ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

The International Trade Strengths of the Association of Southeast Asian Nations (ASEAN) Countries: A Cluster Analysis

Dr. Francisco C. Gatdula*[1], Khristine Karl A. Eredia[2], Maybel R. Antolijao[3], Shania D. Encorporado[4], Kelly Marie T. Gualen[5], Moriah Leesha S. Panimdim[6]
[1, 2, 3, 4, 5, 6] University of San Jose-Recoletos, Philippines
*Corresponding Author email: *fgatdula@usjr.edu.ph*

Received: 02 October 2023 **Revised**: 12 November 2023 **Accepted**: 13 November 2023

Available Online: 15 November 2023

Volume II (2023), Issue 4, P-ISSN – 2984-7567; E-ISSN - 2945-3577

Abstract

Aim: This study aimed to characterize the international trade strengths of the Southeast Asian member countries.
Methodology: This study used a cluster analysis of the data gathered through a data mining method from the World Bank and the World Integrated Trade Solutions (WITS) database.
Results: The clusters are characterized by Resource Abundance, Goods Movement, Tourist Destination, and a Trading Hub. Additionally, these ten clustered countries can be each other's competitors but at the same time compete against different countries all over the world.
Conclusion: There are several trends in the clusters as a whole. A stable and diverse international trade performance will undoubtedly benefit the overall economic condition of a specific country. Furthermore, it is evident that higher international trade is generally linked to higher economic growth.

Keywords: cluster analysis, international trade, Southeast Asia, economic performance, trade indicators

INTRODUCTION

The expansion of a nation's economy is significantly impacted by participation in international trade (Vijayasri, 2013). International trade is a strategic activity in the growth process of a developing economy. Academic researchers and practitioners, especially in developing nations, have conducted extensive research on the impact of international trade on economic development. Individuals frequently believe that trade liberalization creates a suitable environment for making high-quality goods that help the economy grow (Abendin & Duan, 2021). Therefore, international trade is a substantial contributor to global economic growth. Despite the fact that international trade flows have historically been erratic and prone to recurring trade barriers, many nations continue to pursue international trade due to the numerous positive externalities of trade. Southeast Asia (SEA) is one of the world's most active regions. As its national economies become increasingly connected to global information networks, it is undergoing a moment of transition (OECD, 2013). This study assesses potential differences in the international trade strengths of the Association of Southeast Asian Nations (ASEAN) member countries.

The literature review reveals that numerous empirical studies have been conducted to establish the impact of international trade on economic growth. Some empirical studies have demonstrated the positive effects of international trade on economic growth, such as Doan's (2019) study, which demonstrates how trade liberalization and institutional quality affect real income; Gokmenoglu et al.'s (2015) research on the connection between economic development, international trade, and financial development; and Zahonogo's (2016) research, which investigated the link between trade openness and economic development in emerging nations. In the study of Braga et al. (2023), it stated that Export Processing Zones have played a significant role in facilitating the remarkable growth and expansion of worldwide supply and value-added networks, contributing to a deeper integration of the global economy. On the contrary, some researchers have discovered contradictory or negative consequences of

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

international trade on economic growth, similar to the studies of Polat et al. (2014), which revisited the effect of financial development on economic growth by integrating trade openness in the production function. In the study of Strielkowski (2023), it was mentioned that the efforts made under the Eurasian Union's framework have a direct influence not only on the economies of all its member countries but also on the economies of its trade partners and neighboring nations. Post-soviet economics in the context of international trade: opportunities and threats from mutual cooperation. Economic research-Ekonomska istraživanja, 36(1), 2021-2044. Manwa et al. (2019) introduced multiple indicators of liberalization to estimate a potential relationship between trade openness and economic growth, consistent with recent studies from the International Monetary Fund and the World Bank indicating that restrictive trade policies could result in poor growth in many developing nations.

Various research on the relationship between international trade and economic growth have been undertaken based on the review of related literature stated. However, no specific research has been conducted to establish the international trade strengths of the SEA countries. No current study has determined which countries have similar strengths in international trade, hence the gap of knowledge. The primary goals of this research are (1) to determine the relative trade-related strengths of the SEA countries and (2) to group the countries based on the extent to which they share these relative strengths.

Conceptual Framework

The illustration was created using World Bank's Economic Performance Ranking and Logistics Performance Index (LPI) data. Additionally, the data are from the World Integrated Trade Solution (WITS) about the Export and Import of Products and Services of the eleven (11) SEA member countries in recent years. It covers the different drivers of the economic performance of these eleven (11) countries under the ASEAN.

Figure 1: *Conceptual Framework*

ETCOR's Website : https://etcor.org
Facebook Page : https://www.facebook.com/EmbracingTheCultureOfResearch
Twitter Account : https://twitter.com/ETCOR_research
YouTube Channel : https://tinyurl.com/YouTubeETCOR
E-mail Address : embracingthecultureofresearch@etcor.org
Mobile Number : 0939-202-9035

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

The economic performance and growth of one's country are not just mainly based on one factor, but it has other factors to be considered to be globally competitive. Moreover, a country's economic growth can be measured by its different economic activities, such as logistics performance and the imports and exports of goods and services.

