Second-Generation Asian Tigers in Global Value Chains: A Comparative Analysis of Backward and Forward Linkages[1]

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Abstract: Considering different patterns and levels of integration into global value chains (GVCs), this paper investigates similarities and differences among the second-generation Asian Tigers from the perspective of their interconnections between industries and countries, i.e., backward and forward linkages. We bring to the forefront Indonesia, Malaysia, the Philippines, Thailand, and Vietnam, and patterns of their integration into GVCs. The starting point of this research is the statistical evidence from the Regional Integration and Value Chain Analyzer (RIVA), developed by the United Nations Economic and Social Commission for Asia and the Pacific, interpreted from a comparative standpoint. After reviewing the relevant literature, in the first part, the investigation focuses on the main characteristics of the five economies, derived from their participation in GVCs covering the time frame between 2015 and 2024. In the second part, the case studies of Indonesia and Vietnam are presented, together with their backward and forward linkages in 2024.

Keywords: second-generation Asian Tigers, backward and forward linkages, global value chains, international trade.
JEL Classification: F02, F13, F15, F43, O24, O53, O57.

1. Introduction

The concept of "global value chains" (GVCs) has emerged as a dominant business model, occupying a central role in the development strategies at the level of multinational enterprises (MNEs) and national economies. As a mechanism to transmit global knowledge and production know-how, based on global interdependence, GVCs spanned over countries, showcasing the intricate collaboration required for complex and innovative productions, shaping industries and impacting lives worldwide (ADB, 2026). In this regard, some countries have stood out by intensively integrating into GVCs, currently dominating many industries, as is the case in Southeast Asian countries with a critical role in renewable energy manufacturing, and contributing to their transition from low-cost assembly hubs into central and sophisticated suppliers, as well as innovators. While initially capitalising on labour-intensive exports, Southeast Asian countries have upgraded to higher value-added activities through technology adoption, industrial policy, and deep integration into global production networks (Kee & Tang, 2016; Yu, 2025). Success stories have pointed to innovation as a key mechanism through which MNEs can achieve deeper and more sustainable integration into global production networks (Hoang et al., 2026).

The Asian Tigers of the second-generation (Indonesia, the Philippines, Malaysia, Thailand, and Vietnam, or T5), members of the Association of Southeast Asian Nations (ASEAN)[2], are among the key players in GVCs due to their transformation into global manufacturing hubs (OECD, 2022). Much of their development success over the past several decades has been tied to their openness to trade (even if specific sectors are highly restricted[3]) and engagement with the global economy, including through participation in GVCs (ADB, 2026). The five analysed economies differ widely in their levels of GVC participation, their capabilities, and their intensity of integration and upgrading (ADB, 2026). The main objective of this paper is to underscore these

[1] This paper further capitalizes on Iulia Monica Oehler-Șincai's doctoral thesis, "The place and role of the Asian Tigers in international trade at the end of the 20th century and the beginning of the 21st century".
[2] The organisation comprises Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.
[3] For instance, the OECD Services Trade Restrictiveness Index (STRI) shows the Philippines, Indonesia, Thailand, Vietnam, and Malaysia, in this order, among the countries with the highest policy restrictions affecting trade in services.

countries' similarities and differences regarding their integration into GVCs from the perspective of backward and forward linkages.

2. Literature review

In a period when GVCs are at an inflection point, as they are being reshaped by geopolitical dynamics, pandemic aftershocks, and the emergence of disruptive technologies, it is high time to evaluate the integration of the second-generation Asian Tigers into these production networks. The world has entered a new phase of globalization, being more fragmented, but also "more digital, high-tech and dynamic". For Asia, in general, and the T5 economies in particular, this presents both huge growth potential and a massive downside risk to the development outlook, and the region's future depends on its ability to stay open, innovate rapidly, and adapt proactively to global shifts in geopolitics and protectionist policies (AMRO, 2025).

Production, trade, and investment are more and more concentrated on technologically advanced and regionally integrated hubs. Readiness rather than volume is the new basis of competitiveness, as shown by the Global Value Chain Readiness Index (GVCRI) across six pillars (technology and connectivity, trade and investment, sustainability and energy, institutional and geopolitical, financial and business readiness). At the same time, geoeconomic fragmentation and subsidy competition are reshaping the geography of GVCs: MNEs respond to tariffs, sanctions, and subsidies by rerouting trade and investment through "connector" economies, especially ASEAN countries with ties to multiple (rival) blocs (WTO, 2025). The China plus One strategy adopted by various MNEs, synonymous with the diversification of operations beyond China to mitigate risks, is a valuable accelerator of foreign direct investment (FDI) to ASEAN (Kaushal, 2025). GVCs drive trade integration, and at the same time regional trade agreements, such as the ASEAN Trade in Goods Agreement (ATIGA) and the Regional Comprehensive Economic Partnership (RCEP) stimulate growing involvement in complex GVCs and capabilities in manufacturing and supply chain logistics (ASEAN, 2025).

Recent studies underscore *Vietnam*'s continued specialization in low-complexity assembly tasks with limited domestic value addition (Hoang et al., 2026). Vietnam, together with Thailand, has experienced increases in backward participation, strengthening their roles in processing, assembly, and other downstream activities. Vietnam is the country in Southeast Asia with the highest backward participation rates (relying heavily on imported intermediate inputs, especially from China and South Korea) to export final products (Nguyen et al., 2025). Vietnam has become an important electronics manufacturing and assembly hub, intending to become a global semiconductor & electronics centre, by combining self-reliance with FDI. Vietnam's electronics development strategy to 2030, with a vision to 2050, is built on the breakthrough formula "C = SET + 1" (Chip, Specialized, Electronics, Talent), where the "+1" stands for Vietnam as "a new, safe node in the global semiconductor supply chain, aiming to become a global hub for chip design, manufacturing, packaging, and testing" (Tran & Trinh, 2026).

