



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

Economic History Student Working Papers

No: 038

The Flying Geese Pattern of Development in the ASEAN5: analysis and implications

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*Submitted as partial fulfilment of the MSc in
Political Economy of Late Development 2023-24*

January 2025

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Abstract

In the four decades following 1960, the Southeast Asian economies of Singapore, Thailand, Malaysia, Indonesia and the Philippines (ASEAN5) grew faster than almost any other grouping of countries. This growth was marked by significant transformation of their industrial structures. First in Singapore and the Philippines, then in Thailand and Malaysia and lastly in Indonesia. This staggered pattern of industrialisation suggests a differentiated examination of each country's industrial trajectory – a task this dissertation undertakes by exploring the Flying Geese (FG) model of economic development. The first aim of this study was to verify the applicability of the FG pattern in ASEAN5. To this end, the Revealed Symmetric Comparative Advantage (RSCA) index of ASEAN5 in low, medium and high technology manufactures is analysed to assess shifts in comparative advantages from 1964 to 1999. This is complemented by an analysis of FDI flows, for a comprehensive examination of the FG pattern in ASEAN5. The results of this analysis confirm the presence of an FG pattern of development among Singapore, Thailand, Malaysia, Indonesia, but not the Philippines. The second aim of this study was to scrutinise the implications of the FG pattern of development in shaping the economic landscapes of ASEAN5. Three impacts, FDI-led growth, co-operation initiatives and poverty reduction, are considered within larger debates on the links between globalisation and economic development. The analysis reveals that the ASEAN5's record of development under the FG pattern has been mixed, challenging some of the narratives around globalisation.

1. Introduction

In the four decades following 1960, the five high-growth southeast Asian economies of Singapore, Thailand, Malaysia, Indonesia and the Philippines – collectively known as ASEAN5 – underwent rapid economic growth, outpacing most other regional groups globally. This high growth period, often dubbed the 'boom' years, was marked by significant structural transformations within industrial sectors. Initially dominated by resource-based processing or assembly

of simple consumer goods – apart from Singapore – the ASEAN5 had emerged as industrial powers by the 1990s, each at varying degrees of development.

The pace and sequence of industrialisation varied among ASEAN5. Singapore led with robust structural adjustments, followed by the Philippines which, despite an early start, experienced inconsistent growth. Thailand pursued a steadier path, while Malaysia quickly specialised in electronic and electrical manufacturing. Indonesia industrialised later, emerging as a regional latecomer. This staggered pattern of development suggests a differentiated examination of each country's industrial trajectory – a task this dissertation undertakes by exploring the Flying Geese (FG) model of economic development.

Conceived by Japanese economist Kaname Akamatsu in the 1930's, the FG pattern of economic development describes the sequential industrialisation process whereby a latecomer shifts from simple to complex manufacturing after entering in an economic relationship with more advanced economies.¹ At different stages of development, the latecomers and advanced nations are thus aligned in hierarchy according to their economic activities.

Traditionally, academics have applied the model in the context of the economic ascension from Japan to the newly industrialised economies (NIEs) of Taiwan, South Korea, Hong Kong, and Singapore, and subsequently to the ASEAN4 (excluding Singapore), then China – a sequence we might call the 'standard' alignment.

However, the staggered industrial progression of ASEAN5 suggests the pattern might manifest distinctly if considering this region on its own. This research aims to verify the applicability of the FG pattern and scrutinise its implications in shaping the economic landscapes of ASEAN5. To this end, this dissertation employs the Revealed Symmetric Comparative Advantage (RSCA) index to assess

¹ Kaname Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," *The Developing Economies* 1, no. 1 (1962), 11.

shifts in industrial structures and comparative advantages across these economies from 1964 to 1999. This approach is complemented by an analysis of FDI flows to provide a comprehensive examination of the FG pattern in the ASEAN5.

This study contributes to the expanding scholarly discussion on the FG pattern seeking to adapt its framework in diverse geographical and temporal contexts, extending the scope of application for the FG pattern. In doing so, this study reaffirms Akamatsu's original interpretation, challenging the dominance of the 'standard' alignment.

The dissertation is organised as follows. Chapter 2 reviews the literature of Akamatsu's FG pattern, exploring the underlying economic development theories and the various interpretations of the FG model over time. Chapter 3 reviews the data and sets out the methodology alongside the key players and sectors involved. Chapter 4 presents the results to verify for the presence of the FG pattern in the industrial development of ASEAN5. Chapter 5 evaluates the impact of the FG pattern on foreign direct investments, economic co-operation and poverty reduction during the boom years. The concluding chapter discusses the differences the FG pattern made to the ASEAN5.