The study's conceptual framework illustrates the factors contributing to the Economic Performance of the eleven (11) member countries of the ASEAN. In addition, the framework evaluates the various economic performance drivers for the eleven (11) ASEAN member countries, such as the LPI and the Import and Export of Products and Services, with cluster analysis. Clustering the different contributing factors to the Economic Performance of these eleven (11) member countries from the ASEAN helped determine and categorize the data into groups and showed the data's internal structure. It is helpful to use a clustering technique because it gives readers the information to identify similarities and differences in the data. The reasons for the clustering the SEA member countries are as follows:

1. The information gathered creates new ideas that are beneficial to the public.
2. The metrics used in a country's profile help the readers understand its data and performance.
3. Successful clustering could be the basis for a better performance of the member countries in the global trade.

According to Gani (2017), it has been widely accepted that the development of the logistics and transport sector promotes economic growth by facilitating the geographical decentralization of production, fostering the globalization of consumption, and thereby bolstering international trade. Furthermore, economic growth is propelled by both international trade and logistics performance; it is shown that the effects of the logistics sector on international trade are indirect and only occur through economic growth (Katrakylidis et al., 2019). Thus, it is evident that Logistics Performance and International Trade do have an incidental relationship with one another. Due to this evident relationship the independent variables of this study are deliberately chosen by the researchers. The independent variables covered in this study are classified and discussed below.

Logistics Performance Index

The Logistics Performance Index (LPI) was derived from a global survey of logistics carriers and freight forwarders. It is an online benchmarking tool created by the World Bank that assesses productivity throughout a country's whole logistics supply chain (Arvis et al., 2018). The performance index can assist countries in identifying issues with their logistical systems and locating chances to increase logistics performance. According to Celebi et al. (2015), the World Bank's LPI does have its six (6) key indicators, notably Infrastructure, International Shipments, Timeliness, Customs, Tracking and Tracing and Logistics Competence. Furthermore, these six key indicators do have a different relationship with each other as well as a profound impact on one another; customs and infrastructure are indicators of policy regulations and are classified as inputs, while timeliness, international shipments, logistics competence, and tracking and tracing are the indicators related to service quality performance and are also considered outcomes (Arvis et al., 2014). Thus, these six key indicators have their purpose and impact on the overall logistics performance of a specific country.

Import and Export of Products

Export is the sale of goods made in the country to people outside the country. These are the rich and varied natural products made in the country that will be sold in other countries. Importing is buying and bringing products from other countries into the home country. Large-scale imports usually involve customs in the sending and receiving countries (Alfaqeeh et al., 2021). In simple terms, these activities include selling commodities from one country to another that can contribute to the economic growth of the associated trading parties. Over the last few years, international trade in goods has been steadily increasing. Furthermore, trading various items is vital to the country's economic growth (Kehoe, T. J., & Ruhl, K. J., 2013).

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE Google Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181
NBDB RUN RESEARCHERS RUN

Import and Export of Computer, Communications, and Other Services

According to World Bank DataBank (2022), import and export of computers, communications, and other services include services like postal and courier services, international telecommunications, computer data, news exchanges between residents and non-residents, building services, royalties, and license fees, various business, professional, and technical services, as well as individual, cultural, and recreational services are all examples of services that fall under this category. In simple terms, it is a service trade focusing more on technology-based communication and other associated services. Moreover, information, telecommunications, and computing (ITC) services have experienced the fastest growth rate in worldwide service trade. These services have expanded significantly due to their utilization in creating numerous other goods and services, partly due to decreasing ITC costs. Information technology, communication, and contact center services have all been prime candidates for outsourcing, although the classifications of some of these services differ among economies (Rickards, 2019).

Import and Export of Travel Services

Travel services account for around US$11 trillion in yearly worldwide exports, making it the single largest service export. Travel encompasses the goods and services a nation offers foreign tourists, students, and business travelers, including lodging, meals, tourist attractions, and educational costs. It excludes travel to and from the nation and is covered by transport services (Rickards, 2019). In other words, this service trade sector plays a substantial role in overall service trading, and it mainly involves the purchasing transactions of tourists or any person visiting the country. Furthermore, the ASEAN economies have become more service-oriented. A more significant portion of regional demand is being met by their exports of goods and services, including tourism, and their product composition and market destinations are more diversified (Linong et al., 2018).

