.29 percent to -0.28 percent.

Panels B and C further illustrate the effects under an exacerbated US-China trade war scenario with elevated tariffs. Without lobbying, Vietnam's welfare would escalate from 1.62 percent to 1.69 percent, concurrently with a slight contraction in China's losses from -1.13 percent to -1.12 percent. With lobbying efforts, Vietnam's gains would advance from 2.06 percent to 2.13 percent, and China would see a nominal reduction in losses from -1.21 percent to -1.20 percent.

The reason this zero-tariff adjustment could be mutually beneficial is that China has been China has been Vietnam’s largest trading partner for many years, and Vietnam is China’s largest trading partner within the ASEAN. Their bilateral trade has been characterized by increasingly synergistic industrial and supply chain collaborations. China serves as a vital market for Vietnamese agricultural exports, while Vietnam primarily engages in the assembly and testing of Chinese-imported goods, with notable industries including computers, machinery, and chemicals. A zero-tariff accord, in light of their tightening trade relations, would likely be beneficial for both countries.

6.4 RCEP Under the Trade Tensions Between the US and China

Notably, amid the trade tensions between the US and China, the suggested trade policies predominantly advocate for free trade among Asian economies. This stance is aligned with the Regional Comprehensive Economic Partnership (RCEP), a recently ratified free trade agreement among 15 Asia-Pacific nations. The ensemble includes China, Japan, Korea, Singapore, and Vietnam, and the agreement commenced on the 1st of January, 2022. The RCEP aims to reduce

roughly 90% of tariffs on imports between its members over the course of 20 years, as well as to introduce standardized regulations for e-commerce, trade, and intellectual property, according to the Ministry of Trade and Industry Singapore, 2024.

The trade policies proposed in response to the potential escalation of the US-China trade war indicate that the RECP will moderate the impacts of the trade war by enhancing gains and reduce losses for the Asian economies. This underscores the urgency of leveraging the RCEP to accelerate the implementation of tariff reduction and zero tariffs among its members. This strategic approach aims to enhance gains and reduce losses amid heightened trade tensions between major global economies.

7. Conclusion

The ongoing trade tensions between the US and China have far-reaching implications for economies and industries across Asia, prompting the need for strategic analysis and policy adjustments for Asian economies to navigate the challenges of an uncertain global trade climate effectively.

The findings reveal several key insights. Firstly, all Asian economies considered experienced a modest welfare gain under the 2019 US and China trade dispute and a scenario that US and China were to further raise their bilateral tariffs to optimal levels. Furthermore, the structure of trade diversion to other Asian economies under an escalated tariff war mirrors that of the 2019 trade war, but with higher magnitudes, except for Singapore and Taiwan. Vietnam, Indonesia,

and Philippines benefit significantly from export-competing sectors to China, such as textiles, wearing apparel, and leather products. Conversely, Japan, Korea, Singapore, and Taiwan gain from export-competing sectors to the US, such as electronics, electrical equipment, chemicals, and motor vehicles. However, sectors that supply to China may face challenges, such as basic metals, fabricated metal, and other non-metallic minerals.

Additionally, the paper proposes potential trade policy directions for Asian economies amidst escalating trade tensions, primarily those arising from the US-China trade conflict. The recommended trade policy adjustments suggest that the RCEP has the potential to soften the adverse effects of the trade war and its possible intensification on Asian nations. This accentuates the critical need for harnessing the RCEP to hasten the enactment of tariff reductions and the move towards zero tariffs among its member states amid trade uncertainties.

In summation, the research detailed in this paper provides critical insights into the ramifications of the US-China trade war for Asian economies and puts forth pragmatic trade policy suggestions to bolster welfare, ensure economic stability, and encourage regional cooperation in the face of complex global trade conditions. Through the strategic utilization of trade agreements and policy reforms, Asian economies may better navigate risks and seize opportunities for sustained growth and progress amidst ongoing trade volatility.

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Appendix

S1. AGRICULTURE AND ANIMALS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.13	2.44	1.92	1.48	1.57	1.92	1.92	2.18	1.57	1.62	1.79	-42.20	2.61
India	-1.65	0.62	0.11	-0.32	-0.23	0.11	0.11	0.37	-0.23	-0.18	-0.02	-0.01	0.79
Indonesia	-1.37	0.91	0.40	-0.03	0.05	0.40	0.40	0.66	0.05	0.10	0.27	0.28	1.08
Japan	-1.16	1.12	0.61	0.18	0.27	0.61	0.62	0.88	0.27	0.32	0.49	0.49	1.29
Korea	-1.22	1.06	0.54	0.12	0.20	0.54	0.55	0.81	0.20	0.25	0.42	0.43	1.22
Malaysia	-1.39	0.88	0.37	-0.06	0.03	0.37	0.38	0.63	0.03	0.08	0.25	0.25	1.05
Philippines	-1.36	0.91	0.40	-0.02	0.06	0.40	0.41	0.67	0.06	0.11	0.28	0.29	1.08
ROW	-1.50	0.78	0.27	-0.16	-0.08	0.27	0.27	0.53	-0.08	-0.03	0.14	0.15	0.95
Singapore	-1.23	1.05	0.54	0.11	0.20	0.54	0.55	0.80	0.20	0.25	0.42	0.42	1.22
Taiwan	-1.27	1.01	0.50	0.07	0.15	0.50	0.50	0.76	0.15	0.20	0.37	0.38	1.18
Thailand	-1.30	0.97	0.46	0.03	0.12	0.46	0.47	0.73	0.12	0.17	0.34	0.34	1.14
US	-31.25	1.89	1.37	0.94	1.03	1.37	1.38	1.64	1.03	1.08	1.25	1.25	2.06
Vietnam	-1.94	0.32	-0.19	-0.61	-0.53	-0.19	-0.18	0.08	-0.53	-0.48	-0.31	-0.30	0.49

