



RCEP's Strategic Influence on Global Trade of Beverages & Tobacco and Iron & Steel Sectors: A Computable General Equilibrium Analysis

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Abstract. The study evaluates the impact of the RCEP on trade, labour dynamics and industrial output in the B&T and I&S sectors. Moreover, RCEP acts as a catalyst for regional integration and disruptor of existing trade equilibria. It is expected that by 2030, RCEP has the potential to add \$209 billion to global income and about half a trillion dollars to the international market. This study employs the CGE model (GTAP) database to derive evaluations. The model assumes a FTA in B&T and I&S among 15 member nations of RCEP, to assess their influence on trade flows, gross domestic product, welfare, industrial production and employment. The study highlights skewed results where main beneficiaries such as Singapore, Japan and South Korea are expected to witness benefits of trade and economic gains. Non-members like India, EU, ROW and USA are expected to experience a clear downfall in terms of trade and related effects. Strikingly, the study also finds that RCEP nations like Brunei, LaoPDR, Thailand, Indonesia, Philippines are at a losing end despite the FTA. Specifically, the trade gains in B&T accrues to Singapore's economy while that of I&S accrues to Japan and South Korea. The CGE evaluated results noted critical reallocation trends with different sectors of both member and non-member of RCEP owing to FTA, under the study. For instance, Malaysia is expected to undergo industrial production and labour demand in the B&T sector, demonstrating competitive pressure. Also, the B&T and I&S trade is observed to divert away from non-RCEP members. The study emphasizes strategic policy implications for non-member nations to indulge in bilateral trade agreements outside the RCEP block. The study offers critical insights into the structural and policy adjustments required to optimize outcomes by addressing gaps.

Keywords: RCEP, CGE, Trade diversion, Trade creation, Global exports

1. Introduction

The Regional Trade Agreements (RTAs) originated from the mid-20th century when nations started questing for stronger regional ties to enhance economic integration and trade facilitation. The establishment of the General Agreement on Tariffs and Trade (GATT) in 1947, laid the foundation for reducing trade barriers and promoting multilateral trade. With time, RTAs gained momentum due to globalization in the 1990s as it streamline economic cooperation. RTAs have fostered faster economic growth by harmonizing trade regulations, preferential market access and facilitating regional stability. Moreover, RTAs have been the cornerstone of global trade accounting for more than 50% of international trade (Bhagwati & Panagariya, 1996). RTAs have huge potential to change global trade. For instance, a study demonstrated that lowering tariffs surged firm level productivity and impacted import competing industries in India (Topalova et al, 2011). Strikingly, a study showed how 15 European nations' integration led to trade blocks impacting their productivity and production (Badigner, 2005). Additionally, stimulation on American firms (Karacaovali, 2011) and Bangladesh's economy (Salim, 2003) highlights positive productivity due to trade liberalization.

Similarly, Free Trade Agreements (FTA) gained importance and emerged as pivotal instruments to enhance global trade. In the 1990s, the World Trade Organization's (WTO) complex negotiations acted as a catalyst for nations to engage in FTAs. Streamlining trade regulations, lowering costs and strengthening supply chains are some economic advantages of FTAs (Krugman, 1994). The study highlighted the productivity gains for Mexican firms post North American Free Trade Agreement (NAFTA) and found integrated production units (Hoyos et.al. 2013). Another study evaluates the impact of NAFTA on trade and economic integration of North America, suggesting increased trade flows (Hufbauer & Schott, 2005). Furthermore, study on US Canada FTA shows increase in labour productivity by 15% for Canada and 14% for US firms (Trefler, 2004). It is noteworthy that RCEP has become the biggest FTA as the world is moving towards the bigger RTAs.

Regional Comprehensive Economic Partnership (RCEP) is one of the biggest and significant free trade agreements, which is expected to add \$209 billion to global income and half a trillion dollars to international markets by 2030 (Tahir and Ahmed, 2022). It encompasses 15 countries: China, Japan, South Korea, Australia, New Zealand and 10 ASEAN members (RCEP, 2022). The RCEP has great significance due to evolving geopolitics and persistent trade tensions among the global powers (Petri and Plummer, 2020). Moreover, RCEP offers a modernized medium for trade facilitation as it encompasses e-commerce, intellectual property rights and sustainable development. Further, it sets a benchmark for future agreements for the Asia- Pacific region as a hub of economic cooperation and innovation (Yang et al., 2024; Ling & Qian, 2023). Notably, the rules of origin framework streamlines production efficiency and competitiveness in regional supply chains (Fan et al., 2023; Xiong et al., 2024). Additionally, small member nations of ASEAN are assured to integrate further into global value chains, enhancing their investment, further stimulating their economic growth (Suvannaphakdy, 2021; Tahir & Ahmad, 2022).

Interestingly, the agreement signifies exceptional flexibility in captivating disparities among member nations, asserting inclusivity and shared prosperity. The diverse sectors from manufacturing and agriculture to renewable energy are anticipated to influence global trade flows significantly in the long run (Rahman & Sharma, 2024; Zhou et al., 2021). All in all, RCEP is more than a free trade agreement and is an interface for a new era of regional and global cooperation. It has the potential to transform the future trade and economic governance, setting a

benchmark for multilateral trade partnerships (Cali et al., 2019; Perger, 2022). The RCEP agreement will not only impact its member nations but also non- member nations in terms of trade effect.