2. Literature Review

2.1 Akamatsu's Flying Geese Pattern

In the 1930's, Japanese economist Kaname Akamatsu observed a distinctive pattern in the development of various Japanese industries, which he elaborated upon in seminal papers during the 1960's. Termed the "wild-flying-geese pattern of economic development," this model described the sequential industrial and economic development of latecomer economies in a global context.² Founded on the concept of synthetic dialectics observed in the heterogenization and homogenisation of the industrial structure of the world economy, the theory is

² Kaname Akamatsu, "A Theory of Unbalanced Growth in the World Economy," *Weltwirtschaftliches Archiv* 86, no. 2 (1961), 196–217; Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries."

particularly significant for its dynamic portrayal of industrial change across nations and its depiction of economic catch-up processes. Taking the viewpoint of a latecomer economy, Akamatsu explained this process in four stages.

Stage I: Entry Into the World Economy

In the initial stage, the latecomer enters global markets as an exporter of primary products while importing consumer goods from more advanced economies. This represents heterogenization of industrial structures, where the latecomer becomes dependent on more industrialised countries.³ The latecomers' primary industries remain underdeveloped, with the influx of foreign goods often disrupting local industries and shifting labour towards export-oriented sectors focused on primary products.⁴

Stage II: Initiation of Domestic Production

In the second stage, the latecomer begins domestic production of consumer goods. This shift happens for two reasons: the concentration of purchasing power attracting domestic capital, and the rise in economic nationalism stimulating domestic production.⁵ As the latecomer recovers its domestic market from foreign competition, its industrial structure homogenises with that of advanced economies. This leads to a decline in imports from advanced nations.⁶ Concurrently, the latecomer's demand for machinery from advanced nations increases, resulting in a shift in advanced economies from consumer to capital goods, driving heterogenization of industrial structures.⁷

Stage III: Exports of Domestic Products

In the third stage the latecomer's consumer goods industry matures to the point of exporting, particularly to neighbouring primary exporters. This stage is marked

³ Akamatsu, "A Theory of Unbalanced Growth in the World Economy," 206.

⁴ Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 12–13.

⁵ Akamatsu, "A Theory of Unbalanced Growth in the World Economy," 206; Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 13.

⁶ Akamatsu, "A Theory of Unbalanced Growth in the World Economy," 207; Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 14.

⁷ Akamatsu, "A Theory of Unbalanced Growth in the World Economy," 207.

by a significant decrease in imports of consumer goods as domestic production meets demand.⁸ Additionally, the latecomer begins production of capital goods, eventually reducing reliance on foreign machinery.⁹ This stage reflects the latecomer's transition from dependency to self-sufficiency in consumer goods and increasingly capital goods, representing homogenisation of industrial structures.

Stage IV: Shift to Exports of Capital Goods

In the last stage, the latecomer transitions from exporting consumer goods to capital goods. By this stage, the latecomer has caught up with advanced economies and begins competing in the capital goods sector. The former latecomer assumes a position of leadership in the global market, guiding other economies along the same development path.¹⁰ This cycle completes the FG pattern.

Observing the FG pattern

The FG pattern can be observed from three perspectives, each representing a demand-side driven sequential pattern of industrial development. The first two perspectives are internal to a national economy and the last perspective is external, happening *among* national economies *within* a given region.

1. The Basic MPX Pattern: the fundamental pattern ('*kihonkei*') involves a sequence from imports (M) to domestic production (P) to exports (X) within an economy.¹¹ This process is graphically represented by three inverted V-shape curves, resembling the flight formation of wild geese, hence the nomenclature.
2. The Structural Upgrading Pattern: the second pattern depicts the sequential structural changes initiated by the MPX sequence, where economies progress from primary to consumer, consumer to capital, and more broadly simple to complex goods.¹²

⁸ Akamatsu, 207; Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 14.

⁹ Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 14–15.

¹⁰ Akamatsu, 15–16.

¹¹ Akamatsu, "A Theory of Unbalanced Growth in the World Economy," 208.

¹² Akamatsu, 208.

3. The International FG Pattern: The third pattern illustrates the “alignment of nations along different stages of development.” Economies at various levels of industrial development are lined up and move along the MPX sequence in perpetual motions of homogenisation and heterogenization in their industrial structures.¹³

2.2 Review of Theories

The fundamental FG pattern, although a Japanese-born theory, has commonalities with other global development theories, including some directly referenced by Akamatsu. Situating the FG pattern within broader theoretical frameworks will shed light on the intellectual context in which it operates.

2.2.1 Conceptual and methodological frameworks

World-systems theory, like the FG pattern, conceptualizes the global economy in hierarchical terms, with nations categorized into core, semi-periphery, and periphery based on their level of economic development.¹⁴ Both frameworks recognize the stratification of the global economy, but they diverge fundamentally in their outlook. World-systems theory is more pessimistic, asserting that movement within this hierarchy is almost impossible due to entrenched structural dependencies that reinforce inequality.¹⁵ In contrast, the FG pattern offers a more dynamic perspective, suggesting that economies can move up the hierarchy through industrial upgrading, driven by the synthetic dialectic processes of differentiation and uniformization.

Synthetic dialectics, a concept introduced by Hegel, was famously used in Marxist economic theory. Marxist theory applies the concept to analyse class struggle, leading to shifts along distinct stages of economic development marked by

¹³ Akamatsu, 208.

