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## ANALYSIS OF THE COMPARATIVE ADVANTAGE AND COMPETITIVE ADVANTAGES OF INDONESIAN NUTMEG, PEPPER, AND CLOVES IN THE INTERNATIONAL MARKET

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### Abstract

As a spice-producing country, Indonesia continues to maintain its role in the global spice trade. As an agricultural country, Indonesia has great potential in developing export-oriented plantation commodities, especially spices such as nutmeg, pepper, and cloves. This study aims to analyze the comparative advantage and competitive advantage of these three commodities in the international market. The data used is secondary data in the form of time series data for the period 2014–2023 sourced from the Central Statistics Agency (BPS) and UN Comtrade. The analysis was conducted using the Revealed Comparative Advantage (RCA) method to measure comparative advantage and the Export Competitiveness Index (XCI) to assess competitive advantage. The results show that the three commodities have an average RCA value of more than 1 ( $RCA > 1$ ), which indicates a strong comparative advantage for nutmeg, pepper, and cloves in the international market. In addition, the average XCI values for nutmeg, pepper, and cloves were also greater than 1 ( $XCI > 1$ ), indicating that, in general, these commodities have competitive advantages, although they are not stable in every year of analysis. These findings show that Indonesia is still able to maintain the competitiveness of its leading spices in the international market, driven by increased production and global demand. Therefore, improvements in quality, productivity, and strengthening of export strategies are necessary to maintain the sustainability of the competitiveness of Indonesian nutmeg, pepper, and clove commodities.

**Keywords:** *Comparative Advantage, Competitive Advantage, Spice Export, Revealed Comparative Advantage (RCA), Indonesian Competitiveness*



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### 1. INTRODUCTION

As an agrarian country, Indonesia has great potential to increase its advantages in agriculture, especially in the plantation sector. The climate in Indonesia is suitable for plantation crops, supporting this potential. The plantation sub-sector plays a significant role in the national economy, particularly in terms of its contribution to Indonesia's Gross Domestic Product and in supporting economic development (Millenia & Wijayanti, 2024). Spice commodities have long been Indonesia's mainstay

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exports to the world (Zuhdi et al., 2021). Global demand for spice commodities such as nutmeg, pepper, and cloves shows an upward trend every year, with an average growth of 10.38% per year. This condition indicates that spice commodities have promising market prospects in international trade. Therefore, Indonesia has great potential to become one of the world's leading exporters of nutmeg, pepper, and cloves (Anggrasari et al., 2021).

Enhancing the competitiveness of export products is one of the important steps in boosting export growth. In general, competitiveness is defined as the ability of a commodity to penetrate and maintain its position in the market, including the international market. Competitiveness is a crucial factor for every country that wants to survive and play an active role in the era of free trade (Balqis & Yanuar, 2021). Therefore, it is important to improve competitiveness, considering that Indonesia is not the only country that exports nutmeg, pepper, and cloves.

Competitiveness is an important factor that determines a country's success in international trade, as it reflects the ability of a product to enter the market and maintain its position (Patone et al., 2020). The level of competitiveness can be seen from comparative advantage and competitive advantage. Comparative advantage is the ability of a country to produce goods at a lower cost than other countries for the same product, while competitive advantage is the ability of a country, company, or business actor to produce and market products more effectively, efficiently, and with higher added value than its competitors. One of the methods commonly used to measure the comparative advantage of a commodity is *Revealed Comparative Advantage* (RCA) analysis, while the method commonly used to measure competitive advantage is *Export Competitiveness Index* (XCI) analysis (Ramadhani et al., 2021).