2. Literature review

The RCEP brings together economies that collectively represent around 25% of global trade, 29% of world's GDP and 30% of global population (ADB Briefs, 2020). The trade agreement is not just a regional development, it is a game changer with significant economic and geopolitical ramifications that will drastically change the global economic landscape. Further, RCEP could raise global income by \$186 billion annually (Petri and Plummer, 2020). Reduced tariffs, improved market access and standardised trade laws will also be very advantageous to member nations. It is anticipated that all of these factors will contribute to a stronger regional economic union, allowing member countries to deepen their cooperation and facilitate effective trade and investment flows. The economic benefits of RCEP highlights that China, Australia and New Zealand will see an increase in their respective economies after the agreement (Yang et al., 2024). Moreover, China will benefit greatly through RCEP since there will be increased exports into the markets, particularly on renewable energy, textiles and agriculture. Enhanced market access is expected to bolster China's role in clean energy trade, with renewable energy exports projected to soar (Guo and Mai, 2023). Simultaneously reduction of tariffs will spur the growth in the textile industry of China, making it a leader in regional supply chains (Zhou et al., 2024).

Notably, China faces both benefits and challenges from the RCEP, particularly in the field of agriculture. China's agricultural trade is under pressure to improve its quality and competitiveness due to investment because it consumes a lot of energy, water and carbon resources (Jin et al., 2024; Cong et al., 2024). On the contrary, it is anticipated that Vietnam's manufacturing sector will benefit from the structural change brought about by the RCEP, while its agricultural sector may suffer as trade flows change (Bui et al., 2018). Through the strengthening of regional value chains and the increased emphasis on the manufacturing sector, RCEP has the potential to completely transform global production networks while promoting vertical specialization and trade efficiency. Remarkably, member nations will use their comparative advantages to build more resilient and integrated supply chains, which is predicted to have a drastic impact on global production networks (Fan et al., 2023)

The complex interactions of trade dynamics among member countries have also been brought to light by RCEP. The deal will increase China's income by 2.5 percent, while South Korea's income will rise by 0.6 percent (Li and Moon, 2018). Nonetheless, Japan's exports to China have decreased since the agreement's implementation, highlighting the intricate regional dynamics at work (Peng, 2024). Furthermore, Malaysia's gradual tariff removal is anticipated to boost imports from developed nations, potentially further shifting trade away from India (Rahman & Sharma, 2024). The results of Indonesia's participation in the agreement are also mixed, with both advantages and disadvantages (Moenardy et al., 2021; Santaso et al., 2023). RCEP has a significant impact on a variety of industries, including semiconductors and renewable energy and is predicted to flourish in areas where China, South Korea and Japan may increase their market share (Peng, 2024). In addition, a structural shift in the economies of Vietnam and Indonesia is anticipated in order to manage the opportunities and difficulties brought about by increased economic integration (Bui et al., 2018; Tran et al., 2023). It is contended that while the EU's share of the import market shrank, the RCEP increased trade between South Korea and Japan (Pan et al., 2023).

This economic unity puts RCEP in a position to balance the global power structure by acting as a counterbalance to US led initiatives in the Indo- Pacific (Smith & Zhang, 2021).

2.1 Beverages and Tobacco

Redesigning supply chains is a major challenge for the ASEAN beverage industry, but the RCEP provides a bright spot in these areas. By increasing trade efficiency, lowering transaction costs, and facilitating cross- border exchanges, RCEP has been shown to be essential in supply chain optimization (Panchal et al., 2023). Furthermore, the trade bloc's export markets are becoming more diverse as a result of the RCEP's implementation, which will allow businesses to increase their production capacity and achieve economies of scale that will increase market access and capital investment, encouraging the economic environment as a result. The beverage industry's production and distribution networks can be optimized while meeting local demand (Perger, 2022). RCEP promotes intra-regional trade by lowering tariff and non- tariff barriers, which greatly benefits exporters, particularly in nations like Vietnam and Thailand that are important players in the beverage sector (Panchal et al., 2023).

The effects of RCEP extend beyond the beverage industry and affect other industries like tobacco, which is regarded as one of the major drivers in some countries, such as Malaysia and Indonesia. The enhancement of trade flows by RCEP boosts the tobacco industry's export market in addition to bolstering domestic production (Estrades et al., 2023). Liberalisation of trade in industrial commodities like tobacco, however, might make competition fiercer in Malaysia's tobacco export market. In addition, Malaysia must modify its domestic laws and regulations to preserve its competitive advantage and continue to reap the benefits of regional pact in the face of growing market difficulties (Rahman & Sharma, 2024).

2.2 Iron and Steel

By lowering barriers to cross- border trade and simplifying logistics, the RCEP's trade liberalization has had a revolutionary effect on the I & S sector in the East Asian market. Major regional players have benefited greatly from this, particularly I & S sectors in nations like China, Japan and South Korea (Nakagawa, 2013). However, because of changes in the division of labour and advancements in technology, the implementation of the RCEP has considerably altered the East Asian market and the standardization of technical trade barriers have improved both production and trade efficiency, it has opened up markets for the steel industry in nations like China, Japan and South Korea (Jin, 2021).

Notably, RCEP has strengthened China's competitive edge as it has become a major player in the steel industry. By encouraging a more effective labour division, the agreement has improved the region's competitive climate (Kim, 2021). Additionally, preferential trade rules under the RCEP have given Chinese steel producers more access to regional markets, which has been advantageous. The competition has increased, though, particularly from South Korea and Japan. China must adjust to the heightened pressure of the competition (Ling & Qian, 2023). Along with encouraging intraregional competition, RCEP has caused a major shift in trade, with nations like Vietnam and Indonesia focusing on trade with RCEP members. The favourable conditions of the agreement have caused trade flows to shift from non- member nations to bloc members (Cali et al. 2019; Suvannaphakdy, 2021).

3. Research gap and Objectives

In essence, on the basis of literature review there is a notable dearth of studies concerning the RCEP framework. While prior studies have largely explored the overall impact of RCEP on its member nations, there is a paucity of analysis addressing the trade dynamics between RCEP nations and the rest of the world. Additionally, sector specific applications of general equilibrium models, particularly in sectors such as iron and steel (I&S) and beverages and tobacco (B&T) remain underexplored. This underscores a critical research gap, highlighting the need for future studies to investigate these dimensions. Conducting a general equilibrium modelling analysis of RCEP's trade relations, especially in the context of non- members countries, provide valuable insights for policy makers and contribute to a more comprehensive understanding of global trade dynamics.