¹⁴ Immanuel Wallerstein, *The Modern World-System I*, 1st ed. (University of California Press, 2011).

¹⁵ Babones, S. (2018). “The world-systems perspective” in *The Essential Guide to Critical Development Studies*, eds. H. Veltmeyer and P. Bowles, (London: Routledge, 2018), 109-117.

conflict.¹⁶ The FG pattern applies dialectical thinking to international trade and industrialisation. Here, differentiation and uniformization in global economic structures lead to peaceful, sequential industrial upgrading across nations—a sharp contrast to the Marxist emphasis on conflict and exploitation.

2.2.2. Opportunities for Latecomers in the Global Economy

In the first stage of the FG pattern, a latecomer economy enters global markets by exporting primary products while importing industrial goods from advanced economies. This phase mirrors the initial condition described by dependency theorists, who argue that underdeveloped nations enter the world economy as commodity producers on unequal trading terms.¹⁷ However, unlike dependency theorists who believe that this situation perpetuates underdevelopment, the FG pattern allows for the possibility of industrialization and modernization through strategic trade and investment.

The FG pattern's favourable view on latecomer opportunities for industrialisation aligns more closely with classical economic theories of trade, particularly David Ricardo's theory of comparative advantage. Ricardo's theory emphasizes the mutual benefits of trade based on relative efficiency, with countries specializing in the production of goods they can produce most efficiently.¹⁸ The FG pattern builds on this logic by illustrating how nations can upgrade their industries sequentially, developing new sectors in response to changes in "comparative cost structures."¹⁹

However, unlike the static nature of classical comparative advantage, the FG pattern aligns with modern neo-classical interpretations of dynamic comparative

¹⁶ Karl Marx and Friedrich Engels, 1848, *The Communist Manifesto*, Reprinted, (London: Penguin Classics, 2002); Vladimir Lenin, (1963) "Imperialism: The Highest Stage of Capitalism," in *Lenin Selected Works*, eds. Tim Delaney and Kevin Goin, Reprinted, (Marxist Internet Archives, 2008). <https://www.marxists.org/archive/lenin/works/1916/imp-hsc/>.

¹⁷ Andre Gunder Frank, *Capitalism and Underdevelopment in Latin America; Historical Studies of Chile and Brazil* (New York: Monthly Review Press, 1967).

¹⁸ David Ricardo, *On the Principles of Political Economy, and Taxation*, 1st ed. (Cambridge University Press, 2014).

¹⁹ Akamatsu, "A Theory of Unbalanced Growth in the World Economy," 206.

advantage. Through the lens of endogenous growth theory, Paul Romer (1990) argued technological change was the result of individual actions responding to market initiatives, constantly shaping dynamic comparative advantages over time.²⁰ Similarly, Robert Lucas (1988) introduced human capital accumulation as a factor continuously shaping patterns of comparative advantage.²¹ Both factors—technology and human capital—are central to modern understandings of dynamic comparative advantages, as well as the FG pattern. Akamatsu (1962), specifically acknowledges the “accumulation of capital” and “technological adaptability” as a given in engaging domestic production of imported good in follower economies.²²

Alexander Gerschenkron's theory of economic backwardness is also relevant. Gerschenkron suggested that late industrializers reach higher stages of industrial development quicker by learning and adopting advanced technologies and production methods from more developed nations.²³ The FG pattern emphasises this idea by showing how latecomers can leverage external advancements to accelerate their own economic growth.

2.2.3. Backward Linkages and the Role of the State

In the second stage, domestic production of previously imported consumer goods begins, facilitated by the concentration of purchasing power. Here, Akamatsu directly challenges Ragnar Nurkse's vicious circle of poverty theory for developing countries, which argues that low levels of domestic demand prevent industrialization.²⁴ Instead, Akamatsu aligns more closely with Albert Hirschman's concept of backward linkages, where the import of consumer goods

²⁰ Paul M. Romer, “Endogenous Technological Change,” *Journal of Political Economy* 98, no. 5 (1990), 72.

²¹ Robert E. Lucas, “On the Mechanics of Economic Development,” *Journal of Monetary Economics* 22, no. 1 (1988), 41.

²² Akamatsu, “A Historical Pattern of Economic Growth in Developing Countries,” 13.

²³ Alexander Gerschenkron, *Economic Backwardness in Historical Perspective: A Book of Essays*, (New York, Washington: Praeger 1965).

²⁴ Ragnar Nurkse, “Problems of Capital Formation in Underdeveloped Countries (1953),” in *Ragnar Nurkse: Trade and Development*, eds. Rainer Kattel, Jan Kregel, and Erik Reinert (Anthem Press, 2009), 99–212.

can stimulate domestic demand and eventually lead to industrial development.²⁵ Hirschman's theory suggests that imports can act as a catalyst for industrialization, aligning with Akamatsu's view that the initial influx of foreign goods can lay the groundwork for domestic production.

