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PHÂN TÍCH GỖ VÀ SẢN PHẨM GỖ CỦA VIỆT NAM XUẤT KHẨU TỚI CÁC ĐỐI TÁC TIỀM NĂNG CPTPP SỬ DỤNG CHỈ SỐ CƯỜNG ĐỘ THƯƠNG MẠI - LỢI THẾ SO SÁNH BIỂU LỘ

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Tóm tắt

Kể từ năm 2019, Hiệp định Đối tác Toàn diện và Tiến bộ xuyên Thái Bình Dương (CPTPP) chính thức có hiệu lực tại Việt Nam. Đây là hiệp định mở ra vô vàn cơ hội xuất khẩu cho Việt Nam vào các thị trường thành viên trong hiệp định. Nghiên cứu này nhằm đánh giá giá tiềm năng xuất khẩu của gỗ và các sản phẩm làm từ gỗ của Việt Nam tới các quốc gia CPTPP, sử dụng chỉ số lợi thế cạnh tranh (RCA) và cường độ thương mại (TII) giữa Việt Nam và 3 thị trường Nhật Bản, Úc và Canada trong giai đoạn 2015 đến 2022. Nghiên cứu chỉ ra rằng Hiệp định CPTPP giúp tăng đáng

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kể tiềm năng thương mại mà Việt Nam có trên thị trường nội thất gỗ, chủ yếu nhờ vào giảm thuế. Bên cạnh đó một số hạn chế đã được chỉ ra khi áp dụng hai phương pháp này trong bài nghiên cứu này, cùng với gợi ý cho Doanh nghiệp gỗ để tận dụng tối đa các tác động của hiệp định.

Từ khoá: CPTPP, Việt Nam, gỗ và sản phẩm từ gỗ, chỉ số cường độ thương mại, RCA

AN ANALYSIS OF VIETNAMESE WOOD AND WOODEN PRODUCTS EXPORTS TO POTENTIAL CPTPP PARTNERS: A TRADE INTENSITY - REVEALED COMPARATIVE ADVANTAGE APPROACH

Abstract

Vietnam has been a member of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) since 2019. This agreement opens many export opportunities for Vietnam with other potential markets. This research aims to evaluate the potential of Vietnam's Wood and Wooden furniture export growth with countries participating in CPTPP. Quantitative analysis was based on the calculations of the Trade Intensity Index (TII) and the Revealed Comparative Advantage (RCA) between Vietnam and three separate partners, which are Japan, Australia and Canada from 2015 to 2022. Research results reveal that the CPTPP Agreement offers significantly increasing trade potentials that Vietnam possesses in the wooden furniture market thanks to tariff reduction. Besides, some limitations have been pointed out while applying these two methods in this research paper, along with some recommendations for wood enterprises so that they can fully utilize the agreements.

Keywords: CPTPP, Vietnam, wood and wooden products, trade intensity index, RCA

1. Introduction

Vietnam has emerged as a major exporter of wood and wooden products in recent decades, accounting for 19.4% of the total amount of the world's wooden furniture export turnover as of 2020. This rapid export-driven growth has been attributed to Vietnam's comparative advantages in plantation forestry and a low-cost yet skilled wood manufacturing labor force (Dang., 2018; Nguyen., 2020). On the other hand, in an effort to accelerate the pace of sustainable growth in Vietnam's wood processing and non-timber forest product export industries, the Prime Minister issued Directive No. 08/CT-TTg on March 28, 2019. This directive outlined ambitious goals to be achieved by 2025, including increasing the export revenue generated from wood and non-timber forest products to a range between $18-$20 billion USD.

Keeping such an ambitious goal in mind, it is of no question that Free Trade Agreements (FTAs) are now even more adapted to and, thoroughly, have supported the expansion of this industry, in this case – the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) (Le, 2022; Nguyen, 2019; Trung, 2017). As the latest generation FTA, CPTPP has promised further trade gains by endowing considerable preferential tariff concessions on key wooden furniture and joinery imports currently facing markets such as Australia and Canada with most wooden furniture tariffs standing at zero.

The overall purpose of this research paper is to provide an analysis of the potential Vietnam's wooden industry may develop under the CPTPP through the quantitative analysis of provided data on the exports to three of our dominating partners – Canada, Australia, and Japan. The authors also chose the timeline between 2015 to 2022 to be the time scope of the study due to the agreement's commencement date of December 2018, so that a linear change in export value before and after CPTPP came into force can be observed. The research has two objectives:

(1) To assess the trade relation between Vietnam and its three largest CPTPP partners vis-à-vis export activities of wood and wooden furniture through two trade indices, before and after the enactment of CPTPP.

(2) To provide policy recommendations for the Viet wood and wooden furniture exporting industry to leverage the tax concessions under the trade mentioned above pact to their full advantage

2. Literature review

2.1. Research on Vietnam's wooden furniture exports and the effects of CPTPP

In research on how to utilize new generation FTAs for the import and export growth of Vietnam, Nguyen Thi Nhieu; Tran Huong Lien, and Tran Huong Lan (2019) stated that joining and leveraging CPTPP presents significant opportunities for Vietnam's economic growth, as well as its export sector.

The studies of Nguyen Huu Hao and his colleagues (2022), and Nguyen Van Nen (2020) have tested several methods that can be used to evaluate the effects of CPTPP on Vietnam exports, especially wooden furniture exports. In one study made by Tung et al. (2022), CPTPP was concluded to have an overall positive effect on Vietnam's wooden products exports, with the tariff reduction to 0% under the agreement resulting in a total positive effect for the wooden furniture trade. The study theorized two scenarios - with and without the participation of the US to account for the outcomes of trade diversions, which then invariably deemed not as beneficial to our trade economy as the CPTPP devices.