The study aims to assess the impact of RCEP post removal of tariff barriers within I & S as well as B&T among the members of RCEP nations. In other words, the tariffs have been reduced to zero to analyse the impact. The analysis focuses on trade flows (imports and exports), gross domestic product (GDP), welfare, industrial production and change in labour demand.

4. Research methodology

Numerous agents including households, businesses, the government and others are prevalent in an economy. However, because an economy has limited resources, trade-offs need to be made when allocating those resources. To examine and assess such policy issues quantitatively, these models are essential resources. Thus the term “computable general equilibrium models”. The CGE model is a set of mathematical formulas that characterizes an economy's overall structure and the relationships between its various components. The model can measure the impact of a shock or “what if” scenario on the economy while taking into account all economic activity at once, including trade, taxes, employment, consumption, production and savings as well as the connections between them.

In present study, the CGE model is used to ascertain answers to aforementioned objectives. Utilizing the Global Trade Analysis Project (GTAP10P1), the outcomes are assessed. It was founded by Thomas W. Hertel in 1992 and has become a well-known framework for people doing global economic analysis (Burfisher, 2021). With perfect competition and constant returns to scale, the standard GTAP model is a multiregion, multisector, general equilibrium model. The armington assumption is used for bilateral trade. It is noteworthy that the GTAP model offers a multifaceted selection of conclusions, ensuring a vibrant and vital tapestry of economic analysis. These closures, pivotal in understanding the intricate landscape of global trade, significantly expand the scope of economic research and comparative study.

With the underlying presumption of perfect competition, the model employed in this study is a standard static model that spans multiple regions and sectors. Further presumptions of the model include full employment, perfect competition and constant returns to scale. The model's peculiarities include the explicit treatment of international trade and transport margins, the use of the non- homothetic CDE functional form to treat private household preferences, the Armington assumption to handle bilateral trade, and a global banking sector that acts as a middleman between global savings and consumption (Hertel, 1997).

The base model, which has 141 individual countries and 57 sectors, is reorganized and constructed to fit the needs of this study. The regions and sectors are combined according to the study's requirement using the GTAP Aggregator, which was created by Mark Horridge. Moreover, assuming full employment, the standard model's endogenous variable is wage rate, while the exogenous variable is labour supply.

The 141 regions aggregated for the study are as follows: Australia, China, Japan, New Zealand, South Korea, Brunei, Cambodia, Vietnam, Lao PDR, Singapore, Thailand, Indonesia, Malaysia, Philippines, UK, USA, India, EU and Rest of the World (ROW).

The aggregation of sectors comprises the following: I&S, B&T, manufacturing, agriculture and services.

RunGTAP software is utilized to implement the shock within the model and to analyse the outcomes.

Experiment

The model introduces a shock by simulating a scenario in which the import tariff among the 15 member nations of the RCEP is reduced to zero, effectively creating an experiment that assumes free trade in I&S; B&T among these countries. The directions of I&S and B&T trade are taken into consideration with in depth study of specific member nations.

5. Results and discussions

The results and discussion are divided into two sections.

Section 5.1

The experiment simulates the change in GDP after elimination of tariff barriers in B&T and I&S trade among RCEP partners and other nations. The findings reveal significant GDP gains for certain RCEP nations, with Malaysia experiencing the highest increase of \$212.68 million followed by China at \$175 million, Singapore at \$106.06 million and Vietnam at \$98.51 million. While the GDP of some countries including Philippines, New Zealand, Brunei and Cambodia faced a decline. Strikingly, the UK and USA have witnessed a relatively negligible impact with a slight reduction in GDP. The study further reveals the adverse impact due to trade diversion effects for the EU and Rest of the World (ROW) leading to economic losses in these regions (Table 1).

Table 1: Change in GDP after elimination of tariff barriers in B&T and I&S industry (in percentage and \$US Million)

Countries	Percentage (%)	\$US Million
Australia	0.0009	13
China	0.0017	175
Japan	0.0004	16.5
New Zealand	-0.0001	-0.141
South Korea	0.0059	82.75
Brunei	-0.0001	-0.018
Cambodia	-0.0023	-0.381
Vietnam	0.0529	98.516
LaoPDR	0.0054	0.63
Singapore	0.0346	106.062
Thailand	0.0069	27.781
Indonesia	0.0041	36.25
Malaysia	0.0629	212.688
Myanmar	0.0006	0.398
Philippines	-0.001	-2.844
UK	-0.0003	-8
USA	0	-4
INDIA	0.0002	4.375
EU	-0.0004	-60
ROW	-0.0004	-82

(Source: Author's Contribution)

Table 2 specifically looks into change in export sales of RCEP member nations and non-RCEP members, post FTA in B&T and I&S. With regards to RCEP members, on account of FTA on B&T trade among RCEP countries, estimated evaluations indicate an increase in exports of Singapore (\$761 million), South Korea (\$328 million), China (\$277 million), Australia (\$159 million), followed by Japan, Vietnam, Malaysia, New Zealand, Cambodia, Philippines and Myanmar. Conversely, for other RCEP and non-RCEP members, exports are expected to fall. This indicates trade creation and diversions in B&T trade within RCEP block, attributable to B&T FTA. Malaysia's exports to nearly all RCEP partners exhibit an increase in percentage terms except South Korea, LaoPDR, Thailand and Indonesia. Furthermore, Singapore has emerged as a key player, is anticipated to gain market share in all RCEP member nations. Specifically, Singapore's exports are projected to surge by 82.65% to Malaysia. Malaysia's B&T exports divert towards the USA, UK, India, EU and ROW simultaneously. Consequently, non-RCEP members not only lose market share in the RCEP region but shall also

face a decline in their B&T exports in non-RCEP regions. The EU is anticipated to endure the most significant contraction, amounting to \$169 million, attributing to fall in exports. Nevertheless, there is an overall increased export value of \$1011 million as a result of B&T FTA.