According to the FG pattern, once domestic production takes hold, "government protective policy" is necessary to "encourage and promote [these] industries,"²⁶ This brings to the fore the debate on state versus market in fostering industrialization. This aligns Akamatsu with proponents of the state-led growth, who suggest industrial organisation and government intervention are needed to shift comparative advantages and upgrade industrial structures. Chalmers Johnson (1982) popularised the term 'developmental state' in describing the hands-on approach of the Japanese government in economic planning and industrial policy.²⁷ It should be noted that Akamatsu emphasises government intervention should only happen "when ample development of the protected industry can be foreseen."²⁸ Which suggests state action should be strategic and limited to the initial stages of industrialisation.

Robert Wade (1990) further argued that governments should use a variety of tools, from subsidies to protectionist policies or direct investment, attached to performance indicators to foster a competitive comparative advantage in key industries; once competitiveness is achieved, the government should selectively promote export oriented policies under a free trade system.²⁹ Similarly, FG theory suggests government intervention is crucial in the early stages of industrialization, where governments help domestic industries achieve the scale and technological sophistication necessary to compete with imports. Once these

²⁵ Albert O. Hirschman, *The Strategy of Economic Development*, (New Haven: Yale University Press, 1958).

²⁶ Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 13.

²⁷ Chalmers A. Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925 - 1975*, Reprinted (Stanford, California: Stanford University Press, 2007).

²⁸ Akamatsu "A Historical Pattern of Economic Growth in Developing Countries," 8.

²⁹ Robert Wade, *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*, 2nd ed. (Princeton, NJ: Princeton Univ. Press, 2004).

industries are competitive, they can begin to export, driving the sequential MPX sequence described in the FG pattern.

2.2.4. Situating the FG theory

The FG pattern of industrial development shares methodological and conceptual frameworks with Marxist and World-system theory, but applied differently, its conclusions are more aligned with classical and neoclassical economics. However, unlike neoclassical and classical theories, the FG theory does not subscribe entirely to free market ideology but instead acknowledges the need for government intervention during the initial phases of industrialisation. This nuanced position situates the FG pattern as a unique contribution to economic development theory, bridging the gap between structuralist pessimism and free-market optimism. The FG pattern, therefore, provides a valuable framework to investigate the ASEAN5 growth and industrialisation.

2.3 Review of Literature

In the 1930s, the FG pattern was little known outside Japanese academic circles. Over time, it increased in popularity even as changing global contexts led to new interpretations. Recent development has led to a reassessment of the FG pattern, extending its scope of application. This study contributes to this expanding scholarship.

2.3.1. The Evolution of the FG Pattern

During World War Two, Japan's government used the FG pattern to intellectually legitimise its imperial ambitions under the "Greater East Asian Co-Prosperty Sphere."³⁰ In their interpretation of the FG pattern, Japan was a 'senshinkoku', a leading economy, despite Akamatsu's original label of 'shinkookoku', a more advanced economy within follower economies. Under Akamatsu's interpretation, the USA and Germany represented the leading economies.³¹

³⁰ Pekka Korhonen, "The Theory of the Flying Geese Pattern of Development and Its Interpretations," *Journal of Peace Research* 31, no. 1 (1994), 95.

³¹ Christian Schröppel and Nakajima Mariko, "The Changing Interpretation of the Flying Geese Model of Economic Development," *Japanstudien* 14, no. 1 (2003), 223.

Post-war, the successful reconstruction of Japan's economy perpetuated this Japan-centric FG model.³² By the 1970s, the presence of Japanese multinational corporations (MNCs) in Asia was viewed as a promise of harmonious regional development.³³ Ozawa (1979) emphasized the role of Japanese MNCs in advancing the FG pattern through "pro-development" investments and technology transfers, reinforcing Japan's leadership in the region.³⁴ Kojima (1973) showed how Japanese FDI played a critical role in disseminating industrial technology and management practices across East Asia.³⁵

In 1985, Japanese Foreign Minister Saburo Okita popularized the international aspect of the FG pattern in a speech to world leaders at the fourth Pacific Economic Cooperation Council held in Seoul. In his interpretation of the FG pattern, the sequence of industrial development started in Japan followed by the NIEs and then the ASEAN4.³⁶ The interpretation of the FG pattern as a symbol of the East Asian Miracle, was well-received.³⁷ This was especially the case in the 1980s when the ASEAN4 economies appeared to be following the development trajectory of Japan and the NIEs.

Various empirical studies investigated the FG pattern in East Asia and confirmed the presence of a Japan-led FG pattern of industrial development. Rana (1990) and Fukasaku (1992) did so by investigating changing comparative advantages in the Asia through statistical analysis of trade patterns.³⁸ Dowling and Cheang

³² Korhonen, "The Theory of the Flying Geese Pattern of Development and Its Interpretations," 94.

