

Competitiveness of Indonesian edible bird's nest in global markets (2017-2021)

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Abstract. Halkam H, Demmallino EB, Ali MSS, Suhab S. 2026. Competitiveness of Indonesian edible bird's nest in global markets (2017-2021). *Asian J Agric* 10: g100106. <https://doi.org/10.13057/asianjagric/g100106>. Indonesia is the world's largest producer and exporter of edible bird's nest derived from *Aerodramus fuciphagus*. All edible bird's nest produced in Indonesia is intended for export. During the period 2017 to 2021, Indonesia recorded an average annual export volume of 1,331 tons, with a total export value of US\$398.4 million. Despite this strong performance, Indonesia faces several challenges in international trade, including stringent requirements for direct exports to China and increasing competition from other exporting countries. This study aimed to assess Indonesia's competitiveness in the global edible bird's nest market. A quantitative, descriptive, and analytical approach was employed using secondary data. The results indicate that Indonesian edible bird's nest exhibits strong competitiveness and rapid growth in global markets. This is reflected by a high revealed comparative advantage value of 85.24, which is substantially higher than that of competing exporting countries, a revealed symmetric comparative advantage value close to +1, a position as a rising star in the export product dynamic matrix, and classification as an optimistic product under the X-Model potential export product framework. The findings further suggest that national competitiveness in the global edible bird's nest trade increases with higher export values. Price disparities across export destinations are primarily driven by destination-specific regulatory requirements. China imports edible bird's nest at relatively high prices under strict regulatory standards, whereas Hong Kong applies fewer regulatory controls and offers lower purchase prices. As a result, increased export volumes to China generate a substantial rise in export value, while exports to Hong Kong do not yield a comparable effect. The study also reports a 358% increase in the swiftlet population in 2021 compared to 1993. To further enhance exports, particularly to China, the Indonesian government should strengthen the registration of swiftlet houses, expand edible bird's nest cleaning facilities in producing regions, and support the development of value-added edible bird's nest products.

Keywords: *Aerodramus fuciphagus*, comparative advantage, export competitiveness, international trade, white-nest swiftlet

Abbreviations: EBN: Edible Bird's Nest, EPD: Export Product Dynamic, RCA: Revealed Comparative Advantage, RSCA: Revealed Symmetric Comparative Advantage, X-Model PEP: X-Model Potential Export Product

INTRODUCTION

Edible bird's nest (燕窝, yànwō) is an animal-derived food product formed from the saliva secreted by the sublingual salivary glands of swiftlet birds (Chua and Zukefli 2016). This study focuses on edible bird's nest produced by *Aerodramus fuciphagus* (white-nest swiftlet), a species whose nests are composed almost entirely of hardened saliva (Cranbrook et al. 2013).

Edible Bird's Nest (EBN) is consumed both as a food ingredient and as a component of traditional Chinese medicine (Ito et al. 2021; Yeo et al. 2021). Historically, its consumption has been largely confined to the Chinese community, where it represents a long-standing health tradition (Dai et al. 2021) and forms an integral part of culinary culture (Chua and Zukefli 2016). The consumption of EBN is also associated with social prestige within this community (Kuo 2022). Consequently, Chinese communities constitute the primary consumer base, particularly in China, Taiwan, Singapore, North America,

and Hong Kong (Babji et al. 2015; Sari and Sudiana 2022). China is the dominant market, accounting for more than 90% of global EBN consumption, driven by high demand and premium prices (Tangjitmannangkul 2019; Kuo 2022; Purba et al. 2022a). This demand has positioned China as the principal export destination for EBN producing countries.

Indonesia hosts more than 80% of the global swiftlet population (Thorburn 2014), enabling annual production exceeding 2,000 tons of EBN (Tangjitmannangkul 2019) and supplying approximately 80% of global demand (Kusuma 2021). These conditions establish Indonesia as the world's largest producer and exporter of EBN. Notably, all EBN produced in Indonesia is intended for export.

EBN is classified as a high-value commodity in international markets, with prices ranging from US\$2,000 to US\$3,000 per kilogram (Thorburn 2015; Mardiasuti 2016). As a result, EBN exports generate substantial revenue for Indonesia, contributing around 3% to the

national Gross Domestic Product from the non-oil and gas sector (Putra et al. 2024).