Table 2: Changes in export sales after elimination of tariff barriers (in \$US Million)

Countries	B&T	I&S
Australia	159.00	2.82
China	277.00	593.00
Japan	74.50	2287.00
New Zealand	7.94	-9.70
South Korea	328.00	1833.00
Brunei	-0.13	-1.21
Cambodia	0.84	0.75
Vietnam	27.20	-57.70
LaoPDR	-3.88	-0.04
Singapore	761.00	-65.60
Thailand	-55.60	-24.30
Indonesia	-51.10	-29.20
Malaysia	18.90	-22.40
Myanmar	0.56	-20.80
Philippines	-11.60	-4.79
UK	-24.80	-55.00
USA	-132.00	-122.00
INDIA	-26.00	-88.80
EU	-169.00	-465.00
ROW	-170.00	-897.00
Total	1011.00	2854.00

(Source: Author's Contribution)

On account of FTA on I & S trade among RCEP countries, the estimated evaluations depict a rise in exports of Japan (\$2287 million), South Korea (\$1833 million), China (\$593 million), Australia and Cambodia. This indicates trade creations in I & S trade within RCEP block and other non RCEP countries. Japan's exports to nearly all RCEP partners increase except for Brunei, Cambodia and Singapore. Further China, on account of FTA, estimated evaluation depicts rise in exports of South Korea (22.85%), Japan (19.01%) and Cambodia (5.20%). For other RCEP members, exports appear to be diverted away from China. However, South Korea, which has lately emerged as the important country in I&S exports globally, is expected to gain market share in all RCEP member nations. China's I&S exports are diverted towards the USA, UK, India, EU and ROW simultaneously. Moreover, non-RCEP members not only lose market share in RCEP region but shall also undergo a decline in I & S exports in non-RCEP regions. The EU shall witness the largest decline of \$465 million owing to a fall in exports.

However, there is an increase in overall export value of \$2854 million due to I & S FTA. It is noteworthy that nations such as Australia, China, Japan, Cambodia and South Korea are the member nations to see a rise in exports of both B&T and I&S post FTA.

Table 3: Change in trade balance after eliminating tariff barriers (in US \$million)

Countries	B&T	I&S
Australia	155.14	-130.9
China	114.31	-1299.79
Japan	-7.06	2206.36
New Zealand	7.7	-12.53
South Korea	277.9	1509
Brunei	-0.01	-1.08
Cambodia	-11.66	-0.07
Vietnam	-190.71	-62.76
LaoPDR	-10.22	0.72
Singapore	681.29	-50.95
Thailand	-105.4	-103.53
Indonesia	-68.82	-358.71
Malaysia	-347.19	-437.34
Myanmar	-9.57	-11.17
Philippines	-14.17	-17.49
UK	-24.5	-51.06
USA	-125.45	-112.64
INDIA	-26.12	-89.98
EU	-168.24	-378.65
ROW	-165.99	-832.51

(Source: Author's Contribution)

The table 3 shows the change in trade balance of B&T and I&S post FTA in \$US million. Within the RCEP block South Korea and Singapore exhibit the positive change in trade balance of \$277.9 million and \$681.29 million respectively, whereas Vietnam and Malaysia are the RCEP nations with highest negative change in trade balance of \$190.71 million and \$347.19 million respectively among the RCEP nations, in case of B&T. While on the other hand, Japan and South Korea are the nations with positive change in trade balance with \$2206.36 million and \$1509 million respectively, in case of I & S with all other RCEP members having negative change in balance of trade. Overall the RCEP nation's exports have increased and imports have fallen, although the net increase in exports is smaller than the net exports after the RCEP. Nations outside the RCEP block have faced a negative change in trade balance post elimination of tariff barriers indicating trade diversion effects.

Table 4: Change in industrial production after eliminating tariff barriers

Countries	Percentage Change		Change in US \$ million	
	B&T	I&S	B&T	I&S
Australia	0.95	-0.77	167.48	-160.34
China	0.05	-0.16	153.63	-2199.63
Japan	0.04	1.42	36.1	3941.91
New Zealand	0.2	-1.87	7.85	-13.41
South Korea	2.64	1.6	317.01	3579.94
Brunei	-1.67	-3.33	-0.16	-1.25
Cambodia	-3.42	-2.7	-6.17	-1.99
Vietnam	-2.61	-2.13	-227.41	-58.24
LaoPDR	-0.74	-3.97	-9.52	-0.3
Singapore	57.56	-5.74	766.35	-66.65
Thailand	-1.17	-1.39	-116.31	-192.42
Indonesia	-0.52	-2.94	-75.9	-418.69
Malaysia	-8.86	-3.31	-325.42	-578.57
Myanmar	-1.6	-1.8	-8.27	-31.52
Philippines	-0.24	-0.49	-15.84	-24.45
UK	-0.06	-0.19	-26.61	-73.31
USA	-0.08	-0.05	-146.11	-124.89
INDIA	-0.12	-0.09	-28.67	-100.05
EU	-0.07	-0.16	-177.25	-537.13
ROW	-0.06	-0.21	-183.97	-1073.87

(Source: Author's Contribution)

Table 4 shows the change in industrial production of B&T and I&S in RCEP and non-RCEP nations after implementation of FTA. Within the RCEP members, Singapore has witnessed a substantial gain of around \$767 million, followed by South Korea, Australia, China, Japan and New Zealand with a gain of around \$317.01 million, \$167.48 million, \$153.63 million, \$36.1 million and \$7.85 million respectively. In contrast, Malaysia has witnessed a drastic fall of \$325.42 million as its imports hampers its export and thus cause significant impact on trade balance. Consequently, non-RCEP members also face a decline in their industrial production of B&T.