S2. FORESTRY AND LOGGING

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	-0.01	1.84	1.45	1.18	1.27	1.49	1.45	1.64	1.07	1.32	1.37	-12.49	2.17
India	-1.21	0.63	0.24	-0.03	0.06	0.28	0.24	0.42	-0.14	0.12	0.17	0.25	0.95
Indonesia	-1.02	0.82	0.43	0.16	0.25	0.48	0.43	0.62	0.05	0.31	0.36	0.44	1.15
Japan	-0.87	0.97	0.58	0.31	0.40	0.62	0.58	0.76	0.20	0.45	0.50	0.58	1.30
Korea	-0.92	0.92	0.53	0.26	0.35	0.58	0.53	0.72	0.15	0.41	0.46	0.54	1.25
Malaysia	-1.03	0.80	0.42	0.15	0.24	0.46	0.41	0.60	0.04	0.29	0.34	0.42	1.13
Philippines	-1.01	0.83	0.44	0.17	0.26	0.48	0.44	0.62	0.06	0.31	0.36	0.45	1.15
ROW	-1.10	0.73	0.35	0.08	0.17	0.39	0.34	0.53	-0.03	0.22	0.27	0.35	1.06
Singapore	-0.92	0.92	0.53	0.26	0.35	0.57	0.53	0.71	0.15	0.41	0.46	0.54	1.25
Taiwan	-0.95	0.89	0.50	0.23	0.32	0.54	0.50	0.68	0.12	0.38	0.43	0.51	1.22
Thailand	-0.97	0.86	0.48	0.21	0.30	0.52	0.47	0.66	0.10	0.35	0.40	0.48	1.19
US	-31.33	1.48	1.09	0.82	0.90	1.13	1.08	1.27	0.70	0.96	1.01	1.09	1.81
Vietnam	-1.40	0.43	0.04	-0.22	-0.14	0.09	0.04	0.23	-0.34	-0.08	-0.03	0.05	0.76

S3. FOOD AND BEVERAGE

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.49	2.12	1.71	1.33	1.25	1.65	1.59	1.95	1.41	1.43	1.50	-38.18	2.19
India	-1.04	0.56	0.16	-0.22	-0.30	0.10	0.04	0.39	-0.14	-0.12	-0.05	0.35	0.63
Indonesia	-0.80	0.81	0.40	0.02	-0.05	0.34	0.29	0.64	0.11	0.12	0.20	0.60	0.88
Japan	-0.61	1.00	0.59	0.21	0.14	0.53	0.47	0.83	0.30	0.31	0.38	0.79	1.06
Korea	-0.67	0.94	0.53	0.15	0.08	0.47	0.42	0.77	0.24	0.25	0.32	0.73	1.00
Malaysia	-0.82	0.79	0.38	0.00	-0.07	0.32	0.27	0.62	0.09	0.10	0.17	0.58	0.85
Philippines	-0.79	0.82	0.41	0.03	-0.04	0.35	0.30	0.65	0.12	0.13	0.20	0.61	0.88
ROW	-0.91	0.70	0.29	-0.09	-0.16	0.23	0.18	0.53	0.00	0.01	0.08	0.49	0.76
Singapore	-0.67	0.94	0.53	0.15	0.07	0.47	0.41	0.76	0.23	0.25	0.32	0.73	1.00
Taiwan	-0.71	0.90	0.49	0.11	0.04	0.43	0.38	0.73	0.20	0.21	0.28	0.69	0.96
Thailand	-0.74	0.87	0.46	0.08	0.01	0.40	0.35	0.70	0.17	0.18	0.25	0.66	0.93
US	-38.08	1.65	1.24	0.86	0.79	1.18	1.13	1.48	0.95	0.96	1.03	1.44	1.72
Vietnam	-1.29	0.31	-0.10	-0.47	-0.55	-0.16	-0.21	0.14	-0.39	-0.37	-0.30	0.10	0.37

S4. COKE AND REFINED PETROLEUM

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.85	2.37	1.92	1.53	1.48	1.86	1.54	2.18	1.71	1.75	1.81	-42.77	2.14
India	-0.94	0.55	0.11	-0.27	-0.32	0.05	-0.26	0.37	-0.09	-0.05	0.00	-0.17	0.33
Indonesia	-0.65	0.84	0.40	0.02	-0.03	0.34	0.03	0.66	0.19	0.23	0.29	0.11	0.62
Japan	-0.44	1.05	0.61	0.23	0.19	0.56	0.24	0.88	0.41	0.45	0.51	0.33	0.83
Korea	-0.51	0.99	0.55	0.16	0.12	0.49	0.17	0.81	0.34	0.38	0.44	0.26	0.77
Malaysia	-0.68	0.81	0.37	-0.01	-0.05	0.31	0.00	0.63	0.17	0.21	0.26	0.09	0.59
Philippines	-0.65	0.85	0.41	0.02	-0.02	0.35	0.03	0.67	0.20	0.24	0.30	0.12	0.63
ROW	-0.78	0.71	0.27	-0.11	-0.16	0.21	-0.10	0.53	0.07	0.10	0.16	-0.02	0.49
Singapore	-0.51	0.98	0.54	0.16	0.11	0.48	0.17	0.80	0.34	0.38	0.43	0.26	0.76
Taiwan	-0.55	0.94	0.50	0.12	0.07	0.44	0.13	0.76	0.30	0.33	0.39	0.21	0.72
Thailand	-0.59	0.90	0.46	0.08	0.04	0.41	0.09	0.73	0.26	0.30	0.35	0.18	0.68
US	-42.21	1.82	1.37	0.99	0.94	1.32	1.00	1.64	1.17	1.21	1.26	1.09	1.60
Vietnam	-1.23	0.25	-0.18	-0.56	-0.61	-0.24	-0.55	0.08	-0.39	-0.35	-0.29	-0.47	0.03