2.2. Tariff reduction

Tariff reduction exerts a positive impact on the trading of products that have significant comparative advantage, compared with other sectors in the economy. This has been proved by Aradhna Aggarwal (2004) with India's case and timber economy in Pakistan by Malik, Khurshid and Rizwan (2020). The former study suggested that the impact appears to be minimal for several products that exhibit significant price sensitivity in the Indian context. Thus, enhancing India's export growth for these items requires improving its competitiveness over other countries in various markets. This finding also proposes that to gain the edge of tariff cuts, a country should invest more in exporting products that possess a high comparative advantage (Aggarwal, 2004). The latter found that total imports and exports of wood, as well as the volume of merchandise trade, have seen an uptick. Similarly, Pakistan's real GDP has experienced a slight rise. There has also been an enhancement in the overall importation and domestic demand for wood across different communities, thanks to a decrease in market price (Malik, Khurshid and Rizwan, 2020).

Therefore, in order to assess the potential of Vietnamese wood and wooden products export when tariff rates diminish, the authors will first evaluate whether timber products have a competitive edge.

2.3. Trade intensity index (TII)

In a project by Drysdale & Garnaut (1982), the authors theorized that the "intensity approach" may be an effective device to measure deviations from patterns of trade and to envisage bilateral trade flows from given data. On a similar note, Drysdale back in 1967 also refined two complementary formulas of the trade intensity index, one of which analogously accounted for country bias and the specific trading commodity to the TII formula by Kojima (1964), since Drysdale had acknowledged a weakness that TII may hold, that it may leave out the varying commodity composition between two countries in a bilateral trade relation.

In a research conducted in 2014, Raj, P.S., Wing, E.C.O.N.O.M.I.C.S. and Ambrose, D. utilized a trade intensity approach to analyze the bilateral trade between Japan and India. The hypothesis also states that, if the intensities between two countries are significantly below 100, then there is trade potential to be harvested between them (Sundar Raj and Ambrose, 2014).

An important up-to-date research using the trade intensity index is on New Zealand's challenges and opportunities when joining CPTPP, conducted by Satya Gonuguntla in 2019. Different from the previous research, this study not only used the import intensity index to determine the prospects in trade between these markets, but also identified the reasons behind a decline in trade intensity from New Zealand to those partners, and made some recommendations.

Taking a closer step to Vietnam's trade intensity, there is a considerable wall of literature analyzing this index of our country in relation to strong markets in the world. In "Trade Relation between Vietnam and China", Le (2017) utilized the decreasing TII in linkage with the trade diversification to other prosperous economies such as the United States, the EU and Japan. Similar findings are documented in a CIEM's report in 2016, with Vietnam exhibiting a high trade intensity index, particularly in many industries, with a specific focus on food processing, and a trade dependency index that can be seen lower for an average ASEAN country, which implies that Vietnam has a relatively diversified export market beyond China within the ASEAN region.

2.4. Revealed comparative advantages (RCA)

Revealed Comparative Advantage (RCA), initially proposed by economists Bela Balassa and Richard Baldwin in the 1960s, is a fundamental economic concept in international trade theory, providing insights into a country's specialization patterns and competitive advantages in producing certain goods and services relative to other countries. It is based on the principle of comparative advantage, which was introduced by economist David Ricardo in the early 19th century.

Ricardo's theory of comparative advantage expounded in his seminal work "Principles of Political Economy and Taxation" in 1817 (Lin & Erika, 2023), proposes that countries should specialize in the production of goods and services in which they have a comparative advantage, even if they possess an absolute advantage in producing all goods. The main point of the theory lies in the opportunity cost of production: nations should allocate resources to the production of goods where their opportunity cost is lower relative to other nations.

An analysis commissioned by the United Nations Development Programme (UNDP) in 2019 used RCA to measure the international competitiveness of Vietnam's manufacturing sub-sectors and their linkage to labor productivity (LP). It states that exporting firms in Vietnam tend to be more productive than non-exporters, showing a two-way relationship between exports, LP and competitiveness. Certain sub-sectors have maintained RCA ratios above 1 since 2005, including wood and furniture. In a study conducted by Vu et al. (2019), the Revealed Comparative Advantage (RCA) index, alongside other metrics and the entropy method, was employed to assess the global competitiveness of Vietnam's wood processing sector. The findings highlighted Vietnam's advantageous position stemming from abundant natural resources, a proficient workforce, favorable geographic location, and robust global demand. However, the study also observed a gradual decrease in the sector's competitive growth rate from 2008 to 2017, largely attributed to limited productivity gains and insufficient industry value added. The author Hoang and his colleagues in 2017 had a closer look into our country's agricultural product base and concluded the highest RCA values in 2014 belonged to the sectors of woods in chips, particle, spice, and natural rubber, respectively. Such a result substantiates that Vietnam's strategy for agricultural exports and its pattern of comparative advantage largely rely on natural-resource-intensive and traditional agricultural products. Coming out with a similar notion for the conclusion was Shashi and Nguyen's research (2019), in which RCA and its other modified version realized wood manufacturing as simultaneously a "specialized" and "strengthening" industry. A key differentiating observation was because of the aforementioned and other "noises" in the pattern of calculation, policymakers may be misled in prioritization for the wood and wooden furniture, as well as similar manufacturing industries. Furthermore, the study called for an upgrade of products (viz. new designs, refined functionality) to boost the export-led potential that the wood and wooden furniture may possess.

2.5. Research gap

Based on the research about Vietnam's trade background and opportunities for our economy when joining CPTPP, the authors overcame many benefits for Vietnam when joining this FTA. However, the comparative advantage of the wooden sector has not been deeply analyzed yet. Thus, this research aims to assess the comparative advantages of Vietnamese wood and wooden products exports when joining CPTPP with 3 particular nations: Australia, Canada, and Japan. Applying the statistics from the previous research, together with the use of Trade Intensity Index (TII) and Revealed Comparative Advantage (RCA).