Despite its strong production capacity, Indonesia faces considerable challenges in exporting EBN, particularly to China. These challenges are largely associated with stringent regulatory requirements for direct exports, which must be fulfilled to expand export volumes (Krisdiyanto 2024). Regulations imposed by the Chinese government include mandatory registration of processing facilities in both Indonesia and China, sterilization procedures to eliminate the avian influenza virus, maximum nitrite residue levels of 30 ppm, and full traceability of products to registered swiftlet houses (Badan Karantina Pertanian 2013, 2022). In addition, Indonesia competes with other major producing and exporting countries, such as Malaysia and Thailand, within the global EBN market, particularly in accessing the Chinese market.

Accordingly, a comprehensive assessment of Indonesia's export performance and competitiveness in the international EBN trade is required, with particular emphasis on China. Previous studies have examined the competitiveness of Indonesian EBN by evaluating export performance across destination markets, consistently reporting strong competitiveness in China, the United States, Vietnam, Hong Kong, Malaysia, and Thailand (Purba et al. 2022b; Rahmawati et al. 2022; Aljaninansya et al. 2025). Other studies have focused on the regulatory framework and trade policies governing EBN trade between Indonesia and China (Ali 2017; Krisdiyanto 2024). However, comparative analyses that position Indonesia against other major exporters and assess its relative role as a supplier in the Chinese market remain limited. Based on this context, the objective of the present study is to analyze Indonesia's competitiveness relative to other EBN exporting countries in the global EBN market.

MATERIALS AND METHODS

Study area

This study adopted a quantitative, descriptive, and analytical research design using secondary data obtained from the Indonesian Central Statistics Agency (Badan Pusat Statistik Indonesia, BPS) and the International Trade Center (ITC). Data on the export volume and value of Indonesian EBN were sourced from BPS, while ITC provided data on global EBN export and import volumes and values.

Data collection

Data collection was conducted through a literature review and documentation search to obtain relevant references and official records supporting the analysis. Sources included peer-reviewed journal articles, books, research reports, and scientific publications, as well as official documents issued by government institutions and national and international organizations. These materials were accessed either directly or through official online platforms.

The study utilized data covering the period from 2017 to 2021. This timeframe was selected based on considerations of data availability, relevance, and completeness required for robust analysis. ITC provides EBN export and import data only up to 2021, and export and import records for several countries during this period are incomplete or unavailable beyond these years.

Data analysis

The data were analyzed using the following analytical tools: (i) Revealed Comparative Advantage, (ii) Revealed Symmetric Comparative Advantage, (iii) Export Product Dynamic, and (iv) X-Model Potential Export Product.

Revealed Comparative Advantage (RCA)

RCA is widely used to assess the comparative advantage of a country's exported products relative to other exporting countries in the global market (Wati and Aini 2022). This method compares a country's share of global exports of a specific commodity with its share of total world exports of all commodities (Esterhuizen 2006). RCA is applied to evaluate the competitiveness of export products based on their comparative advantage (Pradipta and Firdaus 2014). The RCA index was calculated as follows:

$$RCA = \frac{(X_{ij}/X_j)}{(W_{ij}/W_j)}$$

Where:

X_{ij} : The export value of product i from the exporting country to destination country j

X_j : The total export value of the exporting country to destination country j

W_{ij} : The global export value of product i to destination country j

W_j : The total global export value to destination country j ;

i : The commodity

j : The destination country

An RCA value greater than or equal to 1 indicates that product i from the exporting country has a comparative advantage in the destination market. Conversely, an RCA value below 1 indicates the absence of a comparative advantage.

Revealed Symmetric Comparative Advantage (RSCA)

RSCA was developed to address the upward bias inherent in RCA values (Tobing et al. 2023). RSCA transforms RCA values into a symmetric index ranging from -1 to +1 (Dalum et al. 1998). The RSCA was calculated using the following formula:

$$RSCA = \frac{RCA - 1}{RCA + 1}$$

An RSCA value approaching +1 indicates a strong comparative advantage of Indonesian EBN in the target market, whereas a value approaching -1 indicates weak comparative advantage.