S5. TEXTILES

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.66	2.86	1.85	1.19	1.77	1.53	2.27	2.79	1.69	1.64	1.87	-37.36	1.74
India	-1.77	0.37	-0.61	-1.26	-0.69	-0.93	-0.20	0.30	-0.77	-0.82	-0.59	17.36	-0.72
Indonesia	-1.39	0.77	-0.22	-0.87	-0.30	-0.54	0.19	0.69	-0.38	-0.43	-0.20	17.82	-0.33
Japan	-1.10	1.06	0.08	-0.58	-0.01	-0.24	0.49	0.99	-0.09	-0.14	0.10	18.17	-0.04
Korea	-1.19	0.97	-0.02	-0.67	-0.10	-0.34	0.39	0.90	-0.18	-0.23	0.00	18.06	-0.13
Malaysia	-1.42	0.73	-0.25	-0.90	-0.34	-0.57	0.16	0.66	-0.42	-0.46	-0.23	17.78	-0.36
Philippines	-1.38	0.78	-0.21	-0.86	-0.29	-0.53	0.20	0.71	-0.37	-0.42	-0.19	17.83	-0.32
ROW	-1.56	0.59	-0.39	-1.04	-0.48	-0.71	0.02	0.52	-0.56	-0.61	-0.37	17.61	-0.51
Singapore	-1.20	0.96	-0.02	-0.68	-0.11	-0.34	0.39	0.89	-0.19	-0.24	0.00	18.05	-0.13
Taiwan	-1.25	0.91	-0.08	-0.73	-0.17	-0.40	0.33	0.83	-0.25	-0.29	-0.06	17.98	-0.19
Thailand	-1.30	0.86	-0.13	-0.78	-0.21	-0.45	0.28	0.79	-0.29	-0.34	-0.11	17.93	-0.24
US	-47.76	2.11	1.11	0.45	1.02	0.79	1.53	2.04	0.94	0.89	1.13	19.39	1.00
Vietnam	-2.17	-0.03	-1.01	-1.65	-1.09	-1.32	-0.60	-0.10	-1.17	-1.22	-0.99	16.89	-1.12

S6. WEARING APPARELS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.06	3.44	2.64	1.23	2.20	1.50	2.72	3.11	1.77	1.80	2.38	-13.09	2.43
India	-2.70	0.59	-0.18	-1.55	-0.61	-1.29	-0.11	0.27	-1.03	-1.01	-0.44	5.76	-0.39
Indonesia	-2.26	1.04	0.26	-1.11	-0.17	-0.85	0.34	0.72	-0.58	-0.56	0.01	6.23	0.06
Japan	-1.93	1.38	0.60	-0.78	0.17	-0.51	0.68	1.06	-0.25	-0.23	0.34	6.59	0.39
Korea	-2.03	1.28	0.50	-0.88	0.06	-0.62	0.57	0.95	-0.36	-0.34	0.24	6.48	0.28
Malaysia	-2.30	1.01	0.23	-1.15	-0.20	-0.89	0.30	0.68	-0.62	-0.60	-0.03	6.19	0.02
Philippines	-2.25	1.06	0.28	-1.10	-0.15	-0.84	0.35	0.73	-0.57	-0.55	0.02	6.25	0.07
ROW	-2.46	0.84	0.06	-1.31	-0.37	-1.05	0.14	0.51	-0.78	-0.76	-0.19	6.02	-0.15
Singapore	-2.04	1.27	0.49	-0.89	0.06	-0.63	0.56	0.94	-0.36	-0.34	0.23	6.47	0.28
Taiwan	-2.11	1.20	0.42	-0.96	-0.01	-0.69	0.50	0.87	-0.43	-0.41	0.16	6.40	0.21
Thailand	-2.16	1.15	0.37	-1.01	-0.06	-0.75	0.44	0.82	-0.48	-0.46	0.11	6.34	0.16
US	-49.36	2.58	1.79	0.39	1.35	0.66	1.87	2.25	0.93	0.95	1.53	7.85	1.58
Vietnam	-3.14	0.13	-0.64	-2.00	-1.07	-1.74	-0.57	-0.19	-1.48	-1.46	-0.89	5.28	-0.85