Among the RCEP members, Japan and South Korea both have witnessed a substantial gain of around \$3941.91 million and \$3579.94 million respectively, driven by their strong export performance in the I&S sector. However, China has witnessed the drastic fall of \$2199.63 million and similar decrease is observed by other RCEP nations indicating a potential loss of competitiveness due to increased competition from other RCEP nations. Furthermore, non-RCEP members also face a decline in their industrial production of I & S.

Table 5: Percentage change in demand for labour in B&T and I&S

Countries	B&T	I&S
Australia	0.95	-0.77
China	0.05	-0.16
Japan	0.05	1.43
New Zealand	0.2	-1.87
South Korea	2.65	1.62
Brunei	-1.67	-3.33
Cambodia	-3.41	-2.68
Vietnam	-2.6	-2.11
LaoPDR	-0.76	-4
Singapore	57.55	-5.74
Thailand	-1.17	-1.39
Indonesia	-0.53	-2.95
Malaysia	-8.87	-3.31
Myanmar	-1.6	-1.8
Philippines	-0.24	-0.49
UK	-0.06	-0.19
USA	-0.08	-0.05
INDIA	-0.12	-0.09
EU	-0.07	-0.16
ROW	-0.06	-0.21

(Source: Author's Contribution)

The table 5 shows the change in demand for labour in the B & T and I&S industry for both RCEP and non-RCEP nations post FTA. The demand for labour in Malaysia has seen a decline of 8.87% in the B&T industry due to FTA. Whereas the demand for labour in Singapore has significantly increased by 57.55%. This implies that Singapore is employing more labour in production of B&T which leads to increase in demand for labour causing further increase in industrial production of B&T. Similar patterns are followed by other RCEP members such as South Korea, Australia, New Zealand, Japan and China reflecting an enhanced production and export competitiveness in B&T.

The demand for labour in China and other members within RCEP except for Japan and South Korea have seen a decline in I & S industry due to FTA. Whereas the demand for labour in Japan and South Korea has increased by 1.43% and 1.62% respectively. This implies that Japan and South Korea specialize in production of I&S which leads to employment escalation causing further increase in industrial production of I & S to meet growing export demands.

Furthermore, Japan and South Korea are two RCEP member nations witnessing increase in demand for labour in both the sectors resulting in increased industrial production and thus increasing export sales. Further the study highlights that the US and EU experienced a decline in demand for labour across both the sectors due to trade diversion effects.

Table 6: Change in welfare after eliminating tariff barriers (\$US Million)

WELFARE	Allocation	TOT	IS_F1	Total
1 Australia	13	-3.05	0.707	10.6
2 China	175	-241	29.6	-35.5
3 Japan	16.5	495	27.9	540
4 New Zealand	-0.135	-2.42	0.178	-2.37
5 South Korea	82.7	419	-47.8	454
6 Brunei	-0.017	-0.211	0.121	-0.107
7 Cambodia	-0.381	2.17	0.063	1.85
8 Vietnam	98.5	-76.5	-9.15	12.8
9 LaoPDR	0.63	-0.008	-1.12	-0.501
10 Singapore	106	181	-15.9	271
11 Thailand	27.8	-52	0.439	-23.8
12 Indonesia	36.3	-63.2	1.76	-25.2
13 Malaysia	213	-124	1.65	90.7
14 Myanmar	0.397	-0.562	0.165	0
15 Philippines	-2.83	-7.24	0.483	-9.58
16 UK	-7.91	-12.9	-6	-26.8
17 USA	-3.75	-100	-39.1	-143
18 INDIA	4.32	-27	-4.38	-27.1
19 EU	-60.1	-105	18.8	-146
20 ROW	-81.8	-284	41.6	-325
Total	617	-0.54	0.002	617

(Source: Author's Contribution)

The study further facilitates the analysis of the welfare impact of RCEP using the GTAP model as an analytical tool. The analysis highlights the result of overall welfare changes due to elimination of tariff barriers in a general equilibrium framework. The table 6 depicts the decomposition of welfare change in allocative efficiency (Allocation), the terms of trade (TOT), and investment savings (IS_F1) effect. In this study, the welfare for Japan is expected to undergo a substantial gain of \$540 million. This can be attributed to positive allocative efficiency, improvement in terms of trade and contribution to investment in goods and savings. On the other hand, China is expected to experience an overall welfare loss amounting \$35.5 million. This is majorly due to deterioration in terms of trade. It is noteworthy that Myanmar is the RCEP nation with negligible impact on welfare. Furthermore, in the case of the Rest of the World, allocative efficiency and terms of trade are negative leading to loss in welfare

amounting \$325 million. Nevertheless, there is overall welfare gain amounting \$617 million after elimination of tariff barriers in the B & T sector.

Section 5.2

MALAYSIA

Table 7: Percentage change in export and import of Malaysia after elimination of tariff barriers

Malaysia	Percentage Change in Exports		Percentage Change in Imports	
	B&T	I&S	B&T	I&S
Australia	1.85	-4.14	32.36	-2.09
China	14.00	-6.15	225.33	15.15
Japan	0.45	2.03	107.24	5.63
New Zealand	1.88	-0.59	15.29	-11.75
South Korea	-1.27	2.01	597.42	48.17
Brunei	0.92	1.28	-40.86	-13.43
Cambodia	2.46	8.80	129.57	-1.46
Vietnam	13.42	0.56	82.65	-12.3
LaoPDR	-4.18	-6.60	-33.89	-13.21
Singapore	7.99	1.00	354.06	-13.71
Thailand	-5.86	-3.67	-31.48	-11.73
Indonesia	-8.08	-8.98	-32.5	-13.17
Malaysia	-39.71	-11.99	-39.71	-11.99
Myanmar	4.08	1.49	309.62	-8.71
Philippines	1.40	0.02	-26.46	-13.15
UK	1.96	1.49	-40.91	-13.43
USA	1.88	1.57	-40.91	-13.42
INDIA	1.92	1.53	-40.9	-13.42
EU	1.97	1.48	-40.91	-13.43
ROW	1.88	1.50	-40.91	-13.42