³³ Terutomo Ozawa, "The Emergence of Japan's Multinationalism: Patterns and Competitiveness," *Asian Survey* 15, no. 12 (1975), 1036.

³⁴ Terutomo Ozawa, *Multinationalism, Japanese Style*, (Princeton University Press, 1979).

³⁵ Kiyoshi Kojima, "A Macroeconomic Approach to Foreign Direct Investment," *Hitotsubashi Journal of Economics* 14, no. 1 (1973), 1–21.

³⁶ Satoru Kumagai, "A Journey through the Secret History of the Flying Geese Model," Working Paper, *Institute of Developing Economies and Japan External Trade Organization IDE Discussion Paper 158*, 2008. https://ir.ide.go.jp/record/38009/files/IDP000158_001.pdf.

³⁷ Walter F. Hatch, *Asia's Flying Geese: How Regionalization Shapes Japan* (Ithaca, NY: Cornell University Press, 2010), 82.

³⁸ Rana, P.B. (1990), "Shifting comparative advantage among Asian and Pacific countries", *The International Trade Journal*, Vol. 4, 243-257; Kiichiro Fukasaku, "Economic Regionalisation and Intra-Industry Trade," Working Paper, *OECD Development Centre Working Paper 53*, 1992. <https://doi.org/10.1787/035300332827>.

(2000) combined the trade-based Rana/Fukasaku method with FDI ratio analysis and found support for the FG pattern in East Asia between 1970 to 1995.³⁹ Other studies took the FG pattern as a given and applied in political economy analysis in East Asia. For example, Hatch and Yamamura (1996) explored how Japan's economic policies and corporate strategies shaped the FG pattern.⁴⁰

By then, the FG pattern was accepted as a central component of Japanese foreign economic policy. In Western circles, it was accepted as a key development strategy. Radelet and Sachs (1997) compared it with the "big push" and "infant industry protection" theories. The UNCTAD (1996) report dedicated a chapter to the FG pattern in East Asia.

2.3.2. Reassessment in the 21st Century

However, the turn of the century marked a significant shift in the relevance of the FG pattern. The NIEs and even China or other developing nations were seen as having caught up with the lead goose, Japan. Meanwhile, Japan had suffered economic setbacks during the "lost decade" of the 1990's. More generally, the effects of the 1997 financial crisis were rippling around Asia. These developments called into question the linear and harmonious progression of regional development led by Japan.

Studies from the early 21st century increasingly discredited this FG model. Felker (2002) noted that China's emerging leadership was overtaking the NIEs, disrupting the 'standard' alignment.⁴¹ Kasahara (2004) described China as a "black hole" in the regional economy, absorbing increasing amounts of Foreign Direct Investment (FDI) and destabilizing the established order.⁴² Tung (2003)

³⁹ Malcolm Dowling and Chia Tien Cheang, "Shifting Comparative Advantage in Asia: New Tests of the 'Flying Geese' Model," *Journal of Asian Economics* 11, no. 4 (2000), 443–63.

⁴⁰ Walter Hatch and Kozo Yamamura, *Asia in Japan's Embrace: Building a Regional Production Alliance*, 1st ed. (Cambridge University Press, 1996).

⁴¹ Greg B. Felker, "Southeast Asian Industrialisation and the Changing Global Production System," *Third World Quarterly* 24, no. 2 (2003), 256.

⁴² Shigehisa Kasahara, "The Flying Geese Paradigm: Critical Study of Its Application to East Asian Regional Development," *United Nations Conference on Trade and Development Discussion Paper 169*, 2004, 22. https://unctad.org/system/files/official-document/osgdp20043_en.pdf.

also challenged the FG pattern's validity, particularly in the electronics industry, arguing that the "orderly shift in comparative advantages" had been "disturbed" since the mid-1990's.⁴³

Beside the changing world order, the increasingly vertical division of international labour along global supply chains drew critics from a structuralist perspective. Bernard and Ravenhill (1995) dismissed the FG pattern for failing to highlight growing technological dependence, steeper learning curves and prohibitive costs of entering high value-added segments of international production networks.⁴⁴ Tung (2003) cited international fragmentation production after 1995 as incompatible with the FG pattern of industry transmigration from one economy to another.⁴⁵

From a different perspective, Borrus and Zysman (1997) and Guerrieri (2000) claimed the sequential nature of the FG pattern has been superseded by the emergence of a harmonious global network of exchanges.⁴⁶

Given these developments, the FG pattern has been reinterpreted in the changing context of the 21st century. These interpretations argue the FG pattern allows for dynamic, non-linear progression where latecomers might leapfrog traditional stages of development. Schröppel and Mariko (2003) highlight that Akamatsu's original FG model was neither steady nor gradual but allowed for forward leaps, where a latecomer could overtake an advanced economy, and vice versa.⁴⁷

⁴³ An-Chi Tung, "Beyond Flying Geese: The Expansion of East Asia's Electronics Trade," *German Economic Review* 4, no. 1 (2003), 49.