Import and Export of Transport Services

According to Index Mundi (2022), the category of transport services (% of commercial service exports) includes all transport services (sea, air, land, internal waterway, space, and pipeline) rendered by citizens of one economy for those of another and involving the carriage of passengers, the movement of goods (freight), the rental of carriers with a crew, and related support and auxiliary services. Although the production and consumption of services occur simultaneously, trading in services is distinct from trading in goods. As a result, even when a traveler's services (such as the use of a hotel room) may be used in the country of production, they are still regarded as imports from the tourist's home country. In other situations, services may also be provided remotely; for instance, insurance assistance may be provided from one location and utilized in another. Transportation costs have decreased as other services trade has grown significantly over the last few decades. Transport's contribution to the global service trade has decreased to under 20%. Transport services have been crucial for creating global value chains and are a significant component of the trade in products, despite their percentage of the market diminishing (Loungani et al., 2017).

Objectives

The objectives of this study are as follows:

1. To determine the relative trade-related strengths of the Southeast Asian countries
2. To group the countries based on the extent to which they share these relative strengths

Hypothesis

Given the stated research problem, the following hypotheses were tested on 0.05 level of significance:

Hypothesis 1: There is a significant relationship between the country’s economic performance and its logistics performance.

ETCOR’s Website : https://etcor.org
Facebook Page : https://www.facebook.com/EmbracingTheCultureOfResearch
Twitter Account : https://twitter.com/ETCOR_research
YouTube Channel : https://tinyurl.com/YouTubeETCOR
E-mail Address : embracingthecultureofresearch@etcor.org
Mobile Number : 0939-202-9035

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

Hypothesis 2: There is a significant relationship between the country's economic performance and the imports and exports of its goods and services.

METHODS

Research Design

This study used an exploratory research design using a data mining method to gather the needed data to characterize the international trade strengths by utilizing the LPI and the Export and Import of Services and Products.

Population and Sampling

This study focused on the Southeast Asian member countries with comprehensive data: Brunei, Cambodia, East Timor, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. The economic status of these countries varies from each other. The researchers focus on the ASEAN member countries since this group has highly developed and developing countries. While sharing a common geographical feature, these member countries may or may not have similar trading strengths, which this study assessed. The researchers selected the member countries according to these criteria: complete, up-to-date data in terms of international trade indicators. All the data on the Logistics Performance Index (LPI) and the Import and Export of Products and Services were from the official website of the World Bank and the World Integrated Trade Solution (WITS) of recent years.

Data Collection

This study used a datamining method to gather the needed data from the official website of the World Bank and the World Integrated Trade Solution (WITS).

Treatment of Data

An exploratory data analysis, namely cluster analysis, was used to analyze the collected data. Cluster analysis is a technique used by researchers to find features that are similar to one another but distinct from those in other groups. This method was helpful in studies when the researchers had yet to gain prior knowledge of creating groups or distributing their sets.

Ethical Considerations

The researchers made sure that all research protocols regarding ethics in research were followed for the protection of all individuals and organizations involved in the conduct of the study. The clearance of this study was granted by the Recoletos Ethics Review Office (RERO) of USJ-R.

RESULTS and DISCUSSION

The following presents the results of using cluster analysis to determine the groupings of the SEA countries regarding the similarity of their LPI, Total Imports, Total Exports, Computer, Communications, and Other Services Imports, Computer, Communications, and Other Services Exports, Travel Services Imports, Travel Services Exports, Transport Services Imports and Transport Services Exports. The countries are represented numerically as (1) Brunei, (2) Cambodia, (3) East Timor, (4) Indonesia, (5) Lao PDR, (6) Malaysia, (7) Myanmar, (8) the Philippines, (9) Singapore, and (10) Thailand. Vietnam was not included due to a lack of data.

ETCOR's Website : https://etcor.org
Facebook Page : https://www.facebook.com/EmbracingTheCultureOfResearch
Twitter Account : https://twitter.com/ETCOR_research
YouTube Channel : https://tinyurl.com/YouTubeETCOR
E-mail Address : embracingthecultureofresearch@etcor.org
Mobile Number : 0939-202-9035
Thank you for embracing the culture of research with us!

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

Figure 2. *Cluster Dendrogram of the Southeast Asian Countries*

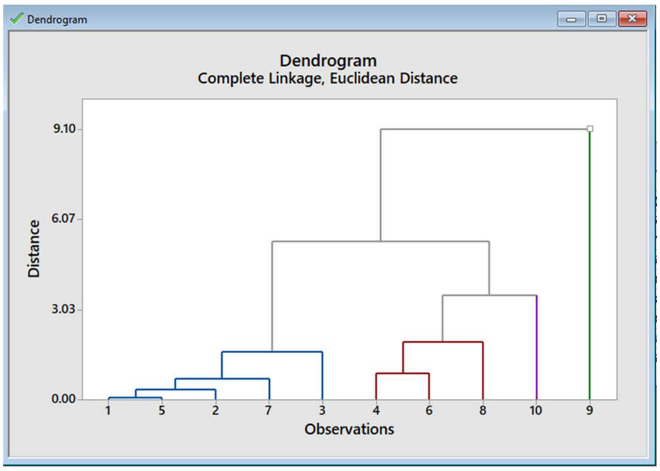

Figure 2 illustrates the four clusters based on the countries' similarities in Logistics Performance Index (LPI), Total Import, Total Export, Computer, communications and other services Imports, Computer, Communications and other services Exports, Travel Services Imports, Travel Services Exports, Transport Services Import and Transport Services Exports. Cluster 1 was composed of (1) Brunei, (2) Cambodia, (3) East Timor, (5) Lao PDR, and (7) Myanmar, which indicated that there were similarities across the nine (9) indices within these countries. The same was evident in Cluster 2, which consists of (4) Indonesia, (6) Malaysia, and (8) the Philippines. Also, Cluster 3 comprised (10) Thailand, and Cluster 4, (9) Singapore.