*Revealed Comparative Advantage* (RCA) is an analysis to determine the competitiveness of a commodity in terms of comparative advantage. RCA will reveal commodities that specialize in the global market (Andini, 2014). Meanwhile, *the Export Competitiveness Index* (XCI) is an analytical tool to determine competitiveness in terms of competitive advantage, as well as a framework for building and strengthening that advantage. XCI describes the competitiveness trend of a country's commodities against competing countries (Jamil, 2018). Comparative advantage and competitive advantage are two different but complementary concepts in competitiveness analysis. RCA reflects long-term structural advantages derived from production cost efficiency and a country's export specialization over a certain period of time. Meanwhile, XCI describes short-term competitiveness dynamics through changes in export performance from year to year, which are influenced by export volume and value factors. The simultaneous use of RCA and XCI analysis methods is important to obtain a complete picture of competitiveness. RCA explains Indonesia's structural position in the nutmeg, pepper and clove trade, while XCI shows the ability of nutmeg, pepper and clove commodities to survive and adapt to changes in the international market from year to year.

To strengthen Indonesia's position in the global market, it is very important to analyze the comparative and competitive advantages of Indonesia's leading export commodities such as nutmeg, pepper, and cloves. Therefore, the purpose of this study is to analyze the comparative and competitive advantages of nutmeg, pepper, and cloves. Several studies related to the export competitiveness of nutmeg, pepper, and cloves have been conducted by researchers in Indonesia. For example, a study conducted by Riani (Riani, 2023) entitled "The Competitiveness of Pepper

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Commodities in Indonesia from 2018 to 2022" shows that Indonesia has strong competitiveness in the global nutmeg market. Then Samhina (Samhina et al., 2023) conducted research on "The Competitiveness of Indonesian Nutmeg in the International Market," the results of which showed that whole nutmeg and processed nutmeg powder from Indonesia are highly competitive in the international market. Meanwhile, based on research conducted by Hidayah (Hidayah et al., 2022), Indonesian cloves have a comparative advantage.

A number of previous studies on competitiveness have been conducted, but they only analyzed one specific commodity in a relatively limited period of time. In addition, some studies only measured comparative advantage without examining the dynamics of competitive advantages, thus failing to provide a comprehensive comparison of the competitiveness of nutmeg, pepper, and clove commodities. In the context of international trade, comparative advantage needs to be complemented by an analysis of competitive advantage to see the stability and resilience of commodity exports (Hidayat et al., 2025). Therefore, this study was conducted to provide an overview of the competitiveness of nutmeg, pepper, and cloves from both comparative and competitive perspectives over a longer period of time using two competitiveness indicators, namely *Revealed Comparative Advantage (RCA)* and *Export Competitiveness Index (XCI)*, to provide a more comprehensive understanding of the position and dynamics of the competitiveness of Indonesian nutmeg, pepper, and cloves in the international market.

The research framework begins with mapping the conditions and developments of Indonesian nutmeg, pepper, and clove commodity trade in the international market as the main context for analysis. The next stage involves measuring comparative advantage using *Revealed Comparative Advantage (RCA)* to identify the structural strengths of Indonesian nutmeg, pepper, and clove commodity exports, which reflect Indonesia's level of specialization and relative position in international trade. After that, the dynamics of competitive advantage are analyzed through *the Export Competitiveness Index (XCI)* to assess changes in export performance over time and the ability of Indonesian nutmeg, pepper and clove commodities to respond to market fluctuations and changes in global demand. The results of the RCA and XCI analyses are then integrated to provide an understanding of the competitive position of Indonesian nutmeg, pepper, and clove commodities in the world market in terms of comparative advantage and competitive advantage.

## 2. METHOD

The collection of data and information required for this paper was carried out in Indonesia. The analysis was conducted over a 10-year period from 2014 to 2023. The objects used in this study were Indonesian nutmeg, pepper, and clove commodities. The scope of this research is limited to the export value of Indonesian nutmeg, pepper, and cloves, the total value of Indonesian exports, the value of global nutmeg, pepper, and clove exports, and the total value of global exports.