(Source: Author's Contribution)

With respect to B&T, Malaysia's exports have increased to almost all member nations except for Thailand, Indonesia, South Korea and LaoPDR. Further, in the case of I&S the percentage change in export sales with Indonesia and LaoPDR have fallen by 8.98% and 6.60% respectively as shown in table 7. Notably, Malaysia's exports to non-member nations such as the UK, US, India, EU and ROW have also increased in both commodities. The study also highlights that Malaysia's change in export sales has increased to countries like Japan, Brunei, Cambodia, Vietnam, Singapore, Myanmar and Philippines for both commodities. It is evident from study that

Malaysia's imports of B&T have been diverted from the UK, US, India, EU and ROW to member nations such as South Korea, Singapore, Myanmar, China and Cambodia. Similar diversions can also be seen in the case of I & S from South Korea, China and Japan. Additionally, Malaysia's imports have witnessed a fall for both commodities from Brunei, LaoPDR, Indonesia, Thailand and Philippines.

Table 8: Percentage change in industry output and labour endowment after elimination of tariff barriers

Malaysia	Percentage Change in Industry Output	Percentage Change in Labour Endowment
B&T	-325.42	-8.87
I & S	-578.57	-3.31
Agriculture	1.94	0
Manufacturing	1035.75	0.26
Services	-109.22	-0.03

(Source: Author's Contribution)

The study highlights the percentage change in industry output post FTA has declined in both sectors. In table 8, the manufacturing sector shows a positive percentage change in industry output by approximately 1036% which leads to an increase in demand for labour in the manufacturing sector and thus causes labour to shift from B&T and I&S sector to manufacturing sector with a reallocation of about 0.3%.

SINGAPORE

Table 9: Percentage change in exports and imports of Singapore after elimination of tariff barriers

Singapore	Percentage Change in Exports		Percentage Change in	Imports
	B&T	I&S	B&T	I&S
Australia	-0.16	-5.90	6.02	-0.4
China	35.75	-7.88	6.05	-0.4
Japan	-1.83	0.13	5.9	-0.87
New Zealand	-0.15	-3.34	6.04	-0.44
South Korea	17.82	0.12	6.14	-0.81
Brunei	-1.00	-0.60	6.15	-0.53
Cambodia	28.33	2.35	6.73	12.18
Vietnam	100.39	-4.71	7.01	0.78
LaoPDR	75.12	22.84	6.05	-0.28
Singapore	5.96	-0.88	5.96	-0.88
Thailand	142.17	-5.43	6.22	1.43
Indonesia	206.62	-10.66	6.76	-0.24
Malaysia	354.06	-13.71	7.99	1
Myanmar	61.75	5.27	14.08	-0.18
Philippines	19.40	16.88	6.06	-0.21
UK	-0.09	-0.39	6.05	-0.53
USA	-0.12	-0.33	6.05	-0.53
INDIA	-0.11	-0.36	6.06	-0.52
EU	-0.09	-0.39	6.05	-0.53
ROW	-0.11	-0.38	6.06	-0.52

(Source: Author's Contribution)

Singapore's exports have surged to almost all member nations excluding Australia, Japan, New Zealand and Brunei with regard to B&T. Furthermore, for I&S the percentage change in export sales with LaoPDR and Philippines in table 9 have increased by nearly 23% and 17% respectively. It is also clear that Singapore's exports to non-member nations such as the UK, US, India, EU and ROW have fallen in both commodities. The study also

suggests that Singapore's change in export sales for both commodities has increased for South Korea, Cambodia, LaoPDR, Myanmar and Philippines for both commodities. Apparently, Singapore's imports of B&T have seen significant rise not only from member nations but also from non-member nations. Conversely, there is diversion in case of I & S from the UK, USA, India, EU and ROW to Cambodia, Vietnam, Thailand and Malaysia.

Table 10: Percentage change in industry output and labour endowment after elimination of tariff barriers

Singapore	Percentage Change in Industry Output	Percentage Change in Labour Endowment
B&T	766.35	57.553
I&S	-66.65	-5.742
Agriculture	-2.55	-0.125
Manufacturing	-508.47	-0.181
Services	-54.97	-0.016

(Source: Author's Contribution)

The percentage change in industry output for Singapore is observed pre and post FTA. In table 10, change in industrial output has declined in I & S sector by approximately 67% but has increased for B & T substantially by 766%. On the other hand, agriculture, manufacturing and services sectors have shown a negative percentage change in industry output which leads to decrease in demand for labour in agriculture, manufacturing and services sector and thus causes labour to shift to B & T by 57.5%.