Table 1. Final Partition Number of Clusters 4

	Number of Observations	Within cluster sum of squares	Average distance from centroid	Maximum distance from centroid
Cluster 1	5	1.86630	0.528524	1.10433
Cluster 2	3	2.10890	0.787495	1.07673
Cluster 3	1	0.00000	0.000000	0.00000
Cluster 4	1	0.00000	0.000000	0.00000

Table 1 shows, upon further analysis, the researchers found out, based on the average distance from the centroid, Cluster 3 and 4 are on or near the grand centroid while Cluster 1 and 2 are 0.53 and 0.79 away from the grand centroid, which explains that Cluster 1 and 2 have depicted that they are similar in terms of their performance in international trade. Table 2 shows the cluster centroids for the four groups in terms of the nine (9) indices.

Table 2. Cluster Centroids

Variables	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Grand Centroid
LPI	-0.742103	0.352023	1.79500	0.85944	0.0000000
Total Imports	-0.811731	0.366896	2.00449	0.95348	0.0000000
Total Exports	-0.786394	0.359596	1.93430	0.91888	0.0000000
Computer, communications and…Imports	-0.511766	-0.118186	2.75350	0.15989	0.0000000
Computer,	-0.566042	0.096248	2.65193	-0.11046	-0.0000000

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

communications and…Exports					
Travel Services Imports	-0.813967	0.458235	2.18699	0.50814	-0.0000000
Travel Services Exports	-0.646568	0.068790	0.50566	2.52081	-0.0000000
Transport Services Imports	-0.550481	-0.104254	2.69022	0.37494	0.0000000
Transport Services Exports	-0.435682	-0.215540	2.81092	0.01411	0.0000000

Table 2 depicts the distances between cluster centroids in terms of the ten Southeast Asian countries for the four clusters. It shows the proximity of similarities between the clusters. Hence, the similarities of Cluster 1 are closer to Cluster 2 than to Cluster 3 and 4 and vice versa. Cluster 2 is more comparable to Cluster 3 than Cluster 1.

Table 3. Distance between Cluster Centroids

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Cluster 1	0.00000	2.62124	8.61182	4.69963
Cluster 2	2.62124	0.00000	6.49382	2.70771
Cluster 3	8.61182	6.49832	0.00000	6.11805
Cluster 4	4.69963	2.70771	6.11805	0.00000

Table 3 highlights the distance of similarities between the clusters. If a specific cluster is chosen as the grand centroid, the distance between it and the other clusters is displayed. As a result, the closer their similarities are, the closer their distance from the centroid is. For instance, Cluster 1 was designated as the grand centroid, which indicates 0.00000, implying that Cluster 2 is 2.62124 closer to Cluster 1 and shares the most similarities. In contrast, Cluster 3 is 8.61182 farther away, implying that Cluster 1 and 3 share few or no similarities at all.

Cluster 1

Cluster 1 comprised Brunei, Cambodia, Lao PDR, Myanmar, and East Timor, gradually and steadily expanding economically. Moreover, the researchers discovered that these countries belonging to Cluster 1 were active producers and exporters of finished goods related to natural resources such as fuel, textiles, and clothing, indicating that these nations were, in fact, endowed with an abundance of natural resources. The pooled results showed that Brunei, East Timor, and Lao PDR shared the same international trade strength, wherein these countries were both producers and exporters of fuel. Also, both were importing numerous consumer goods from other countries. Aside from these, in terms of computer and travel services, these countries were more focused on importing than exporting different types of services, but it was evident that these countries could still cope with service trading. According to Abekah-Koomson et al. (2014), China, Australia, Hong Kong, Japan, the Republic of Korea, the United States, the European Union, ASEAN, and other nations are among the nations that import goods to Brunei while Australia, India, China, Japan, New Zealand, the Republic of Korea, and other ASEAN countries are the primary destinations for the crude oil exports of Brunei.

Moreover, even if Brunei actively participated in international trade, the country still needs further development in different business aspects. It is evident that Brunei has trade openness wherein it openly exchanges goods from various countries. According to Kyophilavong (2011), The biggest exports from Laos PDR include clothing, power, wood products, and since 2005, minerals and electricity. The nation is renowned for having a plethora of natural resources, including minerals, water, forests, and wildlife. Contrarily, East Timor's biggest exports are crude oil, petroleum gas, coffee, scrap iron, and insulated wire, which are mainly sent to China, Singapore, Japan, Malaysia, and the US. Furthermore, the top countries from which it imports refined petroleum, coal briquettes, rice, iron buildings, and automobiles are China, Indonesia, Singapore, Australia, and India (OEC,2021). As a result, these three countries primarily have the same international trade strengths in exporting fuel and other natural

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

resources-related finished products, as well as exporting and importing various trading services, mainly travel services.