This study uses secondary data sourced from the Central Statistics Agency (BPS) and *United Nations Commodity and Trade Statistics Database (UN COMTRADE)*. The data used is *time*

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series data for the last ten years, from 2014 to 2023, which is aggregated nationally. The commodities that are the focus of this study include nutmeg, pepper, and cloves, which are analyzed in the context of Indonesia's exports to the world market.

The approach used in this study is a quantitative analysis method, which aims to provide an objective and measurable description of the issues under study. To measure export competitiveness, *Revealed Comparative Advantage* (RCA) and *Export Competitiveness Index* (XCI) analyses are used. The RCA method is used to assess the comparative advantage of a region, whether a country, province, or other area, by comparing the export performance of a particular commodity to the total exports of that region, as well as the share of the value of that product in international trade. The RCA formula is as follows (Itamary & Hendrati, 2022).

$$RCA_{iy}^A = \frac{(X_{iy}^A/X_{ty}^A)}{(X_{iy}^W/X_{ty}^W)}$$

Explanation:

$RCA_{iy}^A$  : Revealed Comparative Advantage of Indonesian commodities (nutmeg/pepper/cloves)

$X_i^A$  : Value of Indonesian commodity exports (nutmeg/pepper/cloves) (US\$)

$X_t^A$  : Total export value of Indonesia (US\$)

$X_i^W$  : World export value of commodities (nutmeg/pepper/cloves) (US\$)

$X_t^W$  : Total export value of the world (US\$)

i : Export Commodities (nutmeg/pepper/cloves)

t : Total exports

A : Indonesia

W : World

y : Year studied

Definition:

RCA value > 1 = Indonesian commodities (nutmeg/pepper/cloves) have a comparative advantage

RCA value < 1 = Indonesian commodities (nutmeg/pepper/cloves) do not have a comparative advantage

Example of RCA calculation for 2023:

$$RCA_{i2023}^A = \frac{(X_{i2023}^A/X_{t2023}^A)}{(X_{i2023}^W/X_{t2023}^W)}$$

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In addition to RCA, this study also utilizes *Export Competitiveness Index (XCI)* analysis. XCI is a method used to assess and observe a country's competitiveness level compared to other competing countries. (Zuhdi & Rambe, 2021) uses this indicator to assess the prospects of an industry or region in increasing commodity market growth in the international market. *The Export Competitiveness Index (XCI)* can be formulated as follows:

$$(XCI_i^A)^t = \frac{(X_i^A / X_i^W)_t}{(X_i^A / X_i^W)_{t-1}}$$

Explanation:

$(XCI_i^A)^t$  : *Export Competitiveness Index (XCI)* of Indonesian commodities (nutmeg/pepper/cloves)

$X_i^W$  : Global export value of commodities (nutmeg, pepper, cloves)

$X_i^A$  : Value of Indonesian commodity exports (nutmeg/pepper/cloves)

i : Export Commodities (nutmeg/pepper/cloves)

A : Indonesia

w : World

t : Current period

t-1 : Previous period

Definition:

XCI value > 1 = Indonesian commodities (nutmeg, pepper, cloves) have a competitive advantage

XCI value < 1 = Indonesian commodities (nutmeg, pepper, cloves) do not have a competitive Advantage

Example of XCI calculation for 2023:

$$(XCI_i^A)^{2023} = \frac{(X_i^A / X_i^W)_{2023}}{(X_i^A / X_i^W)_{2022}} \frac{(X_i^A / X_i^W)_t}{(X_i^A / X_i^W)_{t-1}}$$

### 3. RESULTS AND DISCUSSION

Nutmeg, pepper, and cloves are commodities that are among Indonesia's leading spices. These commodities still survive in the export market to this day. Nutmeg, pepper, and cloves place Indonesia in an important position in the global market. Nutmeg, pepper, and cloves are exported to various countries around the world. These commodities are exported in various forms, such as whole and powdered. Exports are a key element in global trade. To measure their success, indicators such as average annual growth (both in value and volume) or long-term trends are used. Export performance is categorized as good if the long-term growth trend is positive or the growth rate exceeds that of competitor countries. Thus, a continuously increasing growth trend indicates strong and sustainable competitiveness for these commodities in the world

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market (Sari & Tety, 2017). The export value of nutmeg, pepper, and cloves can be seen in Table 1 below.