CHINA

Table 11: Percentage change in exports and imports of China after elimination of tariff barriers

China	Percentage Change in Exports		Percentage Change in Imports	
	B&T	I&S	B&T	I&S
Australia	2.29	12.72	32.7	-0.5
China	-2.42	-7.44	-2.42	-7.44
Japan	6.44	1.11	55.55	19.01
New Zealand	-0.06	-2.89	-2.44	-7.48
South Korea	35.44	2.39	56.27	22.85
Brunei	-0.92	-0.14	-2.34	-7.57
Cambodia	0.54	-2.78	55.83	5.2
Vietnam	57.19	0.89	7.84	-6.35
LaoPDR	15.00	22.77	2.98	-7.34
Singapore	6.05	-0.40	35.75	-7.88
Thailand	48.68	-0.67	-2.11	-5.7
Indonesia	0.19	-2.57	16.37	-7.29
Malaysia	225.33	15.15	14	-6.15
Myanmar	31.42	-1.15	37.61	-7.24
Philippines	-0.55	-0.33	14.11	-7.27
UK	0.00	0.08	-2.43	-7.57
USA	-0.03	0.13	-2.43	-7.57
INDIA	-0.02	0.10	-2.42	-7.56
EU	0.00	0.07	-2.43	-7.58
ROW	-0.02	0.08	-2.42	-7.56

(Source: Author's Contribution)

As shown in table 11, the stimulation shows China's exports have expanded to member nations except for Brunei, Philippines and New Zealand in the case of B&T. Besides, in the case of I&S, exports have declined from New Zealand, Cambodia, Indonesia, Myanmar, Thailand, Brunei, Singapore and Philippines. However, it has been observed that exports to non-member nations have also increased. Also, exports have risen to Australia, Japan, South Korea, Vietnam, LaoPDR and Malaysia in both cases. Considering B&T imports it can be noticed imports have declined from New Zealand, Brunei and Thailand within member nations. Trade has been diverted from non-RCEP member nations. Similar patterns of diversion have been observed in I&S to member nations like South Korea, Japan and Cambodia. On top of that it is evident from the study that imports from Japan, South Korea and Cambodia have increased in both the cases post FTA.

Table 12: Percentage change in industry output and labour endowment in China after elimination of tariff barriers

China	Percentage Change in Industry Output	Percentage Change in Labour Endowment
B&T	153.63	0.05
I&S	-2199.63	-0.16
Agriculture	-174.25	-0.01
Manufacturing	1625	0.01
Services	274	0

(Source: Author's Contribution)

Furthermore, in table 12, China's industry output has declined drastically by 2200% and on the contrary its B&T output has seen a modest growth of 153.63%. In addition, the Manufacturing and Services sector has also shown a positive percentage change resulting in increased demand for labor for B&T and manufacturing and declined for the rest.

JAPAN

Table 13: Percentage change in exports and imports of Japan after elimination of tariff barriers

Japan	Percentage Change in Exports		Percentage Change in Imports	
	B&T	I&S	B&T	I&S
Australia	5.90	25.14	34.28	29.74
China	55.55	19.01	6.44	1.11
Japan	-1.88	0.11	-1.88	0.11
New Zealand	0.85	15.12	31.44	0.56
South Korea	62.58	0.83	24.99	1.15
Brunei	-1.06	-0.61	-1.65	0.47
Cambodia	40.14	-7.07	-1.11	14.35
Vietnam	82.98	0.07	6.08	1.82
LaoPDR	87.54	22.20	-1.74	0.72
Singapore	5.90	-0.87	-1.83	0.13
Thailand	62.65	1.13	8.42	2.47
Indonesia	52.57	29.51	-0.5	0.89
Malaysia	107.24	5.63	0.45	2.03
Myanmar	27.29	5.36	-1.38	22.42
Philippines	9.33	2.11	1.83	0.78
UK	-0.14	-0.39	-1.74	0.46
USA	-0.16	-0.34	-1.74	0.47
INDIA	-0.17	-0.36	-1.73	0.48
EU	-0.15	-0.39	-1.74	0.46
ROW	-0.16	-0.39	-1.74	0.47

(Source: Author's Contribution)

In table 13, with regards to B&T, Japan's exports have increased to almost all member nations except for Brunei. Further, in the case of I&S the percentage change in export sales with Cambodia and Singapore have fallen slightly by 7.07% and 0.87% respectively. It is interesting to note that

Japan's exports to non-member nations such as the UK, US, India, EU and ROW have also decreased in both commodities. It has also been highlighted that Japan's change in export sales has increased to countries like Australia, China, New Zealand, South Korea, Vietnam, LaoPDR, Thailand, Indonesia, Malaysia, Myanmar and Philippines for both commodities. It is evident from study that Japan's imports of B&T have been diverted from the UK, US, India, EU and ROW to member nations such as Australia, New Zealand, South Korea, Singapore, Thailand, China and Vietnam. However, in the case of I&S imports have been increased from non-member nations such as India, US, UK, EU and ROW although by a negligible amount. Japan's imports from member nations

have increased from Australia, Myanmar and Cambodia followed by other member nations. Additionally, Japan's imports have increased in both commodities from Australia, China, New Zealand, South Korea, Vietnam, Thailand, Malaysia and Philippines.

Table 14: Percentage change in industry output and labour endowment in Japan after elimination of tariff barriers

Japan	Percentage Change in Industry Output	Percentage Change in Labour Endowment
B&T	36.1	0.05
I&S	3941.91	1.427
Agriculture	-127.75	-0.1
Manufacturing	-3779.5	-0.133
Services	284	0.013

(Source: Author's Contribution)

In table 14, it is noteworthy that in Japan the industry output has increased substantially in I&S by an impressive 3941.91% while B&T has seen a modest growth of 36%. Additionally, there is an increase in industry output in services whereas for Manufacturing and Agriculture it has declined, resulting in increase in demand for labour for B&T, I&S and services and has fallen for the rest.