⁴⁴ Mitchell Bernard and John Ravenhill, "Beyond Product Cycles and Flying Geese: Regionalization, Hierarchy, and the Industrialization of East Asia," *World Politics* 47, no. 2 (1995), 207.

⁴⁵ Tung, "Beyond Flying Geese," 49.

⁴⁶ Michael Borrus and John Zysman, "Wintelism and the Changing Terms of Global Competition: Prototype of the Future?" Working Paper, *Berkley Roundtable of International Economy Working Paper 96B*, 1997. https://brie.berkeley.edu/sites/default/files/wp_96b.pdf; P. Guerrieri, "International competitiveness, regional integration, and corporate strategies in the East-Asian electronic industry," In *International production networks in Asia. Rivalry or riches?* eds. M. Borrus, D. Ernst & S. Haggard, (London: Routledge, 2000).

⁴⁷ Schröppel and Mariko, "The Changing Interpretation of the Flying Geese Model of Economic Development," 209.

Ginzburg and Simonazzi (2005) further argue that Tung's negative assessment of the FG pattern in the electronics industry overlooks the possibility of latecomers achieving significant autonomy.⁴⁸

Moreover, the FG pattern has been applied beyond the 'standard' alignment. Considering large regional variations in factor endowments and economic development, Zhang and Ruan (2015) verified the FG pattern *within* China. Their analysis demonstrated how the FG pattern underpinned national industrialization and economic transformation.⁴⁹ Bellak and Ozawa (2011) assessed whether China's manufacturing investments to sub-Saharan Africa constituted an FG pattern of industrial development but concluded Chinese FDI in the region was too underdeveloped.⁵⁰ Akinboade (2005) extended the FG pattern to Africa. By modeling South Africa as lead goose, they concluded it was emerging as a "regional growth pole" in the region, replicating the FG pattern.⁵¹

2.3.3. Application to the ASEAN5

Contributing to this expanding scholarship, this study aims to apply the FG pattern *within* the economically diverse ASEAN5, identifying Singapore as a potential regional leader. Contrary to the 'standard' alignment, which often considers ASEAN as the last recipient of the FG pattern, capitalising on the industrialisation of the well-studied "Japan to Northeast Asia nexus." This research posits that the region's varied levels of industrial development present a unique opportunity to explore the FG pattern's utility in understanding and explaining regional economic dynamics.

⁴⁸ Andrea Ginzburg and Annamaria Simonazzi, "Patterns of Industrialization and the Flying Geese Model: The Case of Electronics in East Asia," *Journal of Asian Economics* 15, no. 6 (2005), 1059.

⁴⁹ Jianqing Ruan and Xiaobo Zhang, "Flying Geese' in China: The Textile and Apparel Industry's Pattern of Migration," *Journal of Asian Economics* 34 (2014), 79–91.

⁵⁰ Terutomo Ozawa and Christian Bellak, "Will the World Bank's Vision Materialize? Relocating China's Factories to Sub-Saharan Africa, Flying-Geese Style," Working Paper, *Asia-Pacific Economic Co-operation Discussion Paper* 70, 2011.

⁵¹ Oludele A. Akinboade and Daniel Makina, "The Flying Geese Model and Africa's Economic Development: What Are the Prospects That South Africa Will Play a Leading Role?," *African Finance Journal* 7, no. 1 (2005).

3. Methods and data

3.1 Review of Data

To verify the applicability of the FG pattern, export data was collected to calculate the RSCA index of ASEAN5 to assess shifts in comparative advantages and industrial structures. Additionally, FDI data was collected for a comprehensive analysis of the FG pattern. Lastly, data on GDP growth was collected to supplement the analysis.

3.1.1. Export Data

Export data was collected from the United Nations Commodity Trade Statistics Database (UN-COMTRADE) and World Trade Organisation Stats (WTO Stats) databases.

The UN-COMTRADE data was classified according to the Standard International Trade Classification (SICT) Revision 1. This revision was chosen for its breadth, covering the period from 1962 to 1999. The commodities were aggregated by sector to 2-digit SICT codes. This level of sectoral aggregation was chosen for its depth, spanning 61 sectors.

With some exceptions, the data is largely consistent. Malaysia did not report for all sectors in 1962 and 1963. Considering its consequential exports, the data period will therefore begin from 1964 for all countries. In a few sectors Indonesia did report in the years between 1964 and 1966, the data is assumed to be zero. This is unlikely to create much distortion as exports in these sectors for these years were negligible. Lastly, Thailand did not report in the year 1988. Having reported in 1987 and 1989 linear interpolation was possible without risking significant distortion in the results.

3.1.2. FDI Data

Data on Singapore's direct investments abroad is collected from Singapore Department of Statistics and covers the period from 1994 to 2010. The data is consistent throughout the period.

For inflows of FDI in ASEAN, data was collected from the World Bank Group, which sources data from the International Monetary Fund and its Balance of Payments database, supplemented by data from the United Nations Conference on Trade and Development and official national sources. The data covers the period from 1974 to 1999 and is consistent throughout the period.