3. Overview of Vietnam's export in recent period (2021-2023)

3.1. About CPTPP

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is a plurilateral trade accord signed in 2018 by 11 countries: Japan, Canada, Australia, Brunei, Chile, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam - with our entry being made by 2019. CPTPP nations represent 13.4% of the global gross domestic product (GDP) valued at $13.5 trillion, making it one of the largest trade agreements after the North American Free Trade Agreement. The main provisions of CPTPP aim to reduce as many trade barriers as possible through key commitments for country members in this agreement, about tariff reduction, rule of origin, government procurement, labor, and service - investment.

3.2. Background information of wooden furniture trade

3.2.1 From 2021 to 2022

Vietnam's export turnover of wood and wooden products in the first 11 months of 2022 reached nearly $14.39 billion, up 13.1% year-on-year. Furniture exports (HS 94) accounted for 62.76% (a decrease of 6% compared to the same period in 2021), while the export turnover of raw wood (HS 44) increased by 5.91% to 31.08% of the total; the remaining percentage was for other products (6.16%). Export turnover experienced strong growth averaging over $1.3 billion monthly from January to August 2022, (excluding February due to the Lunar New Year holiday). However, from September 2022, export values started to decline with an average of $1.1 billion per month. This teetering pattern of trade can be rendered by the following disturbances in the economies all over the world throughout the time frame.

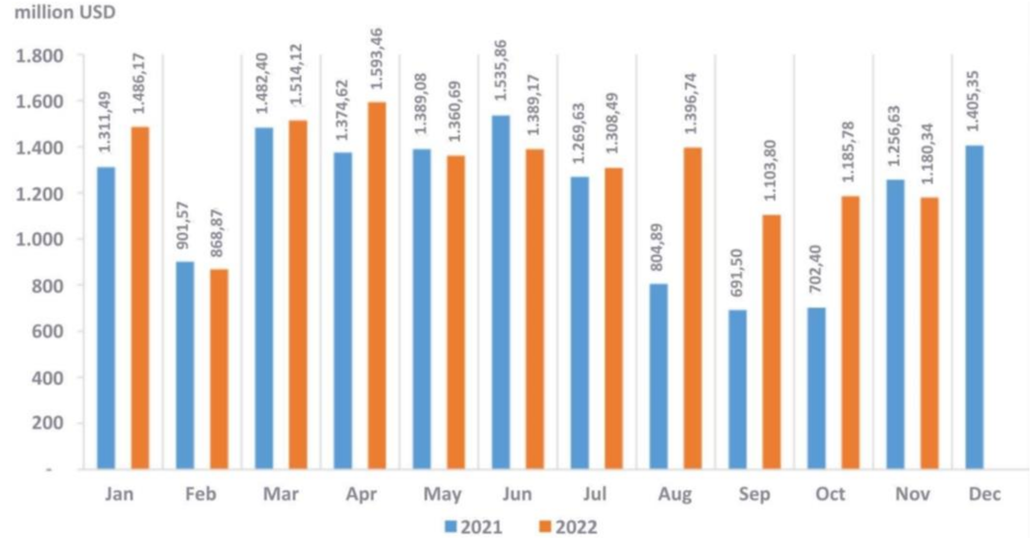

Figure 1. Monthly export turnover value from January 2021 to November 2022

Source: General Department of Vietnam Customs Database and Forest Trends study group's calculation (2022)

February observed the lowest value at 868.87 million USD of turnover, which can be explained by the Lunar New Year Holiday and a recessive recovery phase after COVID-19. Export activities of the overall economy, including the wood sector, are gradually recovering with expectations of good growth as important markets reopen such as the United States, Japan, the EU, China, etc. In the latter half of 2022, the number started to decrease as mentioned. Still from August to October, the export turnover was nearly 50% more than in 2021, respectively. In the last quarter, value remained stable at 1.8 million per month.

The Russia - Ukraine conflict, along with the global energy price crisis and rapid inflation, have caused significant difficulties for Vietnamese wood export businesses. The conflict between Russia and Ukraine has prompted several export markets for wood and wood products from Vietnam to issue warnings/notifications regarding the use of Russian birch wood, which may pose a risk of violating the sanctions imposed by these countries on Russia. In August, kitchen cabinets, kitchen components, and plywood were under investigation for anti-dumping and trade fraud in the United States market. The US Department of Commerce has issued a ruling stating that certain imported hardwood plywood products from Vietnam have been determined to originate from China, and are now subject to high tariffs of up to 200%. Nevertheless, there is still the stabilization in export value which can be attributed to the wood chip and pellet sectors. There has been a significant surge in demand for wood chip imports from China, Japan, South Korea, and especially in the EU. The cause is due to a shortage of energy supply from Russia, as well as commitments from countries worldwide to reduce CO2 emissions at the COP27 event and achieve a net-zero goal.

3.2.2 From 2022 to November 2023

Statistics from the General Department of Customs of Vietnam show that in the first 10 months of 2023, Vietnam's wood export turnover reached only over $10.67 billion, witnessing a decrease of 19.2% compared to the same period in 2022. After seven consecutive months of declining export turnover, with each month reaching only about $1 billion, the export situation of the wood industry has shown more optimistic signs of recovery. The export value in August 2023 reached nearly $1.26 billion, seeing an increase of 14.3% compared to the previous month. Moving into October, the wood industry's export turnover reached approximately $1.26 billion, or a 5.82% growth year-on-year. 2023 marks a more stable year for exporting businesses, despite this, there is evidently a shrinkage in the turnover when we compare it to the previous year.