Furthermore, most countries belonging to cluster 1 have a specific trading strength but need further development in the other areas affecting their trade performance. According to Ferrarini (2013), Myanmar's trade potential will be determined by its capacity to allocate resources through reforms designed to maintain a stable macroeconomic environment, invest significantly in infrastructure and human capital, and restructure its banking system and foreign exchange regime. Based on the collected data, the country and Cambodia are both actively exporting textile and clothing products in connection with Myanmar. According to WHY? Invest in ASEAN (2012), the textile industry is a major driver of the economy of Cambodia. More than 300 textile and garment factories employed 335,432 people in 2011 to support the industry. This year compared to last, growth increased by 34%. As the EU market grew by 70%, exports rose. Tourism is another important industry. Since 2007, there have been more than 2 million international arrivals every year. In 2012, there were more than 3 million.

Hence, these five countries, namely Brunei, Cambodia, East Timor, Lao PDR, and Myanmar are similar in some indices; these countries can consider each other as competitors in terms of trading in different countries. Moreover, these shared similarities can push these countries to develop their economies further to gain a more significant advantage and to have their own spotlight in the market.

Cluster 2

Cluster 2 comprised Indonesia, Malaysia, and the Philippines, among the nation's fastest-growing agricultural import markets. These countries share rich agriculture and natural resources accompanying significant economic expansion and urbanization processes. As seen in the import and export data of the three countries, service trade is foreseen to overtake other factors to fuel trade growth in the future.

Indonesia's domestic consumption significantly rose in 2022. Derived from the data, their import of transport services expanded. Tourism grew as well. This was supported further by exports, as the commodity market drove up the prices of key exports such as coal, palm oil, iron, and steel. The top producers of palm oil globally include Indonesia and Malaysia. The first major producer and exporter of palm oil is Indonesia, followed by Malaysia. Meanwhile, one of their biggest importers is the Philippines (Azman et al., 2018). This has a significant impact on the nation's agricultural and economic development. Malaysia, on the other hand, according to the World Bank (2022) Malaysia has effectively transformed from one that was centered on agriculture and commodities to one that is fully service, and manufacturing based. These factors have propelled the nation to become a prominent electronic parts and component goods exporter. Though the Philippines is rich in natural resources, it shows low textiles, clothing, and footwear exports. The Philippine industrial sector has been stagnant compared to the industrial shares of neighboring Southeast Asian countries, particularly Indonesia and Malaysia. According to Laiprakobsup (2019), the Philippines continues to import a lot of agricultural goods, especially rice. Large-scale agricultural product importation had a detrimental effect on native agricultural farmers' production skills. Furthermore, the response of the government to this problem also denotes the status quo and other underlying factors why Philippines imports more on Products or goods. Nonetheless, the Business Process Outsourcing (BPO) sector has seen a notable expansion in the Philippines' service exports. The export of human capital is increasingly important to the economy. (Redding and Witt, 2014) The remittances made by these employees to their families keep the Filipino economy afloat since it is one of the top suppliers of migrant labor in the world. This showed how export-led growth helped the Philippines become competitive in exports of high-technology manufactured products.

Therefore, the study revealed that, among the countries in Cluster 2, Malaysia and Indonesia have similarities in terms of goods movement. The two countries, Malaysia, and Indonesia, export the most products and travel services and import on Computer, Communications, and other Services plus Transport Services. The Philippines imports the most products, travel services and transport services and has the most exports of Computers, Communications, and other Services. These three countries, Malaysia, Indonesia, and the Philippines, generally share similar Indices and strengths in international trade and might be viewed as rivals when it comes to importation of transport services. These nations may be encouraged to expand their economies to gain a competitive edge and get international attention as a result of their common similarities.

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

Cluster 3

Cluster 3 was found to have the second-highest level on almost all indices except in travel services export which ranks first among the four clusters. Thailand's economy integrates strong manufacturing and stable service sectors (Bajpai,2022). It is evident from the data presented how Thailand's performance differs from other countries, making it the only country in Cluster 3. Tourism significantly contributes to Thailand's economy, which would develop the nation's economic performance by receiving foreign currency, increasing international reserves, stimulating production, and maximizing the use of resources from other related sectors.