S7. LEATHER PRODUCTS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.39	2.92	2.16	1.35	1.79	1.56	2.28	2.70	1.38	1.75	2.02	-33.63	2.15
India	-1.95	0.52	-0.22	-1.01	-0.58	-0.81	-0.11	0.31	-0.98	-0.62	-0.35	20.12	-0.24
Indonesia	-1.58	0.90	0.16	-0.64	-0.21	-0.43	0.27	0.69	-0.61	-0.25	0.02	20.57	0.14
Japan	-1.30	1.19	0.44	-0.35	0.08	-0.15	0.56	0.98	-0.33	0.04	0.31	20.92	0.43
Korea	-1.38	1.10	0.35	-0.44	-0.01	-0.24	0.46	0.89	-0.42	-0.05	0.22	20.81	0.34
Malaysia	-1.61	0.87	0.12	-0.67	-0.24	-0.47	0.24	0.66	-0.64	-0.28	-0.01	20.53	0.11
Philippines	-1.56	0.91	0.17	-0.63	-0.20	-0.42	0.28	0.70	-0.60	-0.24	0.03	20.59	0.15
ROW	-1.74	0.73	-0.01	-0.81	-0.38	-0.60	0.10	0.52	-0.78	-0.42	-0.15	20.37	-0.03
Singapore	-1.39	1.09	0.34	-0.45	-0.02	-0.25	0.46	0.88	-0.42	-0.06	0.21	20.80	0.33
Taiwan	-1.44	1.03	0.29	-0.51	-0.07	-0.30	0.40	0.82	-0.48	-0.11	0.16	20.73	0.27
Thailand	-1.49	0.99	0.24	-0.55	-0.12	-0.35	0.36	0.78	-0.52	-0.16	0.11	20.68	0.23
US	-47.62	2.20	1.44	0.64	1.07	0.84	1.56	1.98	0.67	1.03	1.31	22.12	1.43
Vietnam	-2.33	0.13	-0.61	-1.39	-0.97	-1.19	-0.49	-0.08	-1.37	-1.01	-0.74	19.65	-0.62

S8. WOOD PRODUCTS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	1.80	2.44	1.96	1.59	1.67	1.80	1.69	1.63	1.53	1.63	1.58	-15.02	1.84
India	-0.04	0.59	0.11	-0.25	-0.17	-0.04	-0.15	-0.21	-0.31	-0.21	-0.25	0.27	0.00
Indonesia	0.26	0.88	0.41	0.04	0.12	0.25	0.15	0.08	-0.01	0.09	0.04	0.57	0.29
Japan	0.48	1.10	0.63	0.27	0.34	0.47	0.37	0.30	0.21	0.31	0.26	0.79	0.51
Korea	0.41	1.03	0.56	0.19	0.27	0.40	0.30	0.23	0.14	0.24	0.19	0.72	0.44
Malaysia	0.23	0.86	0.38	0.02	0.10	0.23	0.12	0.06	-0.04	0.06	0.02	0.54	0.27
Philippines	0.27	0.89	0.41	0.05	0.13	0.26	0.15	0.09	-0.01	0.09	0.05	0.58	0.30
ROW	0.13	0.75	0.27	-0.09	-0.01	0.12	0.01	-0.05	-0.14	-0.05	-0.09	0.44	0.16
Singapore	0.40	1.03	0.55	0.19	0.27	0.40	0.29	0.23	0.13	0.23	0.19	0.72	0.44
Taiwan	0.36	0.98	0.51	0.15	0.22	0.35	0.25	0.19	0.09	0.19	0.14	0.67	0.40
Thailand	0.32	0.95	0.47	0.11	0.19	0.32	0.21	0.15	0.05	0.15	0.11	0.64	0.36
US	-43.32	1.88	1.40	1.04	1.11	1.24	1.14	1.08	0.98	1.08	1.03	1.56	1.29
Vietnam	-0.33	0.29	-0.19	-0.55	-0.47	-0.34	-0.44	-0.51	-0.60	-0.50	-0.55	-0.02	-0.30

S9. PAPER PRODUCTS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.95	2.33	1.84	1.59	1.63	1.73	1.76	1.51	1.69	1.54	1.62	-15.67	2.14
India	-0.89	0.47	-0.01	-0.27	-0.23	-0.12	-0.09	-0.34	-0.16	-0.31	-0.23	0.03	0.28
Indonesia	-0.60	0.76	0.28	0.03	0.07	0.17	0.20	-0.04	0.13	-0.02	0.06	0.33	0.57
Japan	-0.38	0.99	0.51	0.25	0.29	0.40	0.43	0.18	0.35	0.20	0.29	0.55	0.79
Korea	-0.45	0.92	0.43	0.18	0.22	0.33	0.35	0.11	0.28	0.13	0.21	0.48	0.72
Malaysia	-0.62	0.74	0.26	0.00	0.04	0.15	0.18	-0.07	0.11	-0.04	0.04	0.30	0.55
Philippines	-0.59	0.77	0.29	0.04	0.08	0.18	0.21	-0.04	0.14	-0.01	0.07	0.34	0.58
ROW	-0.73	0.63	0.15	-0.10	-0.06	0.04	0.07	-0.18	0.00	-0.15	-0.07	0.20	0.44
Singapore	-0.45	0.91	0.43	0.18	0.22	0.32	0.35	0.10	0.28	0.13	0.21	0.48	0.72
Taiwan	-0.50	0.87	0.39	0.13	0.17	0.28	0.31	0.06	0.24	0.08	0.17	0.43	0.68
Thailand	-0.53	0.83	0.35	0.10	0.14	0.24	0.27	0.02	0.20	0.05	0.13	0.40	0.64
US	-37.17	1.77	1.29	1.03	1.07	1.18	1.20	0.95	1.13	0.98	1.06	1.33	1.58
Vietnam	-1.19	0.17	-0.31	-0.57	-0.53	-0.42	-0.39	-0.64	-0.46	-0.61	-0.53	-0.27	-0.03