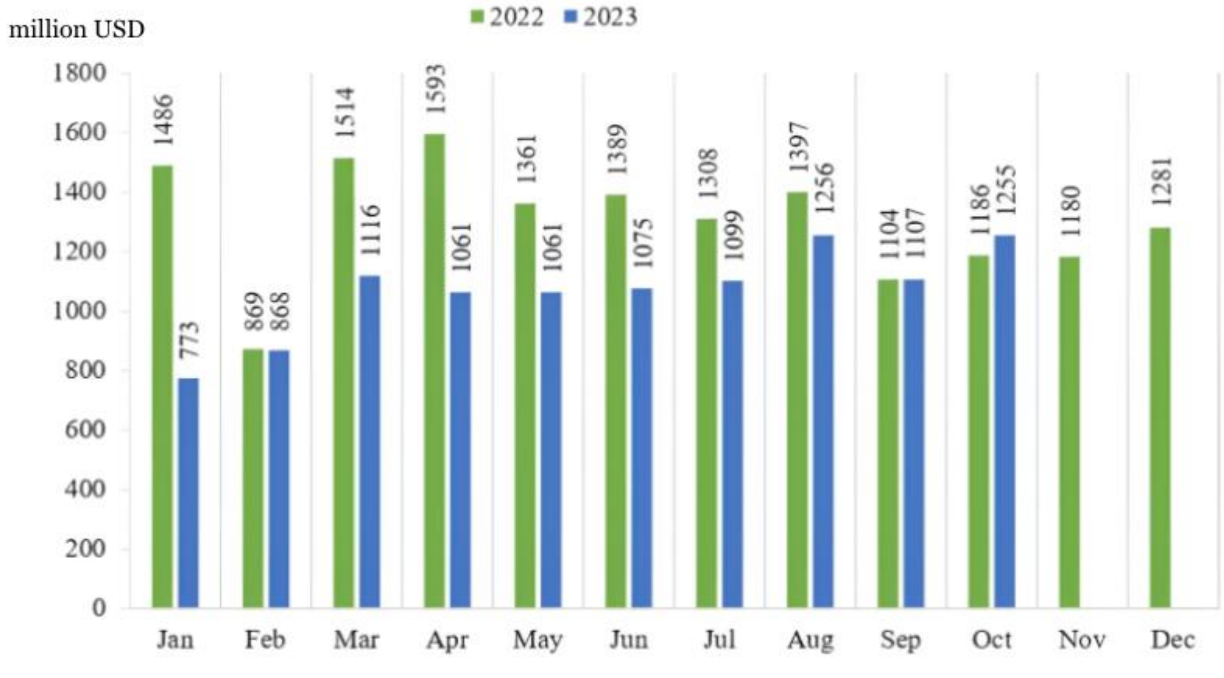

Figure 2. Monthly export turnover of wood and wooden products for Vietnam in 2022 and the first 10 months of 2023

Source: General Department of Vietnam Customs database and Forest Trends study group's calculation (2023)

Vietnam Timber and Forest Product Association (VIFOREST) assesses that the global economy is facing difficulties and challenges, with a sharp decline in global purchasing power, leading to a significant decrease in the number of wood industry orders compared to the same period in 2022. In the structure of the wood and wooden product export market, especially in the category of wooden furniture to the US market, there has been a significant decrease due to the

US housing demand index in February 2023 dropping by 48.1% compared to the same period the previous year, resulting in a sharp decline in wood and wooden product imports to this market. Disruptions in supply chains can also be a challenge as we experience a decline in imported woods. In a report by Vietnam Industry Research And Consultancy, the amount of wood materials imported during the initial quarter of 2023 saw a decline of 3% in comparison to the corresponding time frame in 2022.

3.3. General bilateral trade relationship between Vietnam and the three biggest CPTPP wood exports partners

3.3.1 Bilateral trade relationship between Vietnam and Japan

Le Tuan Loc (2017) identified Japan as one of the most important import-export partners of Vietnam during the period of opening and integration internationally. Japan has always been Vietnam's top import-export market with continuously increasing import turnover.

An initial examination by Dung (2023) of the trade partnership between Japan and Vietnam reveals significant growth. From 1990 onward, their total trade has expanded by an impressive Compound Annual Growth Rate (CAGR) of 15.2 percent. By 2022, the total trade volume surpassed 47 billion USD, positioning Japan as Vietnam's fourth-largest trading ally, indicative of strong economic connections.

Two countries signed several agreements that allow favored tariff structures. Most noticeably, the Vietnam-Japan Economic Partnership Agreement (VJEPA) has been effective since October 1, 2009.

Accordingly, in the last year of the tax reduction roadmap (in 2026), which is after 16 years of implementation of this Agreement, Vietnam has committed to reduce 90.64% of the tariff lines and by the time the Agreement was effective, 29.14% of the tariff lines had been immediately eliminated.

The potential for exporting wood and wood products, especially wooden furniture, to the Japanese market is very significant because Japan is a large consumer market, with a population of nearly 126 million people and an average income per capita of about $43,000 per year.

The Vietnam Timber and Forest Product Association stated that Japan still implements non-tariff measures to protect its domestic manufacturing industry, despite pursuing a policy of free trade by cutting tariffs according to the schedule from trade agreements. Among such barriers, the Japanese Government often embeds legitimate reasons such as protecting domestic industries from unfair trade practices (anti-dumping, countervailing), safeguarding human health, and environmental safety. Notably, if the quality of a product is accepted by the Japanese market, then that product can competently compete in other markets as well.

3.3.2 Bilateral trade relationship between Vietnam and Canada

Vietnam and Canada have set a target to enhance trade and investment collaboration, aiming to elevate the bilateral trade turnover to $10 billion. In 2022, two-way trade volume reached $7 billion, with Vietnam's export turnover to Canada experiencing a remarkable growth, surging by over 65% from $3.9 billion in 2019 to $6.3 billion in 2022, as reported by the General Department of Customs.