Indonesia is a resource-driven economy and plays a relevant role in GVCs through its rich natural resources. Its dominant position in the international nickel market and specific policies oriented towards the support for local processing have led to a strong electric vehicle battery manufacturing (Kim, 2026). At present, Indonesia is tightening its control over other natural resources, with new regulations requiring relevant exports to be handled by state enterprises to acquire a greater "bargaining power" (Tarigan and Delgado, 2026). Scholars are sceptical if similar policies in other mineral segments may have the same magnitude of success, as Indonesia does not have as much market power in other areas as it does in nickel (Kim, 2026). Its supplementary goal is to support the manufacturing sector at the national level, i.e., exporting higher value goods. Indonesia's Golden Vision to reach high-income status by 2045 places particular emphasis on trade, taking as a model the Asian Miracle success stories that have relied on trade as an important growth driver (Habib, 2026). Enhancing GVCs participation is part of the solution, Indonesia must first address technological, infrastructure, and policy gaps (Nugraha et al., 2025). Athukorala and Patunru (2025) emphasize that the country's policy ambivalence toward engaging in GVCs (on the one hand, restrictions regarding FDI and even trade, on the other hand, the focus on integrating domestic manufacturing into GVCs to reap the benefits of economic globalization) is a key factor in explaining its unrealized growth potential. OECD (2026) shows that Indonesia faces significant bottlenecks for trade and investment due to widespread regulatory barriers such as local-content requirements and indirect discriminatory impediments that favour domestic firms, hindering MNEs and trade integration.

By contrast, Malaysia, together with Asian Tigers of first generation (South Korea, Singapore, Taiwan-China, and Hong Kong-China) shifted toward higher forward participation, reflecting a greater share of upstream, knowledge- and technology intensive activities (ADB, 2026).

Malaysia is a leading example among developing economies in Asia. It is increasingly competing through innovation, services, and standards-setting, rather than production scale alone. At the same time, it has implemented targeted policies to strengthen manufacturing-related services, "illustrating how policy can support deeper and more diversified GVC integration". It has moved into segments of GVCs where "competitiveness depends less on cost advantages and more on innovation, standards, and governance - while also facing greater exposure to emerging pressures such as automation and evolving regulatory requirements". Malaysia is the only second-generation Asian Tiger which has upgraded into complex GVC tasks. Thailand and Vietnam are one-way upgrading, while Indonesia and the Philippines are two-way upgrading[4] (ADB, 2026).

Considering important differences in knowledge, technology, and productivity, these countries' participation in GVCs follows specific specialization patterns. Taking as an example the electrical vehicle value chain, one can remark Indonesia's contribution to battery materials (lithium and nickel), semiconductor inputs from Malaysia, and electronic components from Malaysia and Thailand, before assembly takes place in Thailand, Indonesia, Malaysia, and Vietnam (ADB, 2026; PwC, 2025).

The novelty of the present investigation lies in the comparative analysis of the five economies in terms of linked exporting sectors and partner economies, for backward and forward linkages, as well as the two case studies of Indonesia and Vietnam. This research gap is the key justification for this study, proving originality and new insights.

3. Methodology of research

The methodological design employs a mixed-methods approach, combining a *quantitative* approach based on the specialised databases, namely *the Regional Integration and Value Chain Analyzer* (RIVA) developed by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), doubled by other international databases, where is needed, with a *qualitative* analysis constructed on international organisations' reports and academic studies, to *identify the level of integration into GVCs of five Southeast Asian countries, namely Malaysia, Indonesia, Thailand, the Philippines and Vietnam, known as the second-generation Asia Tigers (hereinafter referred to as T5).* In this regard, a *comparative* approach is also envisaged, taking into account the examination of the evolution of the five countries during the period between 2015 and 2024. Throughout the article, personal interpretations and opinions are considered in the context of putting together their ambitious national policies and strategies, also emphasised in international reports, with the data revealed by the RIVA database.

Even if there are other databases tracking GVCs by revealing where and how much value is generated by a country's industries, such as the Trade in Value Added (TiVA) database of the Organisation for Economic Co-operation and Development (OECD) or the Eora of the United Nations Conference on Trade and Development (UNCTAD), RIVA offers the most up-to-date information.

The selected indicators aim to provide an overview of the five countries engaging in international cooperation through the perspective of GVCs, focusing on Indonesia and Vietnam. Indonesia is the largest economy among the T5, is a resource-driven economy, and is the incontestable leader among the five in terms of domestic value-added embodied in its exports of intermediate goods or services. By contrast, Vietnam records the lowest level of domestic value-added. The suitable indicators are expected to reveal the level of dependencies of the two economies on some industries and partners.

The research is conducted on two major directions, as follows: (1) the main characteristics of the five economies, from their forward and backward trade linkages perspective, to emphasise the general characteristics of their participation in GVCs covering the period 2015-2024; (2) two case studies of Indonesia and Vietnam regarding their integration into GVCs, from the perspectives of backward and forward linkages in 2024.

[4] According to OECD, economies that are classified as one-way upgraders saw either an increase in the domestic value added of their exports or diversification in their GVC trade over 2007–2023. Economies that are classified as two-way upgraders saw an increase in both the domestic value added of their exports and diversification in their GVC trade over 2007–2023.

4. Research results

4.1. The Asian tigers in the world trade – a synopsis

Southeast Asian countries, particularly the Asian tigers, are deeply connected to the world economy, playing an important role and being top global trade partners, with 16.12% of global goods exports and 15.03% of global goods imports in 2025, especially from the perspective of their manufacturing dominance. As revealed in Table 1, the Asian tigers rank in the top positions among the world's largest exporters (WTO, 2026).