S10. CHEMICAL PRODUCTS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	2.35	1.81	1.53	1.27	1.24	1.49	1.61	1.26	1.26	1.27	1.34	-39.47	1.76
India	0.67	0.14	-0.14	-0.39	-0.42	-0.18	-0.06	-0.40	-0.40	-0.39	-0.32	1.68	0.09
Indonesia	0.94	0.40	0.12	-0.13	-0.16	0.09	0.21	-0.14	-0.14	-0.13	-0.05	1.95	0.36
Japan	1.14	0.60	0.32	0.07	0.04	0.29	0.41	0.06	0.06	0.07	0.15	2.16	0.56
Korea	1.07	0.54	0.26	0.01	-0.02	0.22	0.34	0.00	0.00	0.01	0.08	2.09	0.50
Malaysia	0.91	0.38	0.10	-0.15	-0.18	0.06	0.18	-0.16	-0.16	-0.15	-0.08	1.93	0.34
Philippines	0.94	0.41	0.13	-0.12	-0.15	0.09	0.21	-0.13	-0.13	-0.12	-0.05	1.96	0.37
ROW	0.82	0.28	0.01	-0.25	-0.28	-0.03	0.09	-0.26	-0.26	-0.25	-0.17	1.83	0.24
Singapore	1.07	0.54	0.26	0.00	-0.03	0.22	0.34	-0.01	-0.01	0.00	0.08	2.09	0.49
Taiwan	1.03	0.50	0.22	-0.04	-0.07	0.18	0.30	-0.05	-0.05	-0.03	0.04	2.05	0.45
Thailand	1.00	0.46	0.19	-0.07	-0.10	0.15	0.27	-0.08	-0.08	-0.07	0.01	2.01	0.42
US	-39.40	1.30	1.02	0.77	0.74	0.99	1.11	0.76	0.76	0.77	0.84	2.87	1.26
Vietnam	0.40	-0.13	-0.41	-0.66	-0.69	-0.45	-0.33	-0.67	-0.67	-0.66	-0.59	1.41	-0.18

S11. RUBBER AND PLASTICS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	1.87	2.67	2.03	1.76	1.84	1.83	2.07	1.44	1.54	1.71	1.67	-15.70	1.98
India	-0.39	0.39	-0.24	-0.50	-0.42	-0.43	-0.20	-0.81	-0.72	-0.55	-0.59	1.44	-0.28
Indonesia	-0.03	0.75	0.12	-0.14	-0.06	-0.08	0.16	-0.46	-0.36	-0.19	-0.23	1.81	0.08
Japan	0.24	1.03	0.39	0.13	0.21	0.20	0.43	-0.19	-0.09	0.08	0.04	2.08	0.35
Korea	0.15	0.94	0.30	0.05	0.13	0.11	0.35	-0.27	-0.18	-0.01	-0.05	2.00	0.26
Malaysia	-0.06	0.72	0.09	-0.17	-0.09	-0.11	0.13	-0.49	-0.39	-0.22	-0.26	1.78	0.05
Philippines	-0.02	0.76	0.13	-0.13	-0.05	-0.07	0.17	-0.45	-0.35	-0.18	-0.22	1.82	0.09
ROW	-0.19	0.59	-0.04	-0.30	-0.22	-0.24	0.00	-0.62	-0.52	-0.35	-0.39	1.64	-0.08
Singapore	0.15	0.93	0.30	0.04	0.12	0.10	0.34	-0.28	-0.18	-0.01	-0.05	1.99	0.26
Taiwan	0.10	0.88	0.25	-0.01	0.07	0.05	0.29	-0.33	-0.23	-0.06	-0.10	1.94	0.21
Thailand	0.05	0.84	0.20	-0.06	0.03	0.01	0.24	-0.37	-0.28	-0.11	-0.15	1.89	0.16
US	-45.45	1.98	1.34	1.08	1.16	1.14	1.38	0.76	0.86	1.03	0.99	3.05	1.30
Vietnam	-0.76	0.02	-0.61	-0.86	-0.78	-0.80	-0.57	-1.18	-1.08	-0.91	-0.95	1.07	-0.65

S12. OTHER NON-METALLIC MINERAL

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.05	1.39	1.04	0.83	0.83	0.94	1.01	0.91	0.92	0.86	0.95	-9.52	1.45
India	-0.74	0.59	0.24	0.04	0.03	0.15	0.21	0.12	0.12	0.07	0.15	0.96	0.66
Indonesia	-0.61	0.71	0.37	0.16	0.16	0.27	0.34	0.25	0.25	0.20	0.28	1.08	0.78
Japan	-0.52	0.81	0.46	0.26	0.26	0.37	0.44	0.34	0.34	0.29	0.37	1.18	0.88
Korea	-0.55	0.78	0.43	0.23	0.23	0.34	0.41	0.31	0.31	0.26	0.34	1.15	0.85
Malaysia	-0.62	0.70	0.36	0.15	0.15	0.26	0.33	0.24	0.24	0.19	0.27	1.07	0.77
Philippines	-0.61	0.72	0.37	0.17	0.16	0.28	0.35	0.25	0.25	0.20	0.28	1.09	0.79
ROW	-0.67	0.66	0.31	0.11	0.10	0.22	0.28	0.19	0.19	0.14	0.22	1.03	0.73
Singapore	-0.55	0.78	0.43	0.23	0.22	0.34	0.41	0.31	0.31	0.26	0.34	1.15	0.85
Taiwan	-0.57	0.76	0.41	0.21	0.21	0.32	0.39	0.29	0.29	0.24	0.32	1.13	0.83
Thailand	-0.58	0.74	0.40	0.19	0.19	0.30	0.37	0.28	0.28	0.23	0.31	1.11	0.81
US	-29.00	1.15	0.80	0.59	0.59	0.70	0.77	0.68	0.68	0.63	0.71	1.52	1.21
Vietnam	-0.87	0.46	0.11	-0.09	-0.10	0.02	0.08	-0.01	-0.01	-0.06	0.02	0.83	0.52