Table 1. Export Value of Nutmeg, Pepper, and Cloves from Indonesia (USD)

Year	Nutmeg Export Value	Pepper Export Value	Clove Export Value
2014	80,594,167.00	328,801,845.00	33,834,027.00
2015	72,590,945.00	548,193,245.00	46,483,663.00
2016	65,380,808.00	430,141,087.00	41,568,960.00
2017	73,687,847.00	2,359,622,495.00	26,922,901.00
2018	73,434,269.00	1,524,618,729.00	101,746,313.00
2019	85,918,222.00	1,473,429,196.00	4,428,115.00
2020	96,099,559.00	205,847,919.00	176,540,022.00
2021	22,377,956.00	1,667,510,942.00	94,173,308.00
2022	124,750,638.00	148,107,555.00	56,623,147.00
2023	111,982,284.00	1,145,394,006.00	99,605,682.00
<b>Average</b>	<b>80,681,669.50</b>	<b>983,166,701.90</b>	<b>68,192,613.80</b>

Source: UN Comtrade, 2025 (processed)

Table 1 above shows that the value of Indonesian nutmeg, pepper, and clove exports fluctuated over the 10 years from 2014 to 2023. The fluctuations in the export value of nutmeg, pepper, and cloves were due to fluctuations in the volume and price of Indonesian nutmeg, pepper, and clove exports during those years. This is because export value refers to how much money is earned from the quantity of exports per year. Export value is usually measured in USD. Systematically, export value is obtained from the total export volume multiplied by the export price in the relevant year (Statistik, 2025).

### Competitiveness of Indonesian Nutmeg, Pepper, and Cloves Based on Comparative Advantage

The comparative advantage of Indonesian nutmeg, pepper, and clove commodities was analyzed using Revealed Comparative Advantage (RCA). The Revealed Comparative Advantage (RCA) analysis is measured based on the export performance of Indonesian nutmeg, pepper, and cloves as a percentage of total Indonesian commodity exports, which is then compared with the export performance of global nutmeg, pepper, and cloves as a percentage of total global commodity exports. The results of the Revealed Comparative Advantage (RCA) analysis indicate that if the share of Indonesian nutmeg, pepper, and clove exports in total commodity exports is greater than the share of global nutmeg, pepper, and clove exports in total commodity exports, then Indonesia has a comparative advantage in the production and export of nutmeg, pepper, and cloves. The results of competitiveness based on the comparative advantage of Indonesian nutmeg, pepper, and cloves using the Revealed Comparative Advantage (RCA) approach can be seen in Table 2.

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Table 2. Competitiveness of Nutmeg, Pepper, and Cloves Based on Comparative Advantage

Year	RCA Value for Nutmeg	Pepper RCA Value	Clove RCA Value
2014	40.77	11.18	8.68
2015	41.75	16.24	13.96
2016	40.36	14.41	11.54
2017	41.31	93.04	5.45
2018	50.19	13.69	25.04
2019	53.49	18.77	1.46
2020	50.74	60.45	48.90
2021	8.60	71.27	20.48
2022	39.10	23.04	7.06
2023	41.06	193.37	14.30

Source: UN Comtrade, 2025 (processed)

Based on Table 2 above, it can be seen that the average RCA value of nutmeg, pepper, and cloves is greater than 1 ( $RCA > 1$ ), indicating that Indonesian nutmeg, pepper, and cloves have a comparative advantage in the international market. Over the past ten years, from 2014 to 2023, Indonesia has consistently maintained its comparative advantage in nutmeg, pepper, and cloves through the export volume of these commodities. Indonesian nutmeg, pepper, and cloves have a high average RCA value (high competitiveness) in the international market, where the export *share* of Indonesian nutmeg, pepper, and cloves in Indonesia's total exports is greater than *the export share* of nutmeg, pepper, and cloves in the world's total exports. This condition occurs due to an increase in the production of Indonesian nutmeg, pepper, and cloves. The increase in the production of nutmeg, pepper, and cloves also has an impact on the increase in Indonesia's exports of nutmeg, pepper, and cloves in the international market (Statistik, 2023).