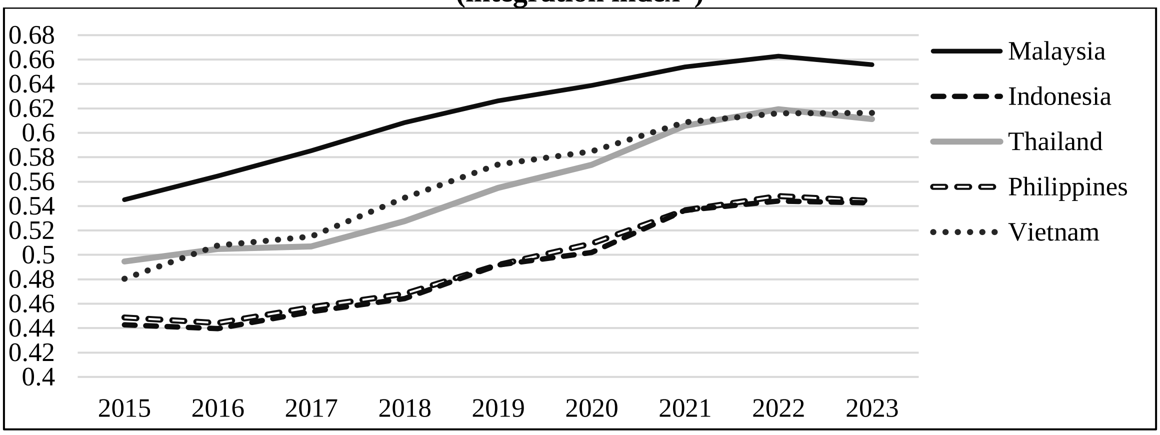
Table 1: The Asian tigers as the leading exporters and importers in the global merchandise trade, in 2025 (in billion dollars and percentage)

Rank	Exporters	Value	Share	Annual percentage change	Rank	Importers	Value	Share	Annual percentage change
First-generation Asian tigers (T4)									
5	Hong Kong, China	754	2.9	17	6	Hong Kong, China	832	3.1	18
8	Republic of Korea	709	2.7	4	12	Republic of Korea	632	2.4	0
12	Chinese Taipei	641	2.4	35	18	Singapore	506	1.9	10
14	Singapore	567	2.2	12	19	Chinese Taipei	494	1.9	23
Second-generation Asian tigers (T5)									
18	Vietnam	473	1.8	17	20	Vietnam	454	1.7	19
23	Malaysia	376	1.4	14	23	Thailand	345	1.3	13
25	Thailand	340	1.3	13	24	Malaysia	340	1.3	13
30	Indonesia	283	1.1	7	30	Indonesia	242	0.9	4
48	The Philippines	84	0.3	15	36	The Philippines	141	0.5	4.4
	Total of above	**4227**	**16.12**	**-**		**Total of above**	**3986**	**15.03**	**-**
	World	**26257**	**100.0**	**7**		**World**	**26608**	**100.0**	**7**

Source: Data collected by the authors from the WTO (2026).

It is worth noting the level of integration of these countries in the Asian region. Since 2015, the T5s integration into the Asia-Pacific has increased, as underscored by data in Figure 1. In 2023, Malaysia (0.66) and Vietnam (0.62) were the most integrated economies among the five, while the Philippines and Indonesia were the least (0.54) (Figure 1).

Figure 1: Second-generation Asian tigers - integration into the Asian region, during 2015-2023 (integration index*)

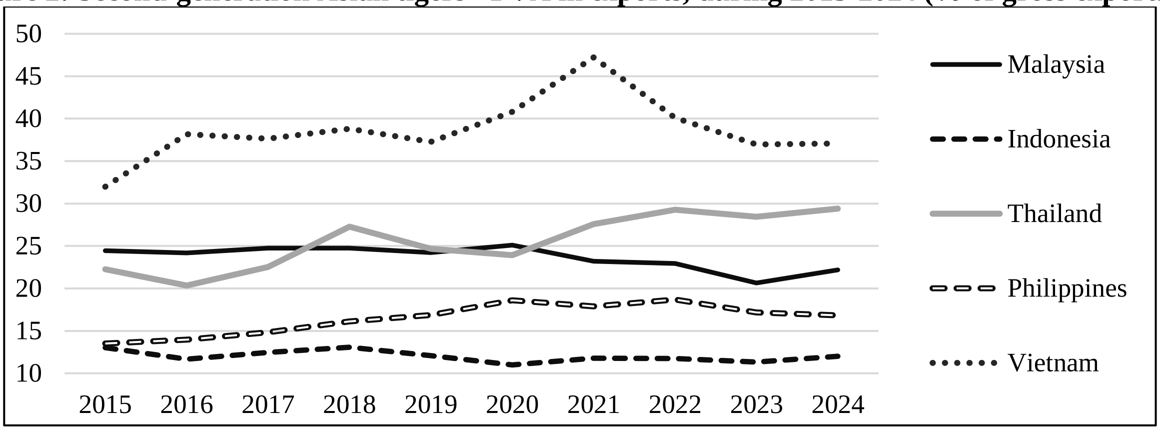


Note: *Integration index takes a value from 0 to 1, where 0 is the minimum level of integration.
Source: Authors' representation based on UNESCAP (2026).

4.2. Second-generation Asian tigers - backward and forward linkages

Backward and forward linkages reflect the interconnections between industries and countries, where the inputs are pulled from suppliers (as is the case in backward linkages) or the outputs are pushed to users (as is the case in forward linkages). The *backward linkages* suggest evidence related to the *foreign value-added (FVA) contained in a country's exports*, reflected in the answers to the following essential questions: what role imports from abroad play in an economy's export production; which export sectors in an economy rely on content imported from other economies; and which other economies contribute most to an economy's exports (UNESCAP, 2026). FVA in exports represents the value of imported inputs used to produce intermediate or final goods and services to be exported by a country, suggesting the measure of the dependency of exporting industries on foreign inputs. Serving as a key indicator of backward integration into GVCs, FVA also reflects the vertical specialisation when expressed as a percentage of a country's gross exports (WTO, n.d.). The backward participation measures a country's integration into GVCs as a processor or assembler, revealing the role of a hub for final assembly of a country, but also its vulnerability to possible supply chain disruptions from its providers, given its position in the downstream. During the period between 2015 and 2024, all second-generation Asian tigers (T5) recorded minor fluctuations in FVA, with Vietnam standing out for the highest value of FVD in its exports (in 2024, 37.06% of national gross exports embedded FVA from aboard, the maximum value being recorded in 2021 with 47.22%), while Indonesia with the lowest level between 2015-2014, in 2024 recording only 12% national gross exports embedded FVA from aboard) (Figure 2). These figures reflect that Vietnam and Thailand rely more on foreign inputs to produce goods for export than Indonesia and the Philippines.