S13. BASIC METAL

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	1.22	2.62	1.88	1.83	1.53	1.75	1.60	1.66	1.77	1.66	1.65	-16.52	1.75
India	-0.98	0.39	-0.34	-0.38	-0.68	-0.46	-0.61	-0.55	-0.44	-0.54	-0.56	0.33	-0.46
Indonesia	-0.63	0.74	0.01	-0.03	-0.33	-0.11	-0.25	-0.20	-0.09	-0.19	-0.21	0.69	-0.11
Japan	-0.37	1.01	0.28	0.23	-0.06	0.15	0.01	0.06	0.18	0.07	0.05	0.96	0.15
Korea	-0.45	0.92	0.20	0.15	-0.15	0.07	-0.07	-0.02	0.09	-0.01	-0.03	0.87	0.07
Malaysia	-0.66	0.71	-0.02	-0.06	-0.36	-0.14	-0.28	-0.23	-0.12	-0.22	-0.24	0.66	-0.14
Philippines	-0.62	0.75	0.02	-0.02	-0.32	-0.10	-0.24	-0.19	-0.08	-0.18	-0.20	0.70	-0.10
ROW	-0.79	0.58	-0.14	-0.19	-0.48	-0.27	-0.41	-0.36	-0.24	-0.35	-0.37	0.53	-0.27
Singapore	-0.46	0.92	0.19	0.14	-0.15	0.07	-0.08	-0.03	0.09	-0.02	-0.04	0.87	0.06
Taiwan	-0.51	0.86	0.14	0.09	-0.20	0.01	-0.13	-0.08	0.04	-0.07	-0.09	0.81	0.01
Thailand	-0.55	0.82	0.10	0.05	-0.25	-0.03	-0.17	-0.12	-0.01	-0.11	-0.13	0.77	-0.03
US	-47.23	1.94	1.21	1.16	0.86	1.08	0.94	0.99	1.11	1.00	0.98	1.89	1.08
Vietnam	-1.34	0.02	-0.70	-0.74	-1.03	-0.82	-0.96	-0.91	-0.80	-0.90	-0.92	-0.03	-0.82

S14. FABRICATED METAL

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.40	2.05	1.27	1.31	1.37	1.26	1.44	1.22	1.18	1.39	1.15	-13.33	1.65
India	-1.15	0.47	-0.29	-0.25	-0.20	-0.30	-0.13	-0.35	-0.38	-0.18	-0.42	0.90	0.08
Indonesia	-0.90	0.72	-0.04	0.00	0.05	-0.05	0.12	-0.10	-0.13	0.07	-0.17	1.16	0.33
Japan	-0.71	0.91	0.14	0.18	0.24	0.14	0.31	0.09	0.06	0.26	0.02	1.35	0.51
Korea	-0.77	0.85	0.08	0.12	0.18	0.08	0.25	0.03	0.00	0.20	-0.04	1.29	0.45
Malaysia	-0.92	0.70	-0.06	-0.03	0.03	-0.07	0.10	-0.12	-0.15	0.05	-0.19	1.13	0.30
Philippines	-0.89	0.73	-0.04	0.00	0.06	-0.05	0.13	-0.09	-0.12	0.08	-0.16	1.16	0.33
ROW	-1.01	0.61	-0.16	-0.12	-0.06	-0.16	0.01	-0.21	-0.24	-0.04	-0.28	1.04	0.21
Singapore	-0.78	0.84	0.08	0.12	0.18	0.07	0.25	0.03	-0.01	0.19	-0.04	1.28	0.45
Taiwan	-0.81	0.81	0.04	0.08	0.14	0.04	0.21	-0.01	-0.04	0.16	-0.08	1.24	0.41
Thailand	-0.84	0.78	0.01	0.05	0.11	0.01	0.18	-0.04	-0.07	0.13	-0.11	1.21	0.38
US	-38.60	1.57	0.80	0.84	0.90	0.79	0.97	0.75	0.71	0.92	0.68	2.01	1.17
Vietnam	-1.40	0.21	-0.55	-0.51	-0.45	-0.56	-0.38	-0.60	-0.64	-0.44	-0.67	0.65	-0.18

S15. ELECTRONIC AND OPTICAL PRODUCTS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	1.58	1.69	1.50	1.22	1.40	1.45	1.73	1.18	1.32	1.37	1.43	-39.39	1.55
India	-0.25	-0.14	-0.32	-0.60	-0.43	-0.37	-0.10	-0.64	-0.50	-0.45	-0.39	6.08	-0.28
Indonesia	0.04	0.15	-0.03	-0.31	-0.14	-0.08	0.20	-0.36	-0.21	-0.16	-0.10	6.39	0.01
Japan	0.26	0.37	0.19	-0.09	0.08	0.13	0.41	-0.14	0.01	0.06	0.12	6.62	0.23
Korea	0.19	0.30	0.12	-0.16	0.01	0.07	0.34	-0.21	-0.06	-0.01	0.05	6.55	0.16
Malaysia	0.02	0.12	-0.06	-0.34	-0.16	-0.11	0.17	-0.38	-0.24	-0.18	-0.13	6.36	-0.01
Philippines	0.05	0.16	-0.02	-0.30	-0.13	-0.08	0.20	-0.35	-0.20	-0.15	-0.09	6.40	0.02
ROW	-0.09	0.02	-0.16	-0.44	-0.27	-0.21	0.06	-0.49	-0.34	-0.29	-0.23	6.25	-0.12
Singapore	0.19	0.29	0.11	-0.17	0.01	0.06	0.34	-0.21	-0.07	-0.01	0.04	6.55	0.16
Taiwan	0.15	0.25	0.07	-0.21	-0.04	0.02	0.30	-0.25	-0.11	-0.06	0.00	6.50	0.12
Thailand	0.11	0.21	0.04	-0.25	-0.07	-0.02	0.26	-0.29	-0.15	-0.09	-0.04	6.46	0.08
US	-42.90	1.14	0.95	0.67	0.85	0.90	1.18	0.63	0.77	0.83	0.88	7.44	1.00
Vietnam	-0.54	-0.44	-0.62	-0.90	-0.72	-0.67	-0.39	-0.94	-0.80	-0.74	-0.69	5.77	-0.57