*SOUTH KOREA***Table 15: Percentage change in exports and imports of South Korea after elimination of tariff barriers**

South Korea	Percentage Change in Exports		Percentage Change in Imports	
	B&T	I&S	B&T	I&S
Australia	3.04	9.67	36.62	4.58
China	56.27	22.85	35.44	2.39
Japan	24.99	1.15	62.58	0.83
New Zealand	9.69	12.18	42.8	0.59
South Korea	-3.20	0.16	-3.2	0.16
Brunei	-0.85	-0.55	-3.2	0.45
Cambodia	12.79	7.39	-2.66	14.35
Vietnam	52.46	4.30	45.13	1.8
LaoPDR	53.08	22.26	5.14	0.71
Singapore	6.14	-0.81	17.82	0.12
Thailand	-6.23	12.96	4.01	2.47
Indonesia	-8.28	15.07	2.68	0.77
Malaysia	597.42	48.17	-1.27	2.01
Myanmar	15.72	5.30	19.3	0.81
Philippines	-0.48	3.20	-0.57	0.79
UK	0.06	-0.34	-3.28	0.46
USA	0.05	-0.28	-3.28	0.46
INDIA	0.06	-0.31	-3.27	0.48
EU	0.07	-0.34	-3.28	0.46
ROW	0.06	-0.33	-3.28	0.47

(Source: Author's Contribution)

Within the RCEP block, South Korea's exports have escalated with all nations other than Brunei, Thailand, Indonesia and Philippines in favour of B&T. Moreover, as shown in table 15, a spike in changes in exports for I&S is marked for all RCEP nations apart from Brunei and Singapore. Strikingly, Brunei is the only nation with whom South Korea's export falls with respect to both commodities. Considering B&T, there is a diversion from the UK, USA, India, EU and ROW to RCEP member nations with exception of Brunei, Cambodia, Malaysia and Philippines. However, South Korea's imports of I&S have seen significant rise not only from member nations but also from non-member nations.

Table 16: Percentage change in industry output and labour endowment in South Korea after elimination of tariff barriers

South Korea	Percentage Change in Industry Output	Percentage Change in Labour Endowment
B&T	317.01	2.648
I&S	3579.94	1.619
Agriculture	-36.85	-0.079
Manufacturing	-3341.88	-0.205
Services	138.88	0.021

(Source: Author's Contribution)

Interestingly, in table 16, the South Korea's industry output have shown a substantial positive increase in I&S industry by 3579.94% and B&T has also experienced a smaller yet notable positive increase of 317% leading to increase in demand for labour in both the sectors and declined in others like agriculture, manufacturing showing negative percentage change in industry output.

6. Conclusion and Policy Suggestions

The B&T industry plays a significant role in global trade contributing to economic growth, foreign exchange earnings and employment generation. Further, the sector is driven by dynamic consumer preferences, evolving lifestyle trends and sustained global demand characterized by increased trade volumes and wide market penetration in both developed and emerging markets (Panchal et al, 2023). In both mature and emerging markets, sustained consumer appetite for premium and niche products, combined with rising middle class incomes, has reinforced the sector's expansion. For countries like Malaysia and Indonesia the tobacco sector generates major trade revenues with domestic value chains benefitting from backward linkages created by cigarette and processed tobacco manufacturing despite regulatory challenges, enhancing their domestic production (Estrades et al., 2023). At the same time, the sector's resilience highlights the ability of domestic industries to adopt to regulatory challenges without significantly undermining their global market position.

Parallely, the I&S industry plays a significant role in holding equal strategic relevance, forming the industrial backbone of manufacturing, construction, infrastructure and heavy engineering activities worldwide. As a foundational driver of industrial development and technological progress, the sector performance is closely tied to broader macroeconomic trends, global investment cycles and infrastructure expansion. East Asian nations such as China, Japan and South Korea dominate global output, shaping intricate and interdependent global value chains through highly integrated supply chain networks, technological advancements in steel-making and economies of scale (Jin, 2021).

Implementation of RCEP has further reinforced the sector's efficiency and competitiveness of both the B&T and I&S sectors. By reducing tariff and non- tariff barriers, stimulating competitiveness and promoting intra-regional trade networks, RCEP has facilitated improved market access, lowered transaction costs and expanded

intra-regional trade networks (Rahman and Sharma, 2024). The study demonstrates that free trade in the B & T and I&S sector among RCEP nations will majorly lead to trade creation within the block.

While the global exports of B&T and I&S are expected to rise, the benefits are not evenly distributed. Some members have experienced disproportionate gains, reflecting differences in industrial capacity, export structure, and domestic market integration. Therefore, the stimulation depicts mixed results in terms of domestic production and employment in member nations in case of both the sectors. Countries such as Singapore, South Korea, Japan, Malaysia and China have experienced significant GDP and welfare gains. . Nevertheless, the global exports of B&T and I&S are expected to rise, some RCEP members witnessed skewed results. Therefore, the stimulation depicts mixed results in terms of domestic production and employment in member nations in case of both the sectors.

As a policy implication the member nations should enhance their sectoral competitiveness and prioritize their investment in research and development. Further, the nations can indulge in skill development and workforce reskilling to mitigate labour demand shifts. In addition, policymakers should develop mechanisms to mitigate trade imbalances through bilateral agreements within the block.

Non- member RCEP nations like the EU have experienced trade diversion effects and thus engage in bilateral trade agreements, strengthening their existing ties outside the block. Moreover, the untapped opportunities can be analysed in regions like Africa, South America and emerging markets in Central Asia. Furthermore, to foster economic resilience niche sectors having comparative advantage can be focused by non- member nations. Lastly, policies can be aimed at supporting small and medium enterprises that ensure inclusive economic growth.

Over the last decade advanced economies have turned increasingly to economic nationalism, giving precedence to national interest under “nation-first” policies that prioritize domestic interest. For instance, imposition of 50 percent tariff on Indian exports by USA president Donald Trump has hampered India's export led growth in key sectors such as textiles and apparels, gems and jewellery, shrimps, leather and chemicals. This protectionist wave is now being supported by other developed economies that may redefine the global trade flows, possessing a threat to multilateralism and creating uncertainty for emerging economies like India. To counter it, India needs to pursue aggressively bilateral and multilateral trade agreements, such as recently signed UK-India Free Trade Agreement and ongoing negotiations with EU and Australia, while strengthening ties with Global South to diversify the markets, secure preferential access and moderate over dependence on specific partners. However, such measures are deeply intertwined with political realities, making diplomacy an important alignment tool.

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