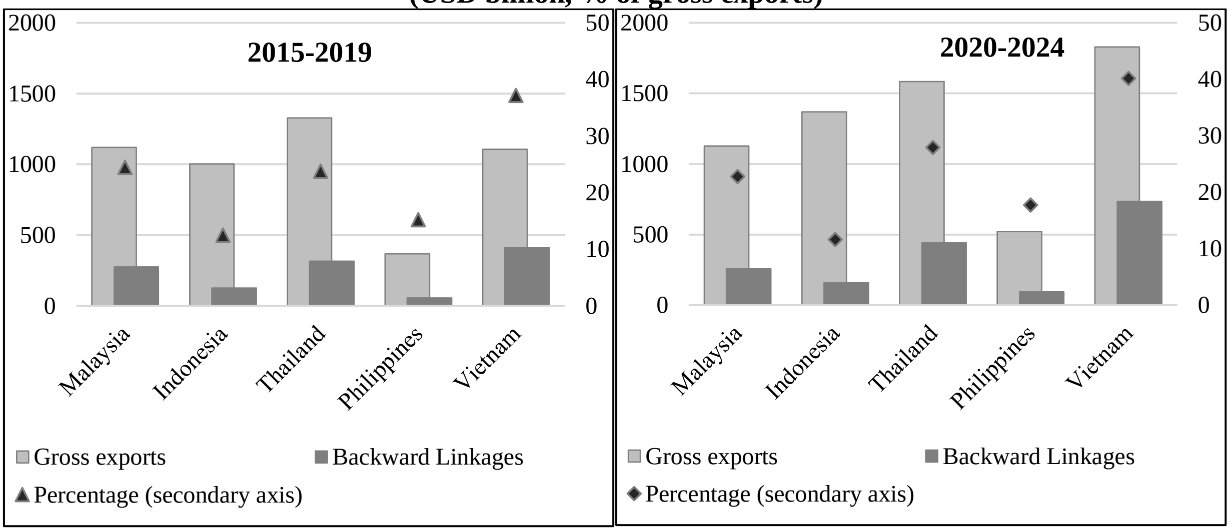
Figure 2: Second-generation Asian tigers - FVA in exports, during 2015-2024 (% of gross exports)



Source: Authors' representation based on UNESCAP (2026).

From the perspective of T5s' foreign value added in their exports, data in Figure 3 also emphasises different, but minor, changes during the period 2020-2024 compared to 2015-2019, as follows: increases for Thailand, the Philippines, and Vietnam, and decreases for Malaysia and Indonesia.

Figure 3: Second-generation Asian tigers - FVA in exports, changes in 2020-2024 compared to 2015-2019 (USD billion, % of gross exports)



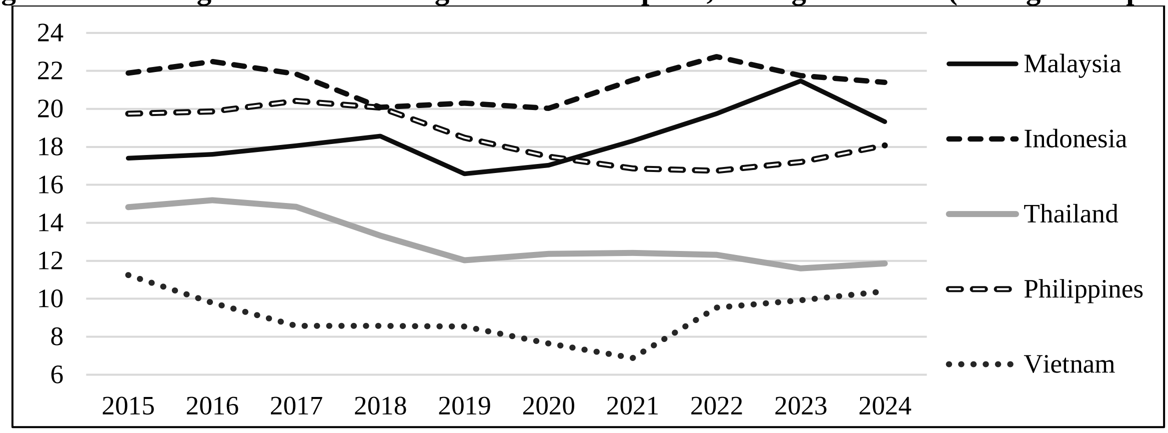
Source: Authors' representation based on UNESCAP (2026).

The *forward linkages* suggest evidence related to the *domestic value-added (DVA) embodied in a country's exports of intermediate goods or services that are then used by the buying country to produce its exports.* DVA is reflected by the answers to the following important questions: how much does an economy's added value embedded in its exports contribute to the export production of other economies; which are the exporting industries with which this economy contributes the most to the export production of other economies;

which economies depend the most on this economy's exports for their own export production (UNESCAP, 2026). DVA in exports measures the value generated within a country, covering domestic resources, including labour and capital, embodied in its exported intermediate or final goods and services. The forward linkages also indicate the level of domestic integration in GVCs. Expressing the share of a country's DVA that is exported and then re-exported by a destination country, the forward linkages represent a country's domestic value subsequently embedded in the gross exports of partner economies, measuring a country's role as a primary supplier of raw materials, high-tech components, or even specialised services (such as design or research), the forward participation indicating the upstream position of a country (UNESCAP, 2026).