Dinh (2021) has pointed out that Canada committed to eliminate 94.5% of total tariff lines immediately after the ratification of the Agreement, equivalent to 77.9% of the import turnover from Vietnam; 96.3% of total tariff lines were eliminated four years after the Agreement came into force, equivalent to 93,4% of the import turnover from Vietnam.

Referring to wood and wooden product export, Vu (2022) highly appreciates the potential Canadian market brings. The author stated that the export value of wood and wood products from Vietnam to this market in 2020 reached nearly $219.8 million, an increase of 14.4% compared to 2019.

The reason for the rise in demand for Vietnam's imported wooden furniture in Canada is that the domestic furniture industry cannot compete with foreign markets that have a cost advantage, especially a market like Vietnam. This competitive edge consisting of low production and input costs, a favorable currency exchange rate, should be exploited, so as to gain more from the market.

3.3.3 Bilateral trade relationship between Vietnam and Australia

According to Nguyen and Kim (2017), Vietnam stands in the top 10 agri-food export destinations of Australia, and the value of agricultural trade between the two countries reached AUD 2.8 billion in 2016.

In 2022, two-way trade turnover between Vietnam and Australia has had a breakthrough growth, reaching a new record of 15.7 billion USD, an increase of 26.91% over the previous year, of which export turnover from Vietnam to Australia recorded a clear improvement, reaching 5.55 billion USD, an increase of 26.18% and imports reached 10.14 billion USD, an increase of 27.31%.

The trade relations are supported by various multinational agreements, not any specific bilateral agreement. One significant pact is the Australia-Vietnam Comprehensive Partnership, established in September 2009 to strengthen their bilateral ties. Additionally, the ASEAN-Australia-New Zealand Free Trade Agreement (AANZFTA) was signed and enforced in January 2010, involving Australia, New Zealand, and six ASEAN nations, including Vietnam. In 2020, more than 90% of tariff lines from Australian imports to Vietnam were tariff-free – covering over 99% of Australian exports to Vietnam.

In the timber industry, Australia is the 9th largest wood furniture import market in the world, with an average import value of 1.6 billion USD/year in the period 2018 – 2022, and an average growth rate of 2.6% per year. Hoang (2023) collected data from the General Department of Customs and found out that Vietnam's wood and wood products export turnover to the Australian market in March 2023 reached 10.6 million USD. In total, for the first three months of 2023, the export turnover of wood and wood products from Vietnam to this market reached 26.5 million USD. Among the wood and wood product exports to the Australian market, wooden furniture is the main export item and brings high-added value to the wood industry, mainly dining room furniture. However, there is one novel consideration for Viet wood furniture exporters, which is the introduction of a community protection question about tariffs on wooden furniture in the Integrated Cargo System (ICS) when submitting a customs declaration.

4. Methodology

Trade and export data will be obtained primarily from the Commodity Trade database (UN COMTRADE), which is maintained by the United Nations Statistical Division (UNSD), and the Trade Map database - the International Trade Centre (ITC). The key indices utilized in this research include the Trade Intensity Index (TII) and Revealed Comparative Advantage (RCA) index.

4.1. Overview of the Trade Intensity Index (TII)

The glossary developed by the World Integrated Trade Solution (WITS) defines Trade Intensity Index (TII) as a metric used to assess whether the volume of trade between two countries is more or less than what people anticipated based on their significance in global trade (WITS, 2019). It is determined by comparing the proportion of one country's exports, namely “i” to a specific partner, namely “j”, with the proportion of global exports directed to “j”. This index is calculated as follows:

$$T_{ij} = \frac{x_{ij}/X_{it}}{x_{wj}/X_{wt}}$$

Here, x_{ij} and x_{wj} represent the values of country i's exports and global exports to country j, respectively, while X_{it} and X_{wt} denote country i's total exports and total global exports. A value greater (lesser) than unity indicates that bilateral trade exceeds (falls) expectations considering the partner country's global trade importance. In this context, unity is simply one.

In this research, the authors will use the same equation as Satya (2019), Sundar Raj and Ambrose (2014) and WITS have applied so as to calculate the export intensity of four 6-digit HS code wooden products of Vietnam into Japan, Canada and Malaysia market, before and after CPTPP. An interpretation of the results will be in the next section of the study.

4.2. Overview of Revealed Comparative Advantage (RCA)

The calculation of RCA involves comparing the share of a country's exports of a particular product to the share of world exports of that same product. Mathematically, the RCA index for a particular product j in country i is computed as the ratio of the country's share of exports of that product to its share of total world exports:

$$RCA_{ij} = \frac{X_{ij}/X_{it}}{X_{wj}/X_{wt}}$$

Where:

X_{ij} = Country i’s exports of product j

X_{it} = Country i’s total exports

X_{wj} = World exports of product j

X_{wt} = World total exports

A value of RCA greater than 1 indicates that the country specializes in the production and export of that particular product, suggesting a comparative advantage. Conversely, a RCA value less than 1 indicates a comparative disadvantage in producing and exporting that product.

In this study, the authors will use the RCA index in order to determine whether four 6-digit HS code wooden products have a comparative advantage, and whether that advantage helps these products to further penetrate into Canada, Japan and Malaysia market after CPTPP. A further analysis will be provided in the next part of the study.