Export Product Dynamic (EPD)

EPD is an analytical tool used to evaluate the competitive position of a product or commodity from a country within a specific export market. The EPD framework assesses changes in a country's market share over time in relation to the dynamics of its exported products (Nabi and Luthria 2002). A product is considered competitive when its market share increases, and dynamic when its market share grows faster than the overall growth of exports.

The EPD framework consists of two axes. The x-axis represents the growth of a country's overall market share in the destination market, while the y-axis reflects the growth of a specific exported product in that market (Pradipta and Firdaus 2014; Utami and Agustina 2021). The indices are calculated as follows:

$$x = \frac{\sum_{t=1}^n \left(\frac{X_{ij}}{W_{ij}} \right)_t \times 100\% - \sum_{t=1}^n \left(\frac{X_{ij}}{W_{ij}} \right)_{t-1} \times 100\%}{T}$$

$$y = \frac{\sum_{t=1}^n \left(\frac{X_j}{W_j} \right)_t \times 100\% - \sum_{t=1}^n \left(\frac{X_j}{W_j} \right)_{t-1} \times 100\%}{T}$$

Where:

X_{ij} : The export value of product i from the exporting country to destination country j

W_{ij} : The global export value of product i to destination country j

X_j : The total export value of the exporting country to destination country j

W_j : The total global export value to destination country j;

t: Year t

T: The number of years analyzed

The calculated x-axis and y-axis values are plotted in the EPD matrix to determine a country's competitive position, which is classified into four categories: Rising Star, Falling Star, Lost Opportunity, and Retreat (Nabi and Luthria 2002), as illustrated in Figure 1.

The Rising Star position indicates that a country is gaining market opportunities in rapidly growing export products and is considered the most favorable position. Lost Opportunity reflects a decline in market share in dynamic markets and is regarded as the least desirable position. The Falling Star position indicates increasing market opportunities without corresponding growth in product supply, while the Retreat position suggests declining demand for the product. Although both positions are unfavorable, the Retreat position may still be acceptable if the product shifts from a stagnant to a dynamic market.

X-Model Potential Export Product (X-Model PEP)

X-Model PEP integrates RCA and EPD results to identify the potential for export market development in target countries (Yulisti et al. 2021). This model groups export products into clusters to guide strategic export focus (Nurhayati et al. 2018). The X-Model PEP classifies products into four categories: optimistic, potential, less

potential, and non-potential. The clustering scheme is presented in Table 1 (Nurkhamid 2024).

Export products classified as optimistic exhibit strong comparative advantages and favorable market growth. Products categorized as potential show comparative advantages but limited market growth. Less potential products possess comparative advantages, yet unfavorable market conditions restrict their expansion. Non-potential products lack comparative advantages and show limited prospects for development in the target market.

Panel data regression

Panel data regression analysis, combining time series and cross-sectional data, was employed to examine factors influencing the competitiveness of Indonesian EBN exports. The analysis was conducted using EViews software.

Analysis framework

The analytical framework of this study is presented in Figure 2. The framework illustrates the evaluation of Indonesia's competitiveness in the international EBN trade. Indonesian EBN exports were assessed using RCA, RSCA, EPD, and X-Model PEP to determine the level of competitiveness relative to other exporting countries.

Table 1. Clusterization of X-Model PEP Based on RCA and EPD (Nurkhamid 2024)

EPD	RCA	
	RCA > 1	RCA < 1
Rising Star	Optimistic	Potential
Falling Star	Potential	Less Potential
Lost Opportunity	Potential	Less Potential
Retreat	Less Potential	Non-Potential

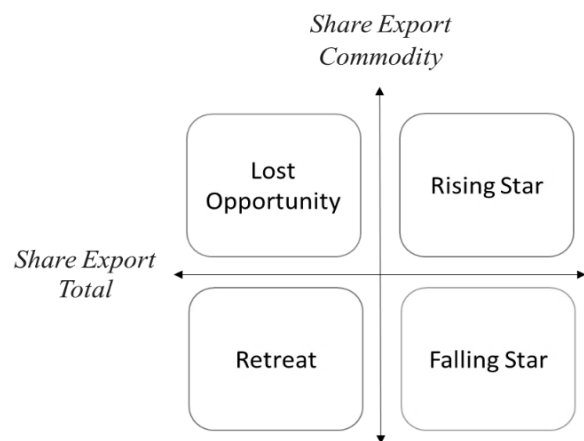


Figure 1. EPD Matrix (Nabi and Luthria 2002)