Table 2 above shows that the RCA value of pepper dominates nutmeg and cloves, with an average RCA value of 51.55. Pepper experienced a surge in RCA value in 2017 and 2023, with a drastic increase in RCA value in those years. Based on data obtained from, in those years there was also a drastic increase in the export value of pepper, and in the same year there was also a decline in the total value of Indonesia's exports in the international market. There are several factors that caused the increase in pepper export value and the decline in Indonesia's total export value, which led to an increase in RCA value, namely an increase in Indonesia's pepper production, an increase in world pepper prices, the weakening of other Indonesian export commodities, which caused Indonesia's total exports to decline, and a *shock* in the world pepper supply, where there was a decline in pepper export performance from other countries to the international market.

Based on global trade data for nutmeg, pepper, and cloves, there are several countries that compete with Indonesia in the international market, including Vietnam and India for nutmeg, Vietnam and Brazil for pepper, and Madagascar for cloves (Comtrade, 2023). These countries have good production efficiency and supply stability, as evidenced by their export performance

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for nutmeg, pepper, and cloves, which makes them major exporters in the international market. Therefore, even though Indonesia's RCA value shows a strong comparative advantage for nutmeg, pepper, and clove commodities, Indonesia's competitive position still faces competitive pressure, especially in terms of supply continuity, quality standardization, and market strengthening, considering that Indonesia's comparative advantage in these commodities only reflects Indonesia's relative position in the international trade structure but does not guarantee global market dominance. All exporting countries will have the opportunity to gain comparative advantage, so strengthening competitive advantage through quality improvement, supply continuity, quality standardization, and value-added development is crucial for the sustainability of Indonesia's nutmeg, pepper, and clove competitiveness in the international market.

### Competitiveness of Indonesian Nutmeg, Pepper, and Cloves Based on Competitive Advantage

The export competitiveness of Indonesian nutmeg, pepper, and cloves based on competitive advantage is analyzed using the *Export Competitiveness Index* (XCI) approach. The XCI is measured based on the export performance of Indonesian nutmeg, pepper, and cloves compared to the export performance of global nutmeg, pepper, and cloves in the current year, which is then compared to the export performance of Indonesian nutmeg, pepper, and cloves compared to the export performance of global nutmeg, pepper, and cloves in the previous year. In the calculation, the is greater if the share of Indonesian nutmeg, pepper, and clove exports to global nutmeg, pepper, and clove exports in the current year is greater than the share of Indonesian nutmeg, pepper, and clove exports to global nutmeg, pepper, and clove exports in the previous year, then Indonesian nutmeg, pepper, and cloves have a competitive advantage (Masitah & Hasbiadi, 2022). The results of competitiveness based on the competitive advantage of Indonesian nutmeg, pepper, and cloves using the *Export Competitiveness Index* (XCI) approach can be seen in Table 3 below.