5. Analysis and discussion

5.1. Calculation of trade intensities between Vietnam and three parties

Table 1. Trade intensity between Vietnam and three parties from 2015 to 2018

Year	Japan	Australia	Canada
2015	2.28	1.47	0.58
2016	2.14	1.34	0.58
2017	2.02	1.16	0.51
2018	1.97	1.32	0.51

Source: Authors' calculations

Table 2. Trade intensity between Vietnam and three parties from 2019 to 2022

Year	Japan	Australia	Canada
2019	1.97	1.1	0.61
2020	1.84	1.04	0.65
2021	1.68	1.1	0.69
2022	1.82	1.20	0.75

Source: Authors' calculations

The trade intensity indices between Vietnam and Japan have consistently been above unity, suggesting that Vietnam's trade with Japan is more significant than might be expected from its overall presence in global trade. Despite the average import intensity of 1.97, there has been a downward trend in this index, dropping from a high of 2.14 in the period 2016 - 2018 to a low of 1.68 in 2021. Nevertheless, the index improved in 2022, to 1.82. In the research about New Zealand's potential when joining CPTPP, Satya (2019) explained that the plummet in trade intensity indices is due to the difference between the demand for imported goods of the member nations and what the exporters are able to produce, regarding their resources.

Similar patterns are evident in trade relations with Australia, where the trade intensity indices are bigger than, indicating a higher export value from Vietnam to this country than anticipation based on Vietnam's share in the international market. Although there was a decrease, it was not as significant as the one observed in Japan during the same period (the difference between the high and the low is 0.43).

On the other hand, the trade intensities between Vietnam with respect to Canada are below unity, illustrating a low Vietnam's export value to Canada, in comparison with Vietnam's export value to the rest of the world. Nevertheless, there was an upsurge in these indices after the CPTPP became effective in December 2018, increasing from only 0.51 in 2018 to 0.75 in 2022. The introduction of CPTPP rationalized the growth of import intensity indices in the given period, owing to the fact that Vietnam has not had a Free Trade Agreement with Canada, CPTPP has facilitated trading between 2 countries and generated several opportunities for Vietnam to penetrate Canada's market.

Table 3. Wood and wooden products exports statistics (% total exports) from 2015 to 2022

Year	Vietnam	ROW	Share
2015	2,477,816	117,750,732	2.06092
2016	2,290,126	124,253,084	1.80976
2017	2,463,503	132,580,317	1.82422
2018	3,146,464	144,285,356	2.13418
2019	3,455,426	130,424,372	2.58099
2020	3,504,262	129,996,113	2.62491
2021	4,557,382	180,473,351	2.46304
2022	5,848,971	183,978,970	3.08120

Source: Authors' calculations

Table 4. Wood and wooden products imports from Rest of the world from 2015 to 2022

Year	Japan	Australia	Canada
2015	2.50	2.49	2.83
2016	2.57	2.53	2.82
2017	2.35	2.33	2.71

Year	Japan	Australia	Canada
2018	2.25	2.44	2.62
2019	2.31	2.34	2.58
2020	2.20	2.36	2.74
2021	2.15	2.38	2.68
2022	2.78	2.17	2.76

Source: Authors' calculations

Table 5. Wood and wooden products imports from Vietnam (% total imports from Vietnam) from 2015 to 2022

Year	Japan	Australia	Canada
2015	5.33	1.93	0.66
2016	4.51	2.22	0.72
2017	4.01	2.30	0.58
2018	4.17	2.09	0.70
2019	4.54	2.58	0.67
2020	4.43	2.73	0.85
2021	5.17	2.64	0.99
2022	5.65	3.03	0.99

Source: Authors' calculations

A detailed analysis into Vietnam's wood and wooden products trade volume has suggested a bright scenario for this sector's export development. Table 3 presents an increase in Vietnam's wood and wooden products exports, constantly rising from 2.06 in 2015 to its peak of 3.08 in 2022.

Comparing Table 4 and Table 5, the authors observe a significantly increasing demand for Vietnamese wood and wooden products in Japan, as evidenced by the growth rates and market share changes. Despite some fluctuations, the percentage of wood and wooden products imports from Vietnam increased from 4.5%1 to 5.65%, which was 4.18% higher than that from the rest of the world. This suggests a robust potential for Vietnam to further penetrate and expand in the

Japanese market. Although the growth rates and market share changes in Canada and Australia are not as pronounced as in Japan, there's a clear indication of Vietnam's growing presence and acceptance in these markets, with a growth to 0.99% and 3.03% respectively. This presents opportunities for strategic market expansion and penetration efforts by Vietnamese exporters.

5.2. Calculation of RCA

With the intention of avoiding any bias, the prospects of wood and wooden products exports from Vietnam will be further examined to specify its comparative advantage. Revealed Comparative Advantage (RCA) Indices serve as tools for evaluating export capabilities and capability for entering new markets (WITS). The figure in Table 6 shows that the average RCA indices to these three markets are all greater than unity after the appearance of CPTPP in 2018, at 2.32 (Japan), 1.01 (Australia), and 2.00 (Canada) in 2022. Vietnam's comparative advantage in producing and exporting wood and wooden products to the aforementioned partners can be inferred from the statistics.

Table 6. Average Vietnamese wood and wooden products RCA index from 2015 to 2022

Period	Japan	Australia	Canada
2015-2018	1.93	0.83	1.44
2019-2022	2.32	1.01	2.00

Source: Authors' calculations

Table 7. Vietnamese wood and wooden products's RCA index from 2015 to 2022, by HS Code

HS Code	Year	RCA	Mean
940360	2015	5.55	5.21
	2016	5.13	
	2017	5.08	
	2018	5.09	
	2019	5.39	
	2020	5.39	
	2021	4.86	
	2022	5.16	
940350	2015	9.44	8.46
	2016	8.79	
	2017	8.71	
	2018	9.01	

	2019	8.80	
	2020	7.85	
	2021	7.11	
	2022	7.99	
940340	2015	2.74	4.20
	2016	2.52	
	2017	2.43	
	2018	2.93	
	2019	3.67	
	2020	5.71	
	2021	5.85	
	2022	7.73	
943330	2015	8.82	6.80
	2016	7.72	
	2017	7.01	
	2018	5.90	
	2019	6.99	
	2020	6.54	
	2021	5.98	
	2022	5.44	

Source: Authors' calculations

Providing a deeper insight into Vietnam's wooden furniture, the RCA indices of four major wooden furniture products have been calculated to determine the edge that these products possess.