The data shows that the main strength of Thailand is Travel Service under Commercial Service. In fact according to Beirman (2018), Thailand's tourism industry has grown significantly and is a key strength of the country, attracting 35.38 million international visitors in 2017, making it the ninth most visited country in the world. Furthermore, several developing nations now place increasing importance on the tourist sector as a source of income and employment. A substantial percentage of the foreign exchange gains from tourism is crucial in developing the nation's economy. Tourism has attracted substantial attention in contemporary academic research due to its rising importance in the global economy. The tourism industry of Thailand is completely supported by its hospitality, infrastructure, exotic foods, affordable lodging, and numerous attractions, including its alluring beaches, shrines and manors, historical sites, cuisines, and natural attractions. This makes for a complete, developed tourism market and a safe place to visit, which tourists love. Besides tourism, Thailand is now doing good in its logistics performance compared to the previous years. The Thai government has promoted Thailand as a Southeast Asia logistics hub with logistics system development projects. To do this, the Lamchabang Seaport in Thailand, one of the most active container ports in the world with a staggering capacity of more than six million twenty-foot equivalent units, is regarded as the key term to support super-post-Panamax ships, the entrance to the Greater Mekong Subregion, and the logistics hub of Southeast Asia (Komchornrit, K. (2017). According to the data, Agriculture in Thailand is highly competitive, diversified, and specialized, and its exports are very successful internationally. It mainly exports rice throughout the world. Although the agriculture industry of Thailand may not be as good as the other indices, it significantly contributes to the economy's labor force. Therefore, Thailand's most significant contributor to International Trade is Tourism under Commercial Services, and even the other Southeast Asian countries could not outreach their performance.

Cluster 4

Cluster 4 was composed of Singapore, which is known as a trading hub or trading port and is one of Asia's most significant trading hubs. Singapore is strategically situated along the globe's primary trade, shipping, and aviation routes, making it one of the most linked countries in the world. In spite of the fact that it has a small domestic market and a scarcity of natural resources, Singapore has established itself as a regional center for oil and gas (Hawksford, 2017). In 2022, the Heritage Foundation's Index of Economic Freedom classified Singapore's economy as the second most open globally. The World Bank's Doing Business Report ranked it the second-most business-friendly regime globally. Thus, Singapore has long earned a reputation as one of the world's most advanced economies.

Based on the results, Singapore had the highest trading strength among the ASEAN member countries (see Figure 2). Singapore had the highest import and export of goods transactions, the highest import and export of computer, communication, and other services, was second only to Thailand in travel service exports, and had the highest import and export of transportation services. Likewise, the researchers discovered that Singapore's significant commercial service export is computers, communications, and other services. According to Vu (2013), the exceptional economic success of Singapore has been strongly tied to the country's relentless efforts to embrace the Information and Communication Technologies (ICT) revolution. Singapore is one of the most connected and technologically advanced ICT markets. Singapore's Information and Communication Technology (ICT) sector is a crucial enabler for nearly every economic sector. It has boosted the competitiveness of Singapore by increasing productivity and altering finance, services, and manufacturing business processes. In terms of products, Singapore is an exporter of machinery and electronics. Another trade strength of Singapore is its travel services sector. Given that Singapore has one of the most open economies, tourism has been designated one of the city-state's essential growth

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

drivers. In addition, its port, which provides services and facilities for ships to dock, load, and unload cargo, has always contributed significantly to Singapore's economic growth.

Furthermore, the top exports of Singapore are machinery and electronics. The key drivers of the economy of Singapore are electronic, tourism, machinery, and manufacturing exports, and the biggest cargo port in the world. In addition, unlike the economies of other Southeast Asian nations, its economy has never been predominantly dependent on the manufacturing and export of commodities (Britannica, 2019). Therefore, Singapore is a role model for other developing countries.

Summary, Conclusions, and Recommendations

Based on the findings of the study, the Cluster Analysis shows four clusters having distinct characteristics and similarities to a degree from each other. The clusters were categorized into the following strengths: Resource Abundance, Goods Movement, Tourist Destination, and a Trading Hub. Singapore is a role model among Southeast Asian countries. Despite being a country with a limited size and lack of/ no natural resources, Singapore is one of the wealthiest countries by utilizing the deep-water part at the intersection of global trade routes. Also, Singapore is thriving by connecting itself to the rest of the world and forming Free Trade Agreements (FTA) to gain market access. With that, richness in natural resources doesn't guarantee that it will be a developed country like the Philippines. But it doesn't mean it's not capable of progress. The Philippines is rich in natural resources but mainly imports goods from other countries. This signifies that the Philippines should study and invest more in their agricultural sector, considering it was one of the top rice exporters. Also, the Philippines is known for its tourism; however, it did not reflect in the data. This means that the Philippines offer good tourism, but it has several things to improve to be a developed country. Additionally, even though some countries—such as Cambodia, East Timor, and Myanmar—are actively exporting goods, they still need to improve their performance in international trade to compete in the competitive trading market.

The are several trends in the clusters as a whole. A stable and diverse international trade performance will undoubtedly benefit the overall economic condition of a specific country. Furthermore, it is evident that higher international trade is generally linked to higher economic growth. In fact, no nation has ever attained steady economic expansion without engaging in substantial international trade. Nevertheless, the international trade performance of the country does not necessarily reflect its overall economic condition; for instance, Brunei was known as small and wealthy in Southeast Asia primarily because of oil and gas but isn't faring well in terms of international trade. Thus, the higher the international trading performance, the better the economic condition of one's country, but not necessarily for all.