S16. ELECTRICAL EQUIPMENT

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	2.17	2.28	1.91	1.59	1.47	1.54	1.69	1.35	1.72	1.37	1.39	-13.95	2.09
India	0.06	0.16	-0.19	-0.51	-0.62	-0.55	-0.41	-0.74	-0.38	-0.72	-0.71	3.00	-0.02
Indonesia	0.40	0.50	0.14	-0.18	-0.29	-0.22	-0.07	-0.41	-0.04	-0.39	-0.37	3.35	0.32
Japan	0.65	0.75	0.40	0.07	-0.04	0.03	0.18	-0.16	0.21	-0.14	-0.12	3.61	0.57
Korea	0.57	0.67	0.32	-0.01	-0.12	-0.05	0.10	-0.24	0.13	-0.22	-0.20	3.52	0.49
Malaysia	0.37	0.47	0.12	-0.21	-0.32	-0.25	-0.10	-0.44	-0.07	-0.42	-0.40	3.32	0.29
Philippines	0.41	0.51	0.15	-0.17	-0.28	-0.21	-0.07	-0.40	-0.03	-0.38	-0.36	3.35	0.33
ROW	0.25	0.35	-0.01	-0.33	-0.44	-0.37	-0.22	-0.56	-0.19	-0.54	-0.52	3.19	0.17
Singapore	0.57	0.67	0.31	-0.01	-0.12	-0.05	0.09	-0.24	0.12	-0.22	-0.21	3.52	0.49
Taiwan	0.52	0.62	0.26	-0.06	-0.17	-0.10	0.04	-0.29	0.07	-0.27	-0.26	3.47	0.44
Thailand	0.48	0.58	0.22	-0.10	-0.21	-0.14	0.00	-0.33	0.03	-0.31	-0.30	3.42	0.40
US	-45.09	1.64	1.28	0.95	0.84	0.91	1.06	0.72	1.09	0.74	0.76	4.52	1.46
Vietnam	-0.28	-0.18	-0.53	-0.85	-0.96	-0.89	-0.75	-1.08	-0.72	-1.06	-1.04	2.65	-0.36

S17. MACHINERY AND EQUIPMENT

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	1.92	1.97	1.41	1.56	1.59	1.42	1.66	1.21	1.33	1.44	1.37	-41.31	1.65
India	-0.13	-0.08	-0.63	-0.48	-0.45	-0.61	-0.38	-0.82	-0.70	-0.60	-0.67	6.24	-0.39
Indonesia	0.20	0.25	-0.30	-0.15	-0.12	-0.29	-0.06	-0.50	-0.38	-0.28	-0.34	6.59	-0.07
Japan	0.44	0.49	-0.06	0.09	0.12	-0.04	0.19	-0.25	-0.14	-0.03	-0.10	6.85	0.18
Korea	0.37	0.41	-0.14	0.01	0.04	-0.12	0.11	-0.33	-0.21	-0.11	-0.18	6.77	0.10
Malaysia	0.17	0.22	-0.33	-0.18	-0.15	-0.32	-0.08	-0.52	-0.41	-0.30	-0.37	6.56	-0.10
Philippines	0.21	0.26	-0.29	-0.14	-0.12	-0.28	-0.05	-0.49	-0.37	-0.27	-0.33	6.60	-0.06
ROW	0.05	0.10	-0.45	-0.30	-0.27	-0.43	-0.20	-0.64	-0.52	-0.42	-0.49	6.43	-0.21
Singapore	0.36	0.41	-0.14	0.01	0.04	-0.13	0.11	-0.33	-0.22	-0.11	-0.18	6.76	0.09
Taiwan	0.31	0.36	-0.19	-0.04	-0.01	-0.18	0.06	-0.38	-0.27	-0.16	-0.23	6.71	0.05
Thailand	0.27	0.32	-0.23	-0.08	-0.05	-0.21	0.02	-0.42	-0.30	-0.20	-0.27	6.67	0.01
US	-43.83	1.35	0.80	0.95	0.98	0.81	1.05	0.60	0.72	0.82	0.75	7.76	1.03
Vietnam	-0.46	-0.41	-0.96	-0.81	-0.78	-0.94	-0.71	-1.15	-1.03	-0.93	-1.00	5.89	-0.72