During the period between 2015 and 2024, all T5s recorded fluctuations in DVA, with Indonesia standing out for the highest value of domestic value added in its exports throughout the entire period (in 2024, Malaysia's DVA was 21.39% of national gross exports), while Vietnam had the lowest level of DVA (in 2024, Vietnam's DVA was 10.4%) (Figure 4). These figures reflect that Indonesia and Malaysia are important upstream suppliers, managing to export essential resources for other countries to process goods to a much greater extent than Thailand and Vietnam (UNESCAP, 2026).

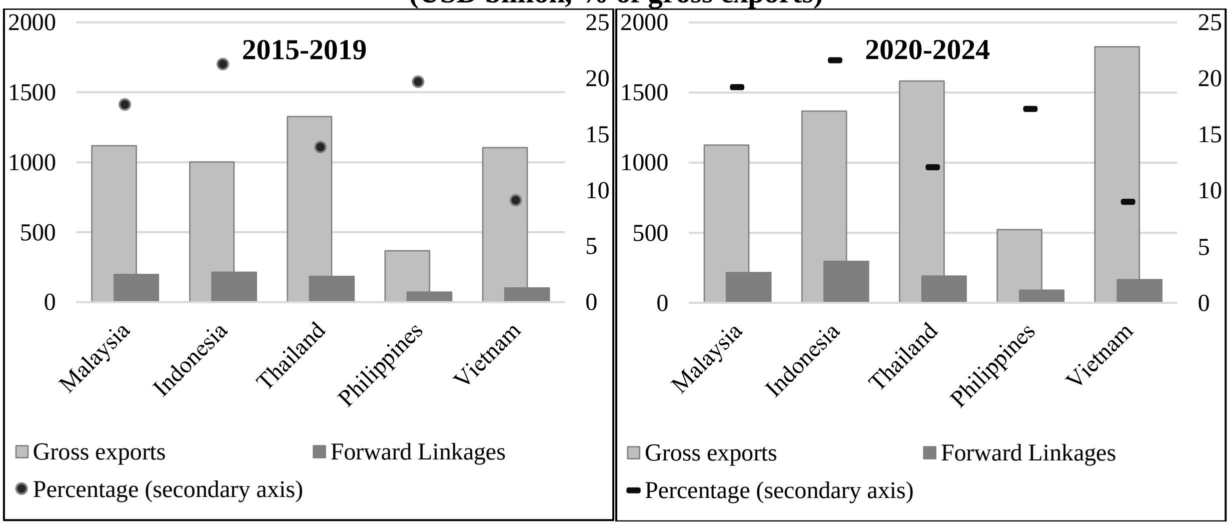
Figure 4: Second-generation Asian tigers - DVA in exports, during 2015-2024 (% of gross exports)



Source: Authors' representation based on UNESCAP (2026).

From the perspective of T5s' value added in foreign exports, data in Figure 5 also emphasises different, but minor, changes in DVA during the period 2020-2024 compared to 2015-2019, as follows: increases in percentages for Malaysia and Indonesia, and decreases for Thailand, the Philippines, and Vietnam (UNESCAP, 2026).

Figure 5: Second-generation Asian tigers - DVA in exports, changes in 2020-2024 compared to 2015-2019 (USD billion, % of gross exports)



Source: Authors' representation based on UNESCAP (2026).

The data in Table 2 highlight the sectoral representativeness of the main backward- and forward-linked export sectors from T5, along with the main linked partner economies, over the period 2020-2024. According to the RIVA database, the results reflect the dominance of electrical equipment in the sectoral ranking, with the highest share of the total value of the sector's exports for Malaysia and Vietnam in terms of backward and forward linkages, and for the Philippines, only for backward linkages. All these economies occupy significant roles within the GVCs related to this sector, as follows: Malaysia dominates in advanced semiconductor packaging and integrated circuit design; the Philippines outperforms in component testing and packaging (Weno et al., 2025); and Vietnam specialises in mass consumer electronics assembly (ILO, 2022).

Table 2: Second-generation Asian tigers – the main linked exporting sectors and partner economies, for backward and forward linkages, during 2020-2024 (USD billion, % of gross exports)

Second-generation Asian tiger countries	FVA		DVA	
	Main backward-linked exporting sector (USD billion/ % of the sector's total export value)	Main backward-linked partner economy (USD billion/ % of national gross exports)	Main forward-linked exporting sector (USD billion/ % of the sector's gross exports)	Main forward-linked partner economy (USD billion/ % of national gross exports)
Malaysia	Electrical equipment USD 90 billion/ 35.1%	China USD 68.6 billion/ 26.8%	Electrical equipment USD 45.8 billion/ 21.2%	Singapore USD 46.5 billion/ 21.5%
Indonesia	Textiles USD 23.6 billion/ 14.9%	China USD 32.5 billion/ 20.5%	Mining USD 82.3 billion/ 27.8%	China USD 52.8 billion/ 17.8%
Thailand	Transport equipment USD 63 billion/ 14.3%	China USD 74.2 billion/ 16.8%	Basic metals USD 19.3 billion/ 10.1%	China USD 24.6 billion/ 12.9%
The Philippines	Electrical equipment USD 29.4 billion/ 31.7%	China USD 21.5 billion/ 23.2%	Business services USD 27.1 billion/ 30%	China USD 7.7 billion/ 10.7%
Vietnam	Electrical equipment USD 384.6 billion/ 52.4%	US USD 242.8 billion/ 33.1%	Electrical equipment USD 44.8 billion/ 27.2%	China USD 37.5 billion/ 22.8%

Source: Authors' data selection based on UNESCAP (2026).