3.1.3. *Supplementary Data*

Further data on annual GDP growth was also collected from the World Bank Group. The database was chosen for its breadth, covering the period from 1961 to 1996. The data is consistent for all countries.

3.2 Revealed Symmetric Comparative Advantage

To verify for an FG pattern of development through comparative advantage recycling, a commonly used indicator of comparative advantage, the RSCA, is calculated using the UN-COMTRADE export data for ASEAN5 between 1964 to 1999.

The RSCA indicates the importance of a specific industry in an economy's exports relative to the weight of that industry in a region. RSCA is a decreasing monotonic transformation of Revealed Comparative Advantage (RCA), developed by Balassa (1965), formulated as follows:⁵²

$$RCA_{ij} = (x_{ij} / x_{in}) / (x_{rj} / x_{rn})$$

x_{ij} denotes the total exports of economy i in group of product j . Subscript r refers to all economies without economy i . Subscript n symbolises all group of products except product j . Excluding country and group under consideration avoids double counting and is representative of the nature of trade of bilateral exchange.⁵³

⁵² Bela Balassa, "Trade Liberalisation and 'Revealed' Comparative Advantage," *The Manchester School* 33, no. 2 (May 1965), 99–123.

⁵³ Thomas L. Vollrath, "A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage," *Weltwirtschaftliches Archiv* 127, no. 2 (1991): 276; Julia Würz, "Dynamics of Trade Specialization in Developed and Less Developed Countries," *Emerging Markets Finance and Trade* 41, no. 3 (2005), 92–111.

The RSCA index falls in the interval $[-1 \leq RSCA_{ij} \leq 1]$. An RSCA greater than zero implies country i has a comparative advantage in group of products j , its comparative advantage is thus 'revealed'. Conversely, an RSCA less than zero indicates a comparative disadvantage.

A key challenge in using RSCA index with export data is that changes in market share reflect not only shifts in comparative advantage but also demand in importing countries. It is also unrealistic to expect RSCA index to reflect solely inherent comparative advantages, which is determined by pre-trade prices. Moreover, the index is likely affected by domestic and international trade and economic policies.⁵⁴

However, as true comparative advantage cannot be determined, the RSCA can be used for theoretical interpretation and provides greater consistency than other measures, reducing sensitivity of empirical results to index choice.⁵⁵ Using a sufficiently long time series, the index tends to reflect shifts in comparative advantage over changes in demand.⁵⁶

3.3 Key Players

Around 1960 manufacturing activities of the ASEAN5 consisted of resource-based processing and assembly of simple consumer goods, Singapore and the Philippines being partial exceptions. Singapore had a well-established entrepot and service sector and the Philippines began its industrialisation drive shortly after independence in 1946. Nevertheless, the regions industrial development was still in its nascent stages.⁵⁷

⁵⁴ Fukasaku, "Economic Regionalisation and Intra-Industry Trade," 17.

⁵⁵ Robert H. Ballance, Helmut Forstner, and Tracy Murray, "Consistency Tests of Alternative Measures of Comparative Advantage," *The Review of Economics and Statistics* 69, no. 1 (1987), 157–61.

⁵⁶ Fukasaku, "Economic Regionalisation and Intra-Industry Trade," 17.

⁵⁷ Mohammed Ariff and Hal Hill, *Export-Oriented Industrialisation: The ASEAN Experience* (New York: Routledge, 1985), 2.

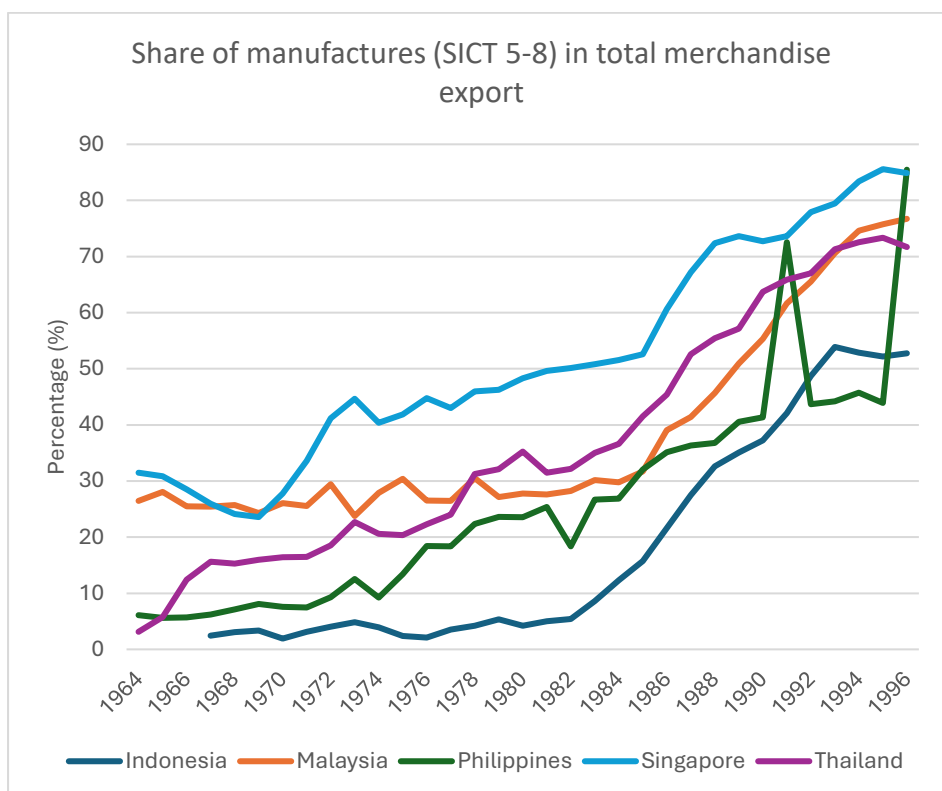
By the 1990s, each country had undergone significant structural change. Singapore transitioned to high-tech industries. Malaysia became a central hub for electronics and electrical manufacturing. Thailand had evolved from textiles to electronics and was moving into the automotive industry. Indonesia, joining later, carved out niches in textiles and later wood-based products. Meanwhile, the Philippines developed its textiles industries and expanded in food processing, capitalising on agricultural heritage.