In terms of HS code 940360, HS code 940350 and HS code 940330, there were year-to-year fluctuations in the RCA indices, but the trend was that the indices weakened over the 8-year period. Such a pattern can be factually linked with an unstable supply chain of the timber to produce the exporting products, namely round wood, sawn wood, plywood, and wood fiber. This supply used to depend on resources from natural forests all across the country since timber from plantation forests was mostly for chippers and wood pulp processing (Nguyen, 2019).

The sharp decline across the years among the RCA, with the exception of HS code 940340, can be explained by the 2017 decision for the closure of natural forests for exploitation from the Ministry of Agriculture and Rural Development, following the Prime Minister's Notice No. 191/TB-VPCP in 2016. Nevertheless, the indices are relatively high, with a mean of 5.21, 8.46, and 6.80 respectively. This statistic is beyond unity, suggesting a strong comparative advantage.

Vietnam incontrovertibly has opportunities to expand its export share of these HS codes to three member nations.

In addition, the HS code 940340's RCA indices experienced an upward movement, from 2.74 in 2015 to 7.73 in 2022. Estimations from the Department of Forestry have foretold a gradual importance of plantation forests in the furniture processing field, as the area of plantation forests increases by 5-5.5% annually and the wood quality of such area has improved: plantation of wood with large diameter; native wood, multipurpose wood are also on the rise. This positive outlook for the promising timber source may account for such sharp increase in the index. The aforementioned elevation, in accordance with the fact that all indices are larger than 1, set out a promising future for this HS code to further export to Vietnam's partners.

Table 8. Average RCA of four wooden furniture products ranking

Rank	HS Code	Product	Average value
1	940350	Wooden furniture of a kind used in the bedroom	8.46
2	940330	Wooden furniture of a kind used in offices	6.80
3	940360	Other wooden furniture	5.21
4	940340	Wooden furniture of a kind used in the kitchen	4.20

Source: Authors' calculations

Table 8 depicts and ranks the average RCA of four wooden furniture products by four HS Code 940330, 940340, 940350, and 940360.

It can be observed from the average value of the four wooden furniture products that wooden furniture used in the bedroom has the highest comparative advantage, followed by wooden furniture used in offices. Thus, it is recommended for Vietnamese enterprises to further expand the manufacture of HS code 940350 to take advantage.

5.3. Schedule of tariff commitment

A reduction in tariffs may have a significant impact on the Revealed Comparative Advantage (RCA) index of a country, influencing both the structure and volume of its trade. According to Chapter 2, Annex 2-D: Tariff Commitments of CPTPP, the tariff schedule of Australia, Canada and Japan for wooden furniture from Vietnam is prescribed on Table 9, Table 10 and Table 11 as follows:

Table 9. Australia's tariff schedule

HS code	Description	Base Rate	Staging Category	Year 1	Year 2	Year 3	Year 4+
9403.30.00	Wooden furniture of a kind used in offices	5.0%	AU4-B	5.0%	5.0%	5.0%	0%
9403.40.00	Wooden furniture of a kind used in the kitchen	5.0%	EIF	0%	0%	0%	0%
9403.50.00	Wooden furniture of a kind used in the bedroom	5.0%	EIF	0%	0%	0%	0%
9403.60.00	Other wooden furniture	5.0%	EIF	0%	0%	0%	0%

Source: The WTO database

As can be seen from Table 9, all of the tariffs on wooden furniture exported from Vietnam will be eliminated after four years CPTPP coming into force (December 2018), from the base rate of 5% before CPTPP. This will save a remarkable amount of money for Vietnamese enterprises, thus stimulating the flow of wooden furniture exports to Australia and developing trade between Vietnam and Australia as a whole.

Table 10. Canada's tariff schedule

HS code	Description	Base Rate	Staging Category	Year 1	Year 2	Year 3	Year 4+
9403.30.00	Wooden furniture of a kind used in offices	Free	EIF	Free	Free	Free	Free
9403.40.00	Wooden furniture of a kind used in the kitchen	9.5%	EIF	Free	Free	Free	Free
9403.50.00	Wooden furniture of a kind used in the bedroom	9.5%	EIF	Free	Free	Free	Free
9403.60.00	Other wooden furniture	9.5%	EIF	Free	Free	Free	Free

Source: The WTO database

Table 10 shows that, almost identical to the tariff schedule of Australia, Canada also committed to remove the tariffs on imported wooden furniture, starting in 2019. One year after CPTPP, the tariff rate on wooden furniture from Vietnam will be 0%. Nevertheless, the potential that can be harvested from trading with Canada is still worthy of attention, as Vietnam has not had a bilateral FTA with this North American partner yet. An FTA is expected to be signed in the future.

Table 11. Japan's tariff schedule

HS code	Description	Base Rate	Staging Category	Year 1	Year 2	Year 3	Year 4+
9403.30.00	Wooden furniture of a kind used in offices	Free	EIF	Free	Free	Free	Free
9403.40.00	Wooden furniture of a kind used in the kitchen	Free	EIF	Free	Free	Free	Free
9403.50.00	Wooden furniture of a kind used in the bedroom	Free	EIF	Free	Free	Free	Free
9403.60.00	Other wooden furniture	Free	EIF	Free	Free	Free	Free

Source: The WTO database

Since Vietnam and Japan have established the Vietnam-Japan Economic Partnership Agreement (VJEPA), the base rate of tariff was 0% even before CPTPP. Therefore, the comparative advantage that Vietnam wooden furniture gains from CPTPP may come from other content of the agreement.