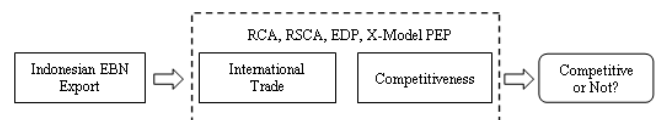


Figure 2. Analytical framework diagram

RESULTS AND DISCUSSION

Countries that produce EBN

Southeast Asian countries constitute the primary producers of EBN worldwide. In addition to Indonesia, major producing countries include Malaysia, with an annual production capacity of approximately 600 tons, Thailand with 400 tons, Vietnam with 150 tons, Cambodia with 100 tons, and the Philippines with 75 tons (Tangjitmannangkul 2019; Government of Cambodia 2024; Zulkefle et al. 2024; CRI 2025).

In 2021, the global export volume of EBN reached 2,195 tons, with a total export value of US\$1.57 billion. The distribution of export volume and value among major producing countries in 2021 is presented in Figure 3.

Indonesia exported 1,506 tons of EBN in 2021, accounting for 68.6% of the total global export volume, thereby confirming its position as the world's largest exporter in that year. Malaysia ranked second, exporting 406 tons or 18.5% of the global total, followed by Thailand and Vietnam, each exporting 120 tons and contributing

5.5%. Cambodia exported 43 tons, representing 2% of global exports.

In terms of export value, Indonesia also led globally, generating US\$517 million, which accounted for 32.9% of total global export value. Vietnam ranked second with an export value of US\$450 million, contributing 28.7%, followed by Malaysia with US\$437.4 million or 27.9%. Thailand and Cambodia recorded export values of US\$100 million and US\$64.8 million, representing 6.4% and 4.1% of global export value, respectively.

Export performance of Indonesian EBN

Between 2017 and 2021, Indonesia exported EBN to 21 destination countries (International Trade Center 2022). Among these, nine countries consistently received Indonesian exports throughout the study period. The export volumes to these destinations are presented in Table 2.

During this period, Indonesia recorded an average annual export volume of 1,331 tons, with an average annual growth rate of 4%. Hong Kong, China, and Vietnam emerged as the primary destination countries, collectively absorbing approximately 89% of Indonesian EBN exports.

Table 2. Export volume of Indonesian EBNs by destination country (tons) during 2017-2021 (Badan Pusat Statistik Indonesia 2022)

Destination country	2017	2018	2019	2020	2021
Hong Kong	487.8	290.4	644.1	897.2	989.9
China	55.5	69.6	129.1	263.5	228.8
Vietnam	624.5	806.1	329.9	27.2	71.3
Singapore	71.6	90.0	75.4	68.8	80.0
United State of America	18.2	16.6	47.0	20.4	66.2
Taiwan	8.3	5.5	5.6	12.9	20.6
Canada	3.4	2.7	2.0	1.8	2.3
Thailand	3.9	4.4	1.1	2.4	1.8
Japan	0.3	1.0	0.1	0.3	0.1
Others	13.2	5.6	24.5	18.0	44.5
Total	1,286.7	1,291.9	1,258.8	1,312.5	1,505.5