REFERENCES

Abekah-Koomson, I. & Mensah, J.O. (2014). The Trade Openness and Economic Growth of Brunei Darussalam. Researchgate.https://www.researchgate.net/publication/312092303_Trade_Openness_and_Economic_Growth_of_Brunei_Darussalam

Abendin, S., & Duan, P. (2021). International trade and economic growth in Africa: The role of the digital economy. Cogent Economics & Finance, 9(1), 1911767. https://doi.org/10.1080/23322039.2021.1911767

Alfaqeeh, A., Latifa, H., Seriki, L.L., & Triyawan, A. (2021). Influence of Export and Import Toward Economic Growth in Canada in 2010 - 2019. Stiepena. https://ejournal.stiepena.ac.id/index.php/fe/article/view/415

ANNEX 2. TOURISM AS AN ECONOMIC DEVELOPMENT TOOL. (n.d.). Oas. http://www.oas.org/dsd/publications/unit/oea78e/ch10.htm

Arvis, J.-F., Ojala, L., Shepherd, B., Wiederer, C., Raj, A., Dairabayeva, K., & Kiiski, T. (2018). (PDF) Connecting to Compete 2018: Trade Logistics in the Global Economy. ResearchGate. https://www.researchgate.net/publication/327044979_Connecting_to_Compete_2018_Trade_Logistics_in_the_Global_Economy

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

Arvis, J.-F., Saslavsky, D., Ojala, L., Shepherd, B., Busch, C., & Raj, A. (2014). Connecting to Compete 2014: Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators. Worldbank. https://openknowledge.worldbank.org/bitstream/handle/10986/20399/904190WP0LPI0R00Box385316B00PUBLIC0.pdf?sequence=1&isAllowed=y

Azman, I., Hishamuddin, E., Izuddin, Z.B.M.N., Kushairi, A., Loh, S.K., Ong-Abdullah, M., Parveez, G.K.A., & Sundram, S. (2018). Oil Palm Economic Performance in Malaysia and R&D Progress in 2017 – Review Article. https://doi.org/10.21894/jopr.2018.0030

Bajpai, P. (2022, September 26). Emerging Markets: Analyzing Thailand's GDP. Investopedia. https://www.investopedia.com/articles/investing/081815/emerging-markets-analyzing-thailands-gdp.asp#:~:text=Thailand's%20economy%20is%20a%20blend,engine%20of%20the%20country's%20economy.

Beirman, D. (2018). Thailand's Approach to Destination Resilience: An Historical Perspective of Tourism Resilience From 2002 to 2018. Tourism Review International. https://doi.org/10.3727/154427218X15369305779083.

Braga, H., Gouvea, R., & Gutierrez, M. (2023). Brazilian Export Processing Zones & Green Powershoring: Challenges & Opportunities. Modern Economy, 14(10), 1366-1392

Britannica. (2019). Singapore - The people | Britannica. In *Encyclopædia Britannica*. https://www.britannica.com/place/Singapore/The-people

Çelebi, D., & Ojala, L. (2015). The World Bank's Logistics Performance Index (LPI) and drivers of logistics performance Prepared for the Roundtable on Logistics Development Strategies and their Performance Measurements. https://www.itf-oecd.org/sites/default/files/docs/ojala.pdf?fbclid=IwAR3rdYF0dybREKDalWC4---i_btDqYwtkSofZ70wpApdAXxs1Yzd0kcEqxc

Doan, H. Q. (2019). Trade, Institutional Quality and Income: Empirical Evidence for Sub-Saharan Africa. Economies, 7(2), 48. https://doi.org/10.3390/economies7020048

Ferrarini, B. (2013). Myanmar's Trade and Its Potential. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2236530

Gani, A. (2017). The Logistics Performance Effect In International Trade. https://www.sciencedirect.com/science/article/pii/S2092521217300688

Gokmenoglu, K. K., Amin, M. Y., & Taspinar, N. (2015). The Relationship among International Trade, Financial Development and Economic Growth: The Case of Pakistan. Procedia Economics and Finance, 25, 489–496. https://doi.org/10.1016/s2212-5671(15)00761-3

Hawksford. (2017). *What makes the Singapore economy tick?* GuideMeSingapore. https://www.guidemesingapore.com/business-guides/incorporation/why-singapore/singapore-economy---a-brief-introduction

Index Mundi. (2022). Transport services (% of commercial service exports) by Country. https://www.indexmundi.com/facts/indicators/TX.VAL.TRAN.ZS.WT

Katrakylidis, I., & Madas, M. (2019). International Trade and Logistics : An Empirical Panel Investigation of the Dynamic Linkages Between the Logistics and Trade and their Contribution to Economic growth. https://www.um.edu.mt/library/oar/handle/123456789/52670?fbclid=IwAR0CTGmWYATYLo3Sg8dlO6_PtlCGa2gttoUFpUVczeD1cPRVYja5Zgkkb7k

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR P - ISSN 2984-7567 E - ISSN 2945-3577
The Exigency P - ISSN 2984-7842 E - ISSN 1908-3181

Kehoe, T. J., & Ruhl, K. J. (2013). How important is the new goods margin in international trade?. Journal of Political Economy, 121(2), 358-392.