Table 3. Competitiveness of Nutmeg, Pepper, and Cloves Based on Competitive Advantage

Year	XCI Value for Nutmeg	XCI Value for Pepper	XCI Value for Cloves
2014	-	-	-
2015	1.00	1.42	1.57
2016	0.95	0.88	0.82
2017	1.09	6.86	0.50
2018	1.18	0.14	4.46
2019	1.02	1.31	0.06
2020	0.99	3.37	35.07
2021	0.19	1.33	0.47
2022	5.28	0.38	0.40
2023	0.97	7.76	1.87
<b>Average RCA Value</b>	<b>1.27</b>	<b>2.34</b>	<b>4.52</b>

Source: UN Comtrade, 2025 (processed)

Based on Table 3 above, it shows that the average calculation of the *Export Competitiveness Index* (XCI) for Indonesian nutmeg, pepper, and clove commodities is greater than 1 (XCI>1),

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meaning that on average, Indonesian nutmeg, pepper, and clove commodities have a competitive advantage in the international market. Indonesia has a tendency for increasing competitiveness of nutmeg, pepper, and cloves in the international market, as indicated by the increasing share of Indonesian nutmeg, pepper, and cloves in the global export share of nutmeg, pepper, and cloves. Competitive advantage is also influenced by the export volume of these commodities. The existence of competitive advantages indicates an increase in export volume compared to the global export value of the same commodities compared to the previous year (Statistik, 2025).

Table 3 shows that nutmeg in 2022 has a much higher XCI value than other years, with an XCI value of 5.28. Meanwhile, pepper has a much higher XCI value than other years in 2017 and 2023, with XCI values of 6.86 and 7.76. For cloves, a significant increase in XCI value occurred in 2020 with an XCI value of 35.07. The significant increase in XCI value for these three commodities occurred because *the export share* of Indonesian nutmeg, pepper, and cloves was very large compared to *the export share* of nutmeg, pepper, and cloves worldwide compared to the previous year. Table 3 above also shows that not all of the last 10 years analyzed were competitive for nutmeg, pepper, and clove commodities. There were several years that did not have an XCI value above 1 ( $XCI < 1$ ), meaning that they were not competitive. Indonesian nutmeg was not competitive in 2016, 2020, 2021, and 2023. Indonesian pepper was not competitive in 2016, 2018, and 2022. Meanwhile, Indonesian cloves were not competitive in 2016, 2017, 2019, 2021, and 2022. The lack of competitive advantage of Indonesian nutmeg, pepper, and clove commodities in those years indicates that *the export share* of these commodities in those years was not greater than *the export share* of commodities in the previous year.

The XCI values for Indonesian nutmeg, pepper, and cloves showed fluctuating patterns during the research period. Fluctuations in XCI values were generally caused by ups and downs in the volume and value of exports of Indonesian nutmeg, pepper, and cloves and those of other countries in the international market, resulting in fluctuations in Indonesia's share of world exports for these commodities. In addition to export volume and value, fluctuating XCI values are also inseparable from the ever-changing dynamics of the international market. There are several important factors that cause these fluctuations. First is global price movements, where an increase in world prices that is not accompanied by Indonesia's ability to increase exports will cause a decline in Indonesia's share of the world market, thereby decreasing the XCI value, while in the opposite condition, the XCI value tends to increase. Second, *supply shocks*, both domestically and in competitor countries. When competitor countries experience temporary production disruptions while Indonesia is able to maintain supply, Indonesia's export share increases sharply, causing the XCI value to surge, as seen in certain years with extreme XCI values ( $XCI_{2020} = 35.07$ ). Third, export policies, where export policies determine the stability of competitiveness. Policies that support trade efficiency, logistics stability, and product quality improvement will strengthen Indonesia's export position, while less conducive regulations can reduce competitive advantages. Fourth, changes in global demand, the dynamics of the food, beverage, and pharmaceutical industries, as well as changes in consumer preferences and global economic conditions will determine the extent of

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market absorption of Indonesian nutmeg, pepper, and clove commodities. The combination of global price factors, supply disruptions, export policies, and changes in global demand are the causes of the XCI value being unstable and showing a fluctuating pattern from year to year.