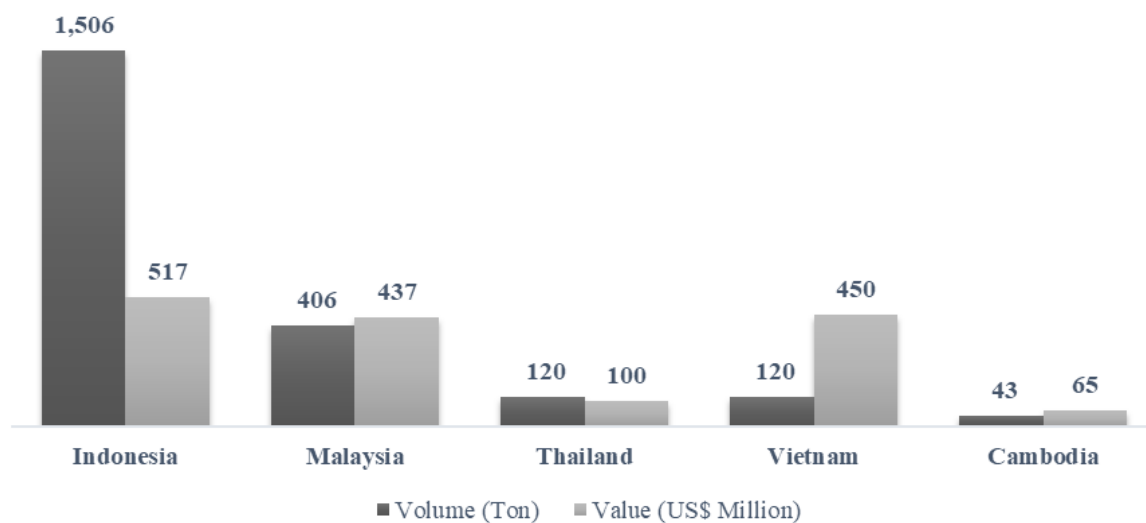


Figure 3. Export volume and value of EBNs in Southeast Asian Countries, 2021 (Compiled from various sources)

Export distribution among these three countries exhibited notable fluctuations. From 2017 to 2019, Vietnam was the main destination, accounting for an average of 46% of total exports, followed by Hong Kong with 37% and China with 7%. In contrast, during 2020 and 2021, Hong Kong became the dominant destination, absorbing an average of 67% of total exports, followed by China at 17% and Vietnam at 3%. However, export volume trends did not consistently correspond with export value patterns. This discrepancy is evident in the export value data for Indonesian EBN from 2017 to 2021, as shown in Table 3.

The average annual export value during the study period amounted to US\$398.4 million, with an average annual growth rate of 18%. Five countries, namely China, Hong Kong, Singapore, the United States, and Vietnam, collectively contributed an average of 98% of Indonesia's total export value.

China and Hong Kong were the dominant contributors, jointly accounting for an average of 85% of total export value. China contributed the largest share at an average of 58% per year, followed by Hong Kong at 27%. Singapore, the United States, and Vietnam together contributed an average of 14%, with Singapore accounting for approximately 5% and the United States and Vietnam each contributing around 4% annually.

Government initiatives to enhance Indonesian EBN exports

EBN has become a strategic export commodity for Indonesia. To support its development, the government included EBN in the Gerakan Tiga Kali Ekspor Pertanian (Gratieks) program, which aims to triple agricultural export volume and value (Warta Pertanian 2019). Regulatory measures have also been strengthened, including quarantine requirements for EBN exports (Kementerian Pertanian 2020b), improvements in governance and export regulations, and simplification of procedures for obtaining Registered EBN Exporter (Eksporir Terdaftar Sarang Burung Walet, ET-SBW) status.

To increase production capacity, the government has promoted the expansion of swiftlet houses in coastal and potential regions. A major initiative involves the accelerated establishment of 1,000 swiftlet villages by the

Indonesian Ministry of Agriculture (Imron 2021). Additional measures include the issuance of cultivation guidelines, provision of financing through Kredit Usaha Rakyat for swiftlet farmers, and the granting of tax incentives to exporters.

Quality improvement policies include restricting exports to raw clean EBN, encouraging the development of cleaning and processing facilities, and providing guidance for obtaining Veterinary Control Numbers (Nomor Kontrol Veteriner, NKV). The NKV certifies compliance with hygiene and sanitary requirements for animal product safety (Kementerian Pertanian 2020a). Further efforts include expanding the registration of swiftlet houses in collaboration with local governments, strengthening cultivation, processing, and post-harvest practices through Good Agricultural Practices and Good Handling Practices, and establishing Indonesian National Standards for EBN products.

Policies to enhance exports of EBN to China

China is the primary destination for Indonesian EBN exports due to its high purchasing prices, strong market absorption capacity, and continuously increasing domestic demand (Dai et al. 2021; Zulkefle et al. 2024). Nevertheless, exports to China are subject to strict regulatory requirements imposed by the Chinese government. To address these requirements, the Indonesian government has implemented several measures, including disseminating information on regulatory standards to industry stakeholders, intensifying the registration of swiftlet houses in producing regions, formulating export-oriented policies targeting the Chinese market (Ditjen 2021; Saputra et al. 2022), and providing assistance to exporters seeking registration with the General Administration of Customs of China (Saputra et al. 2022).