Also, for Thailand, the leading position of the transport equipment industry in backward linkages is supported by its specialisation in automobile production, with this country acting as a massive global and regional export centre, including eco-friendly cars and heavy commercial vehicles, supported by a robust auto parts supply chain (Mordor Intelligence, 2026; ILO, 2024). A situation that deviates from the general trend is the case of the Philippines, with business services ranking in the first position of forward linkages, based on its booming in the information technology and business process outsourcing sector (Pasadilla et al., 2025; Philippine Business Hub, 2026). However, when it comes to partners, China dominates the T5 export partners ranking, with two exceptions: Malaysia and Vietnam, where China ranks second. China is the main trading partner for the second-generation Asian tiger economies, with its massive, regionally integrated manufacturing sector.

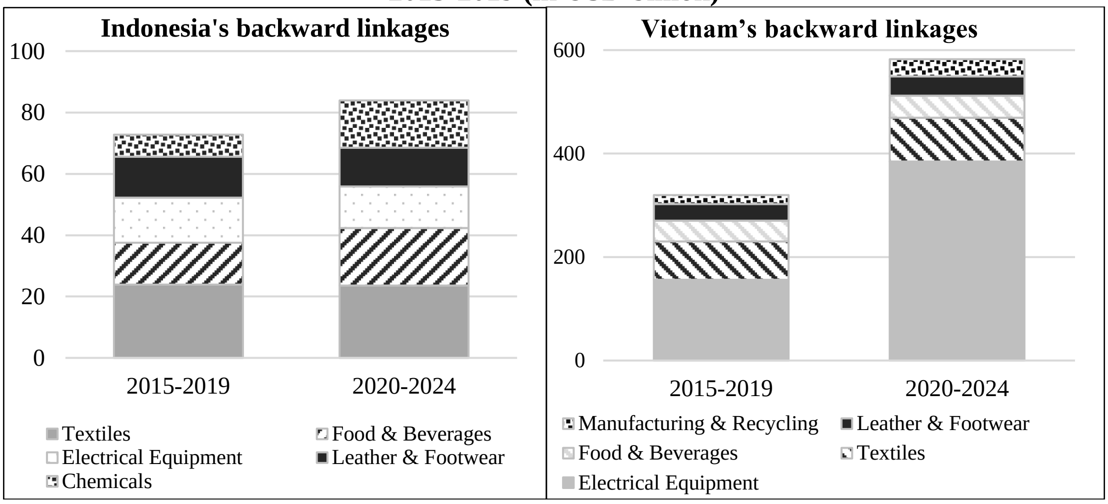
4.3. Case study: A comparative analysis of Indonesia and Vietnam, from the perspective of their backward and forward linkages

Among the T5, Indonesia and Vietnam are both rising economic powers in Southeast Asia and key players in ASEAN, but with vast structural differences, and also distinct strategies for capturing global investment and participation in GVCs.

Across the period between 2015 and 2024, the main sectors for *backward linkages* evolved as follows: (i) as for *Indonesia*, during 2020-2024, the backward linkages (USD 158.9 billion) represented 11.6% of total gross exports, with **textile** recording 14.9% of Indonesia's backward linkages, down from 19.1% in 2015-2019; in terms of the evolutions in 2020-2024 as compared to 2015-2019, the top 5 is occupied by the same sectors, with some changes in their position, respectively chemicals replacing electrical equipment on the third ranking position; in 2024, Indonesia's textile exports included USD 5.4 billion in FVA, accounting for 14.4% of the sector's total export value; (ii) as regards *Vietnam*, during 2020-2024, the backward linkages

(USD 734.5 billion) represented 40.2% of total gross exports, with *electrical equipment* recording 52.4% of Vietnam's backward linkages, down from 38% in 2015-2019; in terms of the changes in 2020-2024 compared to 2015-2019, the top 5 sectors were maintained in the same ranking position; in 2024, Vietnam's electrical equipment exports included USD 80.6 billion in FVA, accounting for 50.7% of the sector's total export value (Figure 6) (UNESCAP, 2026).

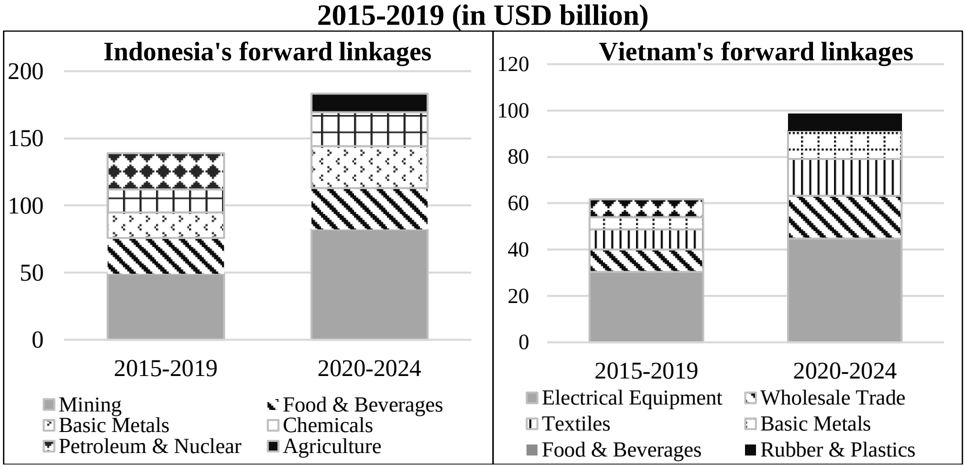
Figure 6: Indonesia and Vietnam - backward linkages by industry, changes in 2020-2024 compared to 2015-2019 (in USD billion)



Source: Authors' representation based on UNESCAP (2026).