The fluctuating XCI value reflects that Indonesia's competitiveness has not yet reached a strong level of stability. XCI volatility indicates that Indonesia's export performance is still heavily influenced by changes in domestic and global conditions. XCI volatility illustrates that the competitiveness of Indonesian nutmeg, pepper, and clove commodities is not constant, but highly dependent on Indonesia's readiness for changes in the international market, such as global price changes, competitor behavior, and international trade dynamics. Furthermore, maintaining market share and stabilizing the XCI value is greatly influenced by production variations due to climatic factors, product quality, supply continuity, and export policies. Fluctuations in the XCI value also indicate that the long-term export resilience of Indonesian nutmeg, pepper, and clove commodities still faces challenges. Although on average these three commodities have a competitive advantage, the instability of the XCI value suggests that this competitive advantage is not yet fully sustainable. Long-term export resilience is highly dependent on production efficiency, supply stability, productivity improvement, quality consistency, and export market diversification. If these components are not managed properly, competitiveness will only be strong in certain periods and weaken in others.

The fluctuating XCI value also indicates the high sensitivity of Indonesian nutmeg, pepper, and clove commodities to external *shocks*. Sudden changes in global prices, global supply disruptions, changes in partner countries' trade policies, and global demand dynamics have proven to have a significant impact on Indonesia's competitive position. External *shocks* will be positive when competing countries experience supply disruptions, because under these conditions Indonesia's export share will increase dramatically. However, external *shocks* will be negative for Indonesia when Indonesia is not prepared to face changes in the international market. This condition indicates that the competitiveness of Indonesian nutmeg, pepper and clove commodities is still relatively vulnerable to global uncertainty, thus requiring a risk mitigation strategy through strengthening domestic production, improving trade, diversifying export destinations, and increasing capacity to adapt to international market dynamics.

#### 4. CONCLUSION

Based on the results of the analysis conducted using the *Revealed Comparative Advantage* (RCA) method, it was found that Indonesian nutmeg, pepper, and clove commodities have a comparative advantage in the international market. The comparative advantage of Indonesian nutmeg, pepper, and cloves is due to the fact that the export performance of these commodities in Indonesia is much greater than their export performance in the world relative to total Indonesian exports. Meanwhile, analysis using the *Export Competitiveness Index* (XCI) method shows that, on average, Indonesian nutmeg, pepper, and cloves have a competitive advantage in the international market. The competitive advantage of Indonesian nutmeg, pepper and clove exports is due to an increasing trend in competitiveness through

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improved demand for Indonesian nutmeg, pepper and clove commodities in the international market.

The government needs to play a role in strengthening export policies that are not only oriented towards increasing volume, but also maintaining long-term competitiveness. The government needs to ensure production sustainability by strengthening the upstream sector, improving the trade system, increasing logistics efficiency, and strengthening policy support that facilitates the smooth international trade of Indonesian nutmeg, pepper, and cloves. Consistent policies that are responsive to global market dynamics and based on the needs of business actors will be very important in maintaining Indonesia's competitive position in the international market. Based on the results of this study, the author recommends a strategy to increase competitiveness by strengthening productivity and quality to increase export volume. Downstreaming and increasing added value also need to be carried out so that Indonesia does not only export raw materials, but also processed nutmeg, pepper, and clove products. Export market diversification also needs to be increased to reduce the risk of a decline in competitiveness due to fluctuations in global demand.

This study has limitations because it only uses export value data. Therefore, further research is needed to include other factors that affect competitiveness, such as production costs, domestic prices, business efficiency levels, product differentiation, and marketing strategies.