S18. MOTOR VEHICLES AND PARTS

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	0.68	2.52	2.04	1.65	1.67	1.92	1.99	1.56	1.66	1.72	1.76	-43.37	2.22
India	-1.28	0.52	0.06	-0.33	-0.31	-0.06	0.00	-0.42	-0.32	-0.26	-0.22	1.42	0.23
Indonesia	-0.97	0.84	0.37	-0.02	0.01	0.25	0.32	-0.10	0.00	0.05	0.09	1.74	0.54
Japan	-0.73	1.08	0.61	0.22	0.24	0.49	0.56	0.13	0.24	0.29	0.33	1.99	0.78
Korea	-0.81	1.00	0.53	0.15	0.17	0.41	0.48	0.06	0.16	0.21	0.26	1.91	0.71
Malaysia	-1.00	0.81	0.34	-0.04	-0.02	0.22	0.29	-0.13	-0.03	0.02	0.07	1.72	0.52
Philippines	-0.96	0.85	0.38	-0.01	0.02	0.26	0.33	-0.09	0.01	0.06	0.10	1.75	0.55
ROW	-1.11	0.69	0.23	-0.16	-0.13	0.11	0.18	-0.24	-0.14	-0.09	-0.05	1.60	0.40
Singapore	-0.81	1.00	0.53	0.14	0.16	0.41	0.48	0.06	0.16	0.21	0.25	1.90	0.70
Taiwan	-0.86	0.95	0.48	0.09	0.12	0.36	0.43	0.01	0.11	0.16	0.20	1.86	0.66
Thailand	-0.90	0.91	0.44	0.06	0.08	0.32	0.39	-0.03	0.07	0.12	0.17	1.82	0.62
US	-10.29	1.91	1.44	1.05	1.08	1.32	1.39	0.97	1.07	1.12	1.16	2.83	1.62
Vietnam	-1.60	0.20	-0.27	-0.65	-0.63	-0.39	-0.32	-0.74	-0.64	-0.59	-0.54	1.10	-0.09

S19. OTHER TRANSPORT EQUIPMENT

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	14.69	2.13	1.54	1.26	1.31	1.55	1.76	1.34	1.10	1.14	1.35	-15.65	2.23
India	12.50	0.19	-0.39	-0.67	-0.62	-0.39	-0.18	-0.59	-0.83	-0.78	-0.58	0.03	0.28
Indonesia	12.85	0.50	-0.08	-0.36	-0.31	-0.08	0.13	-0.29	-0.52	-0.48	-0.28	0.33	0.59
Japan	13.11	0.73	0.15	-0.13	-0.08	0.15	0.36	-0.06	-0.29	-0.25	-0.05	0.57	0.83
Korea	13.03	0.65	0.07	-0.20	-0.15	0.08	0.28	-0.13	-0.36	-0.32	-0.12	0.49	0.75
Malaysia	12.82	0.47	-0.11	-0.39	-0.34	-0.10	0.10	-0.31	-0.55	-0.50	-0.30	0.31	0.57
Philippines	12.86	0.50	-0.08	-0.35	-0.30	-0.07	0.13	-0.28	-0.51	-0.47	-0.27	0.34	0.60
ROW	12.70	0.36	-0.22	-0.50	-0.45	-0.22	-0.01	-0.43	-0.66	-0.62	-0.42	0.20	0.45
Singapore	13.03	0.65	0.07	-0.21	-0.16	0.08	0.28	-0.13	-0.37	-0.32	-0.12	0.49	0.75
Taiwan	12.97	0.60	0.02	-0.25	-0.20	0.03	0.23	-0.18	-0.41	-0.37	-0.17	0.44	0.70
Thailand	12.93	0.57	-0.01	-0.29	-0.24	-0.01	0.20	-0.22	-0.45	-0.41	-0.21	0.41	0.66
US	-36.57	1.55	0.96	0.68	0.73	0.97	1.17	0.76	0.52	0.56	0.77	1.38	1.64
Vietnam	12.15	-0.13	-0.71	-0.98	-0.93	-0.70	-0.50	-0.91	-1.14	-1.10	-0.90	-0.29	-0.03

S20. OTHER MANUFACTURES

	China	India	Indonesia	Japan	Korea	Malaysia	Philippines	ROW	Singapore	Taiwan	Thailand	US	Vietnam
China	1.76	3.58	2.82	2.52	2.31	2.60	3.16	2.32	2.64	2.05	2.78	-20.82	3.71
India	-1.72	0.03	-0.70	-0.99	-1.19	-0.92	-0.37	-1.19	-0.87	-1.45	-0.73	2.29	0.16
Indonesia	-1.17	0.59	-0.14	-0.44	-0.64	-0.36	0.19	-0.63	-0.32	-0.89	-0.18	2.86	0.72
Japan	-0.75	1.02	0.28	-0.02	-0.22	0.06	0.61	-0.22	0.10	-0.48	0.24	3.29	1.14
Korea	-0.89	0.88	0.14	-0.15	-0.35	-0.08	0.47	-0.35	-0.03	-0.61	0.11	3.16	1.01
Malaysia	-1.22	0.55	-0.19	-0.49	-0.69	-0.41	0.14	-0.68	-0.36	-0.94	-0.23	2.81	0.67
Philippines	-1.15	0.61	-0.13	-0.42	-0.62	-0.35	0.20	-0.62	-0.30	-0.88	-0.16	2.88	0.73
ROW	-1.42	0.34	-0.39	-0.69	-0.89	-0.61	-0.06	-0.88	-0.57	-1.14	-0.43	2.60	0.46
Singapore	-0.89	0.87	0.14	-0.16	-0.36	-0.08	0.47	-0.36	-0.04	-0.62	0.10	3.15	1.00
Taiwan	-0.98	0.79	0.05	-0.24	-0.44	-0.17	0.38	-0.44	-0.12	-0.70	0.02	3.06	0.91
Thailand	-1.04	0.72	-0.01	-0.31	-0.51	-0.23	0.32	-0.51	-0.19	-0.77	-0.05	2.99	0.85
US	-55.37	2.51	1.76	1.45	1.25	1.53	2.09	1.26	1.58	0.99	1.72	4.82	2.63
Vietnam	-2.28	-0.54	-1.27	-1.56	-1.75	-1.48	-0.94	-1.75	-1.44	-2.01	-1.30	1.70	-0.42