Competitiveness of Indonesian EBN

According to International Trade Center data, Indonesia, Thailand, Hong Kong, and Singapore were the main exporters of EBN during the study period (International Trade Center 2022). Export data for Malaysia and Vietnam from 2017 to 2021 were unavailable in the ITC database.

Table 3. Export value of Indonesian EBNs by destination country (US\$ Million) during 2017-2021 (Badan Pusat Statistik Indonesia 2022)

Destination country	2017	2018	2019	2020	2021
Hong Kong	132.2	88.0	86.4	79.2	93.0
China	102.9	139.8	219.1	416.8	350.8
Singapore	8.2	20.2	30.8	18.5	29.4
United State of America	13.2	12.8	12.9	16.1	26.7
Vietnam	19.1	26.0	10.7	1.2	4.1
Canada	2.3	2.3	1.4	1.1	1.7
Taiwan	1.5	1.0	0.9	1.5	3.4
Thailand	0.1	0.1	0.0	1.9	1.6
Japan	0.2	0.0	0.0	0.2	0.0
Others	0.5	0.4	1.7	4.0	6.2
Total	280.3	290.6	363.9	540.5	516.9

Revealed Comparative Advantage (RCA)

The RCA analysis was used to evaluate the comparative advantage of EBN exporting countries. The average RCA values for 2017 to 2021 are presented in Table 4.

Indonesia, Singapore, and Hong Kong recorded average RCA values greater than 1, indicating a comparative advantage in exporting EBN. Indonesia exhibited a substantially higher RCA value of 85.24, reflecting a very strong comparative advantage relative to other exporters.

Revealed Symmetric Comparative Advantage (RSCA)

The RSCA index was applied to provide a symmetric assessment of comparative advantage. Average RSCA values are shown in Table 5.

Indonesia achieved an RSCA value of 0.98, approaching +1, indicating the strongest comparative advantage among the exporting countries. Singapore followed with a positive RSCA value, while Hong Kong exhibited a weaker comparative advantage. Thailand recorded a negative RSCA value of -0.50, indicating the

absence of comparative advantage in the global EBN market.

Export Product Dynamics (EPD)

The EPD analysis was conducted to assess export competitiveness and performance dynamics. The EPD matrix for 2017 to 2021 is presented in Figure 4.

Indonesia was positioned as a rising star, indicating increasing market share and rapid growth in global trade. Hong Kong occupied the falling star position, suggesting growing market share but slower growth relative to its overall exports. Singapore and Thailand were classified in the retreat category, reflecting declining market shares and growth rates below the average for their export portfolios.

X-Model Potential Export Product (X-Model PEP)

The X-Model PEP analysis integrates RCA and EPD results to assess export potential. The results are presented in Table 6.

Table 4. Average RCA values of countries exporting EBNs during 2017-2021

Country	RCA
Indonesia	85.24
Singapore	6.74
Hong Kong	1.28
Thailand	0.41

Table 5. Average RSCA values of countries exporting EBNs during 2017-2021

Country	RSCA
Indonesia	0.98
Singapore	0.70
Hong Kong	0.11
Thailand	-0.50



Figure 4. The EPD matrix of countries exporting EBNs during 2017-2021

Indonesian EBN was classified as an optimistic product, indicating strong comparative advantage and rapid market growth. Hong Kong was categorized as potential, reflecting comparative advantage with limited growth. Singapore was classified as less potential, suggesting comparative advantage constrained by unfavorable market conditions, while Thailand was categorized as non-potential due to the absence of comparative advantage and weak demand.

Factors influencing the export competitiveness of EBN

Panel data regression analysis was conducted to identify factors influencing export competitiveness. Independent variables included the export value of EBN (X₁), total export value of exporting countries (X₂), global export value of EBN (X₃), and total global export value (X₄). The Chow test results, presented in Table 7, indicated that the fixed effect model was appropriate.