5.4. Recommendations

From the analysis and discussion aforementioned, the authors have some following recommendations for the government to further develop the wood industry:

(1) Actively deploy joint activities to create a centralized wood processing and supply area, manifesting consistency for the unstable exporting scene of the industry and alleviating one of its weaknesses that is small-scale production. Some joint activities that could be deployed include conducting feasibility studies to identify the optimal site, setting up a specialized wood industry zone with ready infrastructure, attracting foreign and domestic investors through promotions, developing dedicated utility networks within the park, and establishing common facilities to serve small-medium enterprises.

(2) Continually sustain and improve policy to support the production forest plantation, entailing a sustainable and quality timber supply for wooden furniture exporting activities. Besides the current direct financial supports for households who participate in the plan, our government can take on these actions: Land tenure arrangements and ensure secure land rights for forest plantation investors and local communities; Collaboration with domestic and foreign NGOs and experts in the R&D process for plantation development; Promotion of sustainable forest management practices such as Forest Stewardship Council (FSC), Programme for the

Endorsement of Forest Certification (PEFC)… to ensure a long-term availability of timber resources.

Furthermore, several suggestions can be proposed from this research paper for Vietnamese firms and producers in the wood industry:

(3) When the Australian Government's Biosecurity import conditions (BICON) released the biosecurity question: "Do the goods contain any wood (Excluding reconstituted wood, densified wood or wood plastic), and are not accompanied by appropriate documentation to verify that they have undergone an acceptable treatment/manufacturing process as required by BICON?", it requires Viet wooden furniture enterprises to make sure that the wood treatment or manufacturing processes used are among those recognized by BICON, along with seeking certification from recognized international bodies that verify the adoption of acceptable wood treatment processes. Such certification includes International Standards for Phytosanitary Measures No. 15 (ISPM 15) or Australian Wood Packaging Certification Scheme (AWPCS). In addition, establishing quality assurance protocols to guarantee that every wood product adheres to the required treatment standards through periodic audits and evaluations should be fundamental, not only for the Australian market, but also for the Japanese one.

(4) As Europe has banned the import of agricultural products produced on land originating from deforestation and causing forest degradation after December of 2020, it is likely to set a trend for other markets to take a similar action, as protecting the environment and reducing carbon footprint are becoming more and more necessary. Vietnamese firms need to keep checking the obtaining process of their woods and related materials, thereby adhering to the regulations of our partnering countries to avoid losing credits, or worse that are trade sanctions - such as the case of the EC's "yellow card" imposed on our fisheries.

(5) Vietnamese exporters can further maximize the existing comparative cost advantages (cheap labor, natural resources) by investing in technology and automation and implementing Lean manufacturing practices for a further efficient manufacturing process and even lower labor costs. On the other hand, firms should also diversify beyond sole reliance on such advantages not only because there is a dynamic international market that is rapidly emerging for wood and wooden products per this paper's overview, and also to compensate for our current weaknesses, namely unsustainable investment upon small-scale production, borrowed capital, and frequent outsourcings. Considering the earlier assessments of the promising trade relationship between Canada and Vietnam, the authors suggest firms invest in products' R&D to cater and adapt to the Canadians' consensus regarding interior designs, such as the minimalist Scandinavian aesthetics, which have sensationalized furniture made from hand-rubbed wood (Gotlieb & Prokopow, 2018).

6. Conclusion and limitations

6.1. Conclusion

In conclusion, by comparing the trade intensity indices between Vietnam and three member nations namely Australia, Canada and Japan in the period from 2015 to 2022, along with interpreting the RCA indices of four wooden furniture products, this study demonstrated that after CPTPP, the trade potentials that Vietnam possesses in the wooden furniture market have increased significantly. This can be attributed to the commitment in tariff reduction that has been clearly stated in the CPTPP. Studies with different research methods like SMART model or Gravity model also propose the same upward trend in Vietnam exports. The average RCA indices of above 6.02 suggest that all four products have the most comparative advantage when exporting to the stated markets, thus encouraging wooden furniture enterprises to intensify their exports to these nations.

Besides, Vietnamese enterprises need to broaden their horizons beyond depending solely on their current strengths, in addition to concentrating on developing brands from Vietnam for products destined for overseas markets and enhancing the quality of wood and wooden products manufacturers. By doing so, the country can maximize the benefits of CPTPP, especially when expanding the exports of wood and wooden products.

6.2. Limitations

There are several limitations to consider when conducting this paper using the trade intensity and revealed comparative advantage (RCA) index. While RCA provides valuable insights into trade dynamics, it is not devoid of limitations. RCA analysis relies on historical trade data, potentially overlooking emerging trends, non-tariff barriers, technological advancements, and changes in comparative advantages over time. Moreover, RCA analysis may oversimplify complex trade relationships and fail to capture the nuances of global supply chains and production networks such as technological disparities, economies of scale, institutional factors that underpin trade dynamics, and other real-world factors affecting export and import competition beyond pure comparative advantage, namely the supply chain disruption from the Covid pandemic from early 2020 to late 2021; the ongoing US-China trade war that intensified trade diversion opportunities; etc.

On the other hand, due to the appearance of other agreements during the period between 2015 and 2022, such as RCEP or the trade facilitation agreement by WTO in 2017, the impact that CPTPP has on the comparative advantages of Vietnam's wooden furniture may be overestimated.

Finally, the limitation of time and experience hindered the authors from coming up with a better assessment of the potential, affecting the quality of our study. In order to come to a better complete conclusion, additional time is required and the researchers need more assistance from experienced persons who have done previous research in this field.

Despite such limitations, this paper should sufficiently provide an insight into the outcomes, albeit not final, of the CPTPP signature on the trade relations between Vietnam and several trade partners pertaining to wood and wooden furniture exports.

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