The *sectoral* perspective for *forward linkages*, during the period 2020-2024 compared to 2015-2019, offers a detailed image of Indonesia's and Vietnam's integration into GVCs. According to data in Figure 7, both countries experienced changes, as follows: (i) during 2020-2024, *Indonesia's forward linkages* (USD 296 billion) represented 21.6% of total gross exports, with *mining* recording 27.8% of Indonesia's forward linkages, up from 23.1% in 2015-2019; comparing the two periods, some transformations were recorded, the fifth position in 2020-2024 of agriculture replacing petroleum and nuclear sector in 2015-2019; in 2024, Indonesia's mining exports contributed USD 17.7 billion in DVA that was subsequently embedded in partners' exports, the DVA accounting for 47.6% of the sector's gross exports; (ii) between 2020 and 2024, *Vietnam's forward linkages* (USD 164.7 billion) represented 9% of total gross exports, with *electrical equipment* recording 27.2% of Vietnam's forward linkages, down from 30.2% in 2015-2019; comparing the two periods, in 2020-2024 rubber and plastics replaced the fifth position held by food and beverages in 2015-2019; in 2024, Vietnam's electrical equipment exports contributed USD 13.1 billion in DVA that was subsequently embedded in partners' exports, the DVA accounting for 8.2% of the sector's gross exports (Figure 7) (UNESCAP, 2026).

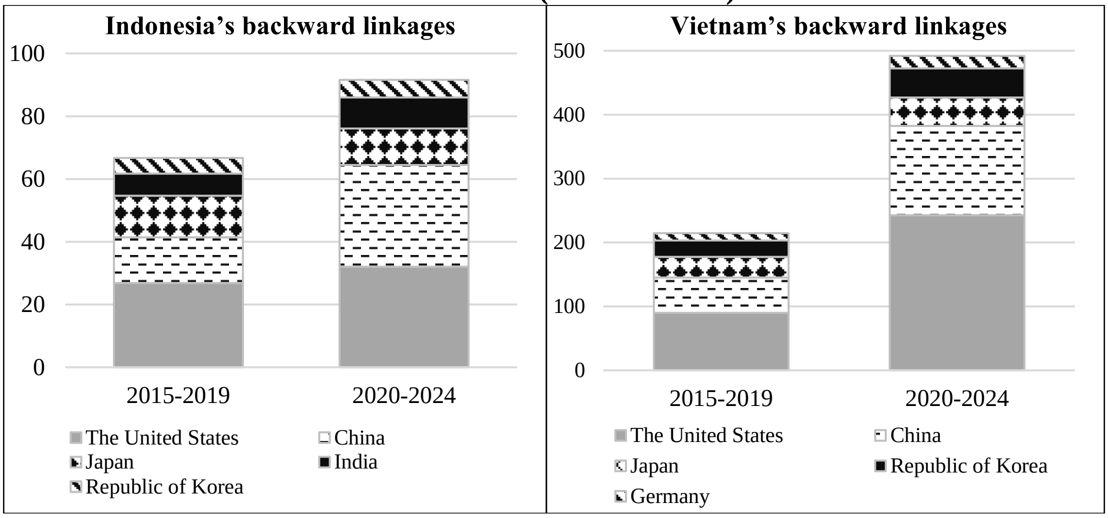
Figure 7: Indonesia and Vietnam - forward linkages by industry, changes in 2020-2024 compared to 2015-2019 (in USD billion)



Source: Authors' representation based on UNESCAP (2026).

The data on the main trading partners of Indonesia and Vietnam within backward and forward linkages reflects the *GVCs geography in which the two countries are integrated, where the Asian countries are dominant,* *with an important share also of the United States (US).* Across the period between 2020 and 2024, the ranking of GVCs sectors for backward linkages was led as follows: (i) for *Indonesia*, *China* ranked first, with 20.5% of Indonesia's backward linkages (almost on par with the US), up from 11.7% in 2015-2019; in 2024, Indonesia's exports incorporated USD 10.4 billion in foreign inputs from China, accounting for 3.3% of Indonesia's gross exports; (ii) as for *Vietnam, the US* represented 31.1% of Vietnam's backward linkages, up from 21.8% in 2015-2019; in 2024, Vietnam's exports incorporated USD 63 billion in foreign inputs from China, accounting for 14.7% of Vietnam's gross exports (Figure 8) (UNESCAP, 2026).

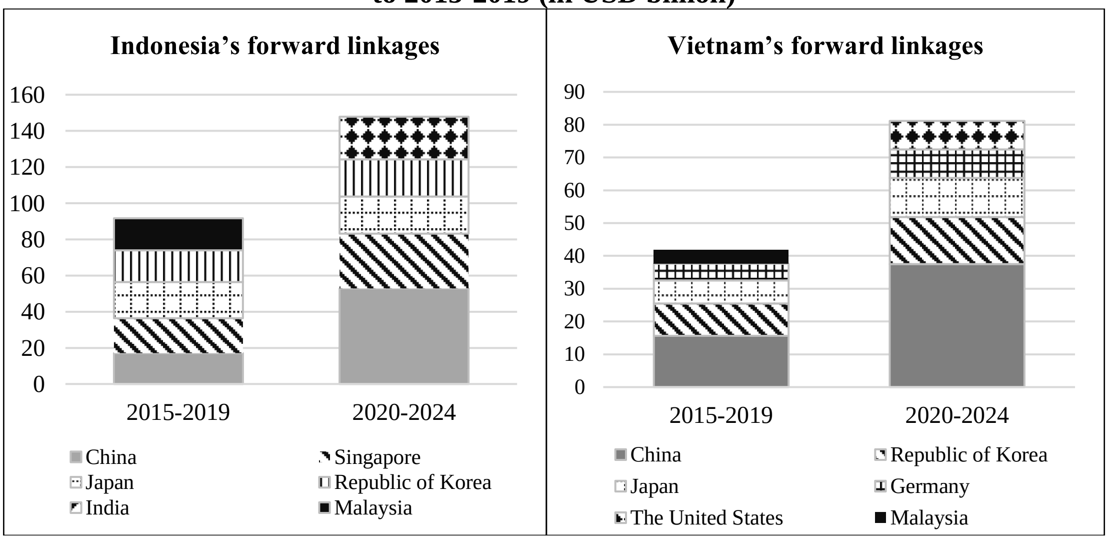
Figure 8: Indonesia and Vietnam - backward linkages by main partners, changes in 2020-2024 compared to 2015-2019 (in USD billion)



Note: The order of countries in both rankings is based on their position from 2015 to 2019.
Source: Authors' representation based on UNESCAP (2026).