As the p value of the F test was below 0.05, the fixed effect model was selected. The Hausman test could not be applied due to the limited number of cross-sections relative to coefficients. Regression results using the fixed effect model are shown in Table 8.

The model produced an adjusted R² value of 0.9899, indicating that 98.99% of the variation in Revealed Comparative Advantage was explained by the included variables. The Prob(F-statistic) value of 0.0000 confirms that the variables jointly exert a significant influence on RCA. Partial estimation results reveal that only the export value of EBN (X₁) had a positive and statistically significant effect on RCA (p<0.05). The remaining variables exhibited negative coefficients but were not statistically significant.

Table 6. X-Model PEP categories of countries exporting EBNs during 2017-2021

Country	RCA Value	EPD Position	X-Model PEP
Indonesia	85.24	Rising Star	Optimistic
Singapore	6.74	Retreat	Less Potential
Hong Kong	1.28	Falling Star	Potential
Thailand	0.41	Retreat	Non-Potential

Discussion

The dynamics of Indonesian EBN exports

The findings indicate that Indonesia makes a substantial contribution to global EBN exports, both in terms of volume and value, reinforcing its status as the world's leading producer and exporter of EBN. This dominant position reflects a high level of competitiveness among EBN-exporting countries. The panel data regression analysis further demonstrates that the export value of EBN has a positive and statistically significant effect on a country's competitiveness in the global EBN market. Accordingly, higher export values are associated with stronger international competitiveness in EBN trade.

During the period from 2017 to 2021, the primary export destinations for Indonesian EBN were Hong Kong, China, and Vietnam. Figure 5 illustrates the trends in export volume and value of Indonesian EBN shipped to these three destinations over the study period.

In 2019, Hong Kong overtook Vietnam as the largest destination for Indonesian EBN exports in terms of volume. This shift is likely related to improvements in the quality standards of Indonesian EBN, which enabled access to higher-priced markets and reflected a more targeted orientation toward the Chinese market. As shown in Figure 5, the export prices of Indonesian EBN to Vietnam were consistently lower than those to Hong Kong and China between 2017 and 2021. The average export price to Vietnam was US\$39.55 per kilogram, while exports to Hong Kong averaged US\$179.30 per kilogram, and exports to China reached an average of US\$1,736.45 per kilogram. This pronounced price gap suggests that EBN exported to Vietnam primarily consisted of lower-quality products, commonly categorized as raw unclean EBN.

Table 7. Results of the Chow test for cross-sectional effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	29.360848	(3,12)	0.0000
Cross-section Chi-square	42.421773	3	0.0000

Table 8. Fixed effect panel regression results for factors influencing the export competitiveness of Indonesian EBNs during 2017-2021

Variable	Coefficient	Std. error	t-statistic	Prob.
C	30.83999	9.535798	3.234128	0.0072
X_1	5.62E-05	1.65E-05	3.403414	0.0052
X_2	-6.54E-09	5.31E-08	-0.123055	0.9041
X_3	-5.52E-06	1.04E-05	-0.530671	0.6053
X_4	-4.84E-10	1.01E-09	-0.478373	0.6410
R-squared	0.993601			
Adjusted R-squared	0.989868			
F-statistic	266.1847			
Prob.(F-statistic)	0.000000			