Komchornrit, K. (2017). The Selection of Dry Port Location by a Hybrid CFA-MACBETH-PROMETHEE Method: A Case Study of Southern Thailand. *The Asian Journal of Shipping and Logistics*, *33*(3), 141–153. https://doi.org/10.1016/j.ajsl.2017.09.004

Kyophilavong, P. (2011). Trade Liberalization, Pollution and Poverty: Evidence from Lao PDR. https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/48937/IDL-48937.pdf?sequence=1&isAllowed=y

Laiprakobsup, T. (2019). The policy effect of government assistance on the rice production in Southeast Asia: Comparative case studies of Thailand, Vietnam, and the Philippines. Development Studies Research, 6(1), 1–12. https://doi.org/10.1080/21665095.2019.1568900

Linong, L., Wangqiang, Z., Wei, L., Xiaona, Y., & Zhongming, Z. (2018). Building Complementarity and Resilience in ASEAN Amid Global Trade Uncertainty. http://resp.llas.ac.cn/C666/handle/2XK7JSWQ/236066

Loungani, P., Mishra, S., Papageorgiou, C., & Wang, K. (2017). World Trade in Services: Evidence From A New Dataset. World Trade in Services: Evidence from A New Dataset (imf.org)

Manwa, F., Wijeweera, A., & Kortt, M. A. (2019). Trade and growth in SACU countries: A panel data analysis. Economic Analysis and Policy, 63, 107–118. https://doi.org/10.1016/j.eap.2019.05.003

OEC. (2021). Timor-Leste Exports, Imports, and Trade Partners. https://oec.world/en/profile/country/tls

OECD. (2013). Innovation in Southeast Asia, OECD Reviews of Innovation Policy, OECD Publishing,Paris. https://www.oecd-ilibrary.org/science-and-technology/innovation-in-southeast-asia-2012_9789264128712-en

Polat, A., Shahbaz, M., Rehman, I. U., & Satti, S. L. (2014). Revisiting linkages between financial development, trade openness and economic growth in South Africa: fresh evidence from combined cointegration test. Quality & Quantity, 49(2), 785. https://www.academia.edu/21922500/Revisiting_linkages_between_financial_development_trade_openness_and_economic_growth_in_South_Africa_fresh_evidence_from_combined_cointegration_test

Redding, G., & Witt, M.A. (2014). The Oxford Handbook of Asian Business Systems. In *Google Books*. OUP Oxford. http://surl.li/gsuja

Rickards, P. (2019). The International Trade In Services. The International Trade In Services (rba.gov.au)

Strielkowski, W., Kulagovskaya, T., Panaedova, G., Smutka, L., Kontsevaya, S., & Štreimikienė, D. (2023). Post-soviet economics in the context of international trade: opportunities and threats from mutual cooperation. Economic research-Ekonomska istraživanja, 36(1), 2021-2044.

Vijayasri, G. V. (2013). The importance of international trade in the world. *International Journal of Marketing, Financial Services & Management Research*, *2*(9), 111-119. https://www.semanticscholar.org/paper/The-Importance-of-International-Trade-in-the-World-Vijayasri/0c6506f1ab891cb40206230f6d841cb7e11796a7

Vu, K. M. (2013). Information and Communication Technology (ICT) and Singapore's economic growth. *Information Economics and Policy*, *25*(4), 284–300. https://doi.org/10.1016/j.infoecopol.2013.08.002

WHY? Invest in ASEAN. (2012). https://investasean.asean.org/asean-member-states/view/709/newsid/794/cambodia.html

ETCOR Educational Research Center PHILIPPINES
Sta. Ana, Pampanga, Philippines
INTERNATIONAL MULTIDISCIPLINARY RESEARCH CONFERENCE
Website: https://etcor.org
iJOINED ETCOR
P - ISSN 2984-7567
E - ISSN 2945-3577
The Exigency
P - ISSN 2984-7842
E - ISSN 1908-3181

World Bank DataBank. (2022). Metadata Glossary. Retrieved from https://databank.worldbank.org/metadataglossary/world-development-indicators/series/TX.VAL.OTHR.ZS.WT

World Bank. (2022). Overview. https://www.worldbank.org/en/country/malaysia/overview?fbclid=IwAR192VkdZNbQTozNLHptUm7IjBbxSCOeIJx7BXEOY88lAt2oowFCKiU0so4

Zahonogo, P. (2016). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. Journal of African Trade, 3(1-2), 41–56. https://doi.org/10.1016/j.joat.2017.02.001