From the perspective of geographical representation for *forward linkages*, between 2015 and 2024, the top GVCs partners in Indonesia and Vietnam have also not experienced radical changes in terms of ranking, but in share, as follows: (i) during 2020-2024, *China* represented 17.8% of *Indonesia's* forward linkages, up to 8% in 2015-2019, with Singapore replacing Malaysia; in 2024, Indonesia's exports contributed USD 12.8 billion to China's export production, accounting for 4.1% of Indonesia's gross exports; (ii) between 2020 and 2024, *China* represented 22.8% of *Vietnam's* forward linkages, up from 15.5% in 2015-2019; in 2024, Vietnam's exports contributed USD 11.8 billion to China's export production, accounting for 2.7% of Vietnam's gross exports (Figure 9) (UNESCAP, 2026).

Figure 9: Indonesia and Vietnam - forward linkages by main partners, changes in 2020-2024 compared to 2015-2019 (in USD billion)



Source: Authors' representation based on UNESCAP (2026).

Continuing our analysis, based on the data presented in Figures 7 and 9, it is observed that *mining products* represent the main domestic value-added product exported by *Indonesia*, and *China* is the main destination of these exports. RIVA database emphasises that, in 2024, DVA in intermediate goods intended for final consumption in China represented 70.3% of Indonesia's gross exports in mining to China, while, DVA in final goods for final consumption in China represented 3.2% of Indonesia's gross exports in mining to China (in other words, 73.5% of Indonesia's gross exports to China represented DVA that was consumed within the export destination, with 70.3% represented by the intermediate exports, and 3.2% by final exports).

At the same time, DVA in intermediate goods exports, further exported by China back to Indonesia, represented 0.5% of Indonesia's gross exports in mining to China, while DVA in intermediate goods exports, further exported by China to a third economy, represented 22% of Indonesia's gross exports in mining to China.

In 2024, 26.5% of Indonesia's gross exports to China was attributable to GVCs, with the following shares: 22.0% was Indonesia's DVA embedded in China's re-exports of intermediate exports to third economies (forward linkages); 0.5% was Indonesia's DVA embedded in China's re-exports of intermediate exports back to Indonesia (returned domestic value added); and 3.0% reflected FVA embedded in Indonesia's gross exports to China (backward linkages).

Moving on to the same logical approach, the *electrical equipment* is the main domestic value-added product exported by *Vietnam*, and *China* is the main destination of these exports.

Synthesising, the data reveals how Indonesia's and Vietnam's gross exports are generated and where they are ultimately used, as well as how these two economies' trade balance looks when measured in value-added terms compared to gross exports. At the same time, it underscores what shares of these two economies' gross exports are attributable to GVCs.

5. Concluding remarks

This analysis offers a useful base for future research considering the trend of nearshoring or reshoring from Asian countries to other locations of production chains to secure their production chains, respectively, to ensure their resilience in the context of geopolitical tensions with impact especially on trade with the US and European countries, two of the main extra-regional trade partners of Southeast Asian countries. Germany is an important partner of Vietnam for both backward and forward linkages, in contrast to Indonesia, where there is no European country among the top five partners. Instead, the United States is the first partner country for both of them in terms of backward linkages.

The paper also underscores the main factors influencing GVCs nowadays, from geopolitical dynamics, rising protectionism, as well as the emergence of disruptive technologies. The fragmentation of the world economy is accompanied by opportunities and threats, and the second-generation Asian Tigers seem prepared to act through proactive policies, strategies, and visions to take advantage of the former, and to cope with the challenges.

The main limitation of this paper is given by the selection of only two case studies instead of five, nevertheless we intend to include in future analysis also the other three countries. It is important to identify factors leading to their specialization and strong relationships with countries such as China, the US, or Singapore. The sector of semiconductors is another area of high interest, having in mind the competitive advantages of the T5 and specific measures to support this sector. Following Malaysia's and Thailand's experience, Vietnam has entered a new stage in its semiconductor development. According to the National Strategy for the Development of Vietnam's Semiconductor Industry to 2030, based on the formula: C = SET + 1, the nation intends to become a safe and reliable destination in the global semiconductor supply chain. Technical specialisation, supported by engineers, researchers, and technicians, as well as strong international cooperation, is seen as a prerequisite for this ambitious strategy.

Beyond similarities and differences in the field of GVCs, what unites the T5 countries is their focus on sustainable and inclusive economic growth, accelerating digitalization, and transitioning to advanced technologies such as Artificial Intelligence. Asia's central role in GVCs is supported by regional partnerships and trade agreements, which make it easier for them to continue to belong to the *Factory of the World*.

One can remark the dominance of electrical equipment in both foreign value-added and domestic value-added for Malaysia and Vietnam, textiles in FVA and mining in DVA for Indonesia, transport equipment in FVA and basic metals in DVA for Thailand. The Philippines has electrical equipment as preeminent in foreign value-added and business services in domestic value-added. Information Technology and Business Process Outsourcing is the sector forming a significant forward-linkage in its value-chain profile, and this deserves more attention in future research. The China plus One strategy adopted by various MNEs, to diversify operations beyond the world's largest emerging economy, stimulates T5's integration into GVCs. However, China remains the most important destination for Indonesia's and Vietnam's, as well as the Philippines' and Thailand's domestic value-added embodied in their exports of intermediate goods or services that are then used by China to produce its exports.

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