## 5. REFERENCE

- Andini, D. (2014). *Peningkatan Daya Saing Ekspor Produk Olahan Kakao Indonesia Di Pasar Internasional (Studi pada Ekspor Produk Olahan Kakao Indonesia tahun 2009-2014)*. 38(2), 171–175.
- Anggrasari, H., Perdana, P., & Mulyo, J. H. (2021). Keunggulan Komparatif Dan Kompetitif Rempah-Rempah Indonesia Di Pasar Internasional. *Jurnal Agrica*, 14(1), 9–19. <https://doi.org/10.31289/agrica.v14i1.4396>
- Balqis, P., & Yanuar, R. (2021). Competitiveness of Indonesian Pepper Exports in the American and European Markets. *Forum Agribisnis*, 11(2), 182–194.
- Comtrade, U. (2023). *Global Trade Data*. UN Comtrade Database. <https://comtrade.un.org/>
- Hidayah, M., Fariyanti, A., & Anggraeni, L. (2022). Daya Saing Ekspor Cengkeh Indonesia. *Jurnal Ekonomi Pertanian Dan Agribisnis (JEPA)*, 6(Nomor 3), 930–937.
- Itamary, A. I., & Hendrati, I. M. (2022). Analisis Daya Saing Ekspor Crude Palm Oil (Cpo) Indonesia Di Pasar Dunia. *Jurnal Ekonomi Pembangunan*, 8(2), 208–217.
- Jamil, A. S. (2018). *Competitiveness and Market Concentration Position of Indonesia 's Natural Rubber Export in Global Market*. 17(21), 119–128. <https://doi.org/10.31186/jagrisep.17.2.119-128>
- Masitah, & Hasbiadi. (2022). Daya Saing Komoditas Ekspor Unggulan Kakao Sulawesi Tenggara , Indonesia di Pasar Internasional. *Agro Bali : Agricultural Journal*, 5(3), 559–567.
- Millenia, S. P., & Wijayanti, I. K. E. (2024). Analisis Daya Saing Ekspor Cengkeh Indonesia Di Pasar Internasional. 8(Nomor 3), 947–958.

Linda Santri, Ummi Qalsum, Noratun Juliviani, Khalid Sunny (2025)

- Patone, C. D., Robby J. Kumaat, R. J., & Dennij Mandejij, D. (2020). Negara Tujuan Ekspor Tiongkok Dan India Volume Produksi Minyak Sawit ( juta ton ). *Jurnal Berkala Ilmiah Efisiensi*, 20(03), 22–32.
- Ramadhani, E. S., Hendrati, I. M., & Asmara, K. (2021). Analisis Daya Saing Ekspor Kakao Olahan Indonesia di Pasar Jerman. *E-Journal Ekonomi Bisnis Dan Akuntansi*, 8(2), 132. <https://doi.org/10.19184/ejeba.v8i2.24612>
- Riani, N. (2023). Daya Saing Komoditas Lada Di Indonesia Tahun 2018-2022. *Margin: Jurnal Bisnis Islam Dan Perbankan*, 2(2), 115–129. <https://journal.staimaarifkalirejo.ac.id/index.php/margin/article/view/98>
- Samhina, L., Nurmalina, R., & Tinaprilla, N. (2023). Daya Saing Biji Pala Indonesia di Pasar Internasional. *Jurnal Ilmu Pertanian Indonesia*, 28(2), 209–221. <https://doi.org/10.18343/jipi.28.2.209>
- Sari, R. D., & Tety, E. (2017). Export Competitiveness Analysis of Coffee Indonesia in teh World Market. *Jurnal Ilmiah Ekonomi Dan Bisnis*, 14(1), 105–114.
- Statistik, B. P. (2023). *Statistik Perdagangan Internasional*. 2024. <https://www.bps.go.id/id/statistics-table?subject=535>
- Statistik, B. P. (2025). *Statistik Perdagangan Internasional* (statistik). 2026. <https://www.bps.go.id/id/statistics-table?subject=535>
- Zuhdi, F., Rahmadona, L., & Maulana, A. S. (2021). The EXPORT COMPETITIVENESS OF INDONESIAN SPICES TO EUROPEAN UNION-15. *Agric*, 32(2), 139–162. <https://doi.org/10.24246/agric.2020.v32.i2.p139-162>
- Zuhdi, F., & Rambe, K. R. (2021). Indonesian Clove Export Competitiveness in the Global Market. *SEPA: JJournal of Socioeconomic Agriculture and Agribusiness*, 17(2), 165.