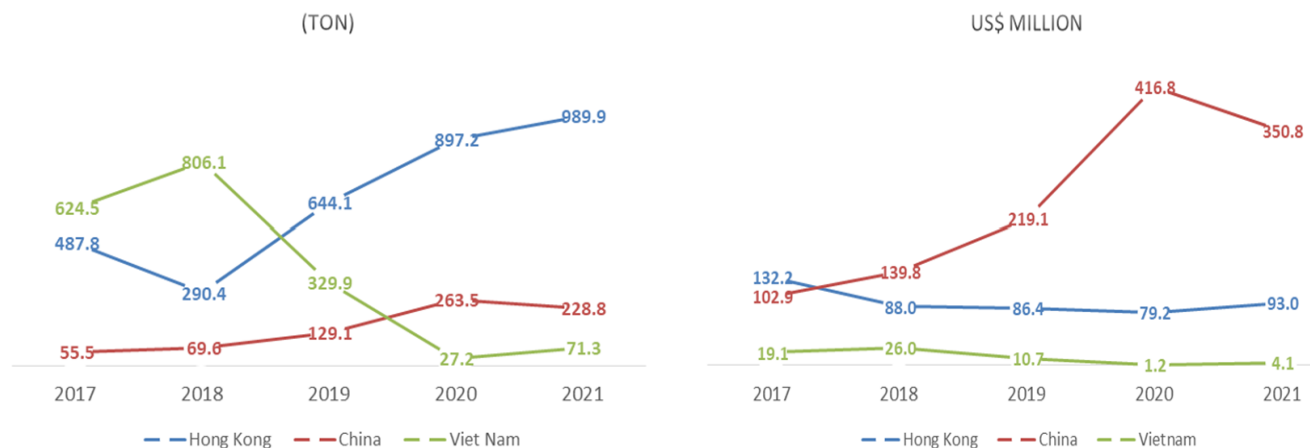


Figure 5. Export volume and value of Indonesian EBN to Hong Kong, China, and Vietnam during 2017-2021 (Badan Pusat Statistik Indonesia 2022)

Price disparities also influenced the performance of Indonesian EBN exports to Hong Kong and China. An increase in export volume to China was accompanied by a substantial rise in export value, whereas higher export volumes to Hong Kong did not translate into proportional increases in export value. Consequently, although Hong Kong absorbed the largest export volume, its contribution to total export value was considerably smaller than that of China. In contrast, despite receiving a smaller export volume, China contributed the largest share of Indonesia's EBN export value.

These differences largely stem from the stringent quality requirements and special treatment protocols imposed by the Chinese government on EBN imports. In contrast, Hong Kong does not apply comparable regulatory requirements for EBN imports.

In 2020, the Indonesian government required all exported EBN to be in the form of raw clean EBN (Kementerian Pertanian 2020b). This policy resulted in a sharp decline in export volumes to Vietnam and a substantial increase in exports to China during the same year. Subsequently, Indonesia introduced the Indonesian National Standard SNI 8998:2021, titled "Clean Edible Bird's Nests," which establishes quality standards aimed at improving the competitiveness of Indonesian EBN in the international market. These regulatory measures, along with related supporting policies, have contributed to the sustained growth in both export volume and export value of Indonesian EBN to China, as reflected in Figure 5.

The market position of Indonesian EBN

Indonesia's classification as a rising star in the global EBN market is driven by increasing international demand and the country's capacity to supply premium-quality EBN (Putra et al. 2024). This advantage is supported by favorable natural conditions for swiftlet cultivation and by government-led quality control and certification systems for exported EBN. Under this position, Indonesia holds strong potential to expand its market share and further improve its export performance. The optimistic

classification of Indonesian EBN within the X-Model PEP framework provides a strong justification for intensifying international market development. This can be achieved by ensuring compliance with importing countries' quality standards, handling procedures, and administrative requirements. Indonesia's strong competitiveness, expanding market share, and positive growth prospects indicate considerable market power in global EBN trade. These conditions create a solid foundation for strategic expansion of EBN production and exports, ultimately supporting increased export revenues.

Indonesia's government policy for the development of the EBN industry

Beyond strengthening production and export regulations, a critical policy priority for the Indonesian government is improving the registration of swiftlet houses with the Indonesian Agricultural Quarantine Agency (Barantin), particularly in major EBN-producing regions. Collaboration with local governments is essential in achieving this objective. As of 2023, only 2,808 swiftlet houses were registered with Barantin, accounting for approximately 3 percent of the estimated total number nationwide (Putra et al. 2024). Enhanced registration is necessary to enable effective monitoring of production processes and quality control, which is also a requirement imposed by the Chinese government.

The government should also promote the establishment of EBN cleaning facilities in producing regions. Expanding these facilities would improve product quality, increase selling prices, and raise income levels for EBN farmers. In the long term, this would support higher export volumes to China and strengthen Indonesia's bargaining position in bilateral EBN trade. In addition, further processing of EBN products is needed to meet the evolving demand of the international market. EBN is increasingly used in food and beverage, cosmetic, and pharmaceutical industries, presenting opportunities for value addition and market diversification for Indonesian producers.

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