The other Southeast Asian economies of Cambodia, Vietnam, Laos and Myanmar, did not consistently report export data for the period of interest, hence their exclusion from the data. Moreover, considering their latecomer status in the region, their industrial bases remained relatively underdeveloped throughout the period. Brunei was excluded from consideration as its industrial structure is relatively undiversified due to heavy reliance on oil exports.⁵⁸

The remarkable industrialisation of ASEAN5 between 1960 and the late 1990s makes the region a worthwhile unit of analysis for the FG pattern. The share of manufactured exports has increased markedly (Figure 1). In 1967, the share of manufactures in total merchandise export was marginal, ranging from 2.5% to 25.9%. Largely due to reliance on natural resource endowments. However, by 1996, shares of manufactures in total merchandise export ranged from 52.8% to 85.5%. Moreover, as can be gleaned, some economies' share of manufactures in total merchandise export is higher than others for the whole period, suggesting a staggered pattern of industrialisation, as expected by the FG pattern.

⁵⁸ Jose L. Tongzon, *The Economies of Southeast Asia: Before and after the Crisis*, 2nd ed, (Cheltenham: Elgar, 2002), 14.

Figure 1, Share of Manufactures (SICT 5-8) in Total Merchandise Exports (%)



Note: No data availability for Indonesia between 1964 and 1967.

Source: UN-COMTRADE, authors calculations.

Rapid industrialisation in Southeast Asia's high performers fuelled high real growth rates. Table 1 shows the remarkable average annual GDP growth rates between 1961 and 1996. Moreover, growth happened in episodic spurts often significantly above these averages, up to 13.9% percent for Singapore, 11.4% for Thailand, 11.7% for Malaysia, 10.9% for Indonesia and 8.8% for the Philippines. This reinforces the common perception that industrialisation fuels economic growth. Afterall, the FG pattern concern not only industrialisation but economic development.

Table 1. Average annual GDP growth (%)

	1961-1970	1971-1980	1981-1990	1991-1996
Indonesia	3.9	7.4	5.5	7.2
Malaysia	6.5	8.3	6.0	9.6
Philippines	4.9	5.8	1.9	2.8
Singapore	9.4	8.8	7.8	8.4
Thailand	8.2	6.9	7.9	7.8

Source: World Bank Data, authors calculations.

In sum, for the period from the early 1960s until the late 1990s, the ASEAN5 were growing and industrialising at remarkable rates, making it a suitable unit of analysis to investigate the practice of the FG pattern in the region.

3.4 Key Sectors

While Figure 1 highlights the increasing share of manufactures exported by the ASEAN5, to investigate the practice of an FG pattern one must consider the complexity of manufactures to determine whether the industrial structure has been upgraded through comparative advantage recycling. For example, if Malaysia's increasing exports of manufactures were not shifting from lower to higher technology intensity outputs overtime, an FG pattern of industrialisation cannot be verified.

Therefore, manufactures export data were categorised according to their technological and labour intensity requirements. The manufactures were chosen according to their relative importance to total merchandise in terms of exports. The first category, Low-Technology Group, consists of low technology and labour-intensive manufactures; the next, Medium-Technology group, consists of medium technology and capital investment industries; the last, High-Technology Group, consists of high technology and capital-intensive manufactures (Table 2). The

classification of manufactures is adapted from the OECD technological intensity SICT classification, which classifies manufactures according to R&D intensity.⁵⁹

Table 2, Manufactures Grouping

Technology Group	SICT Revision 1
Low-Technology Group	Leather, leather manufactures, n.e.s., and dressed fur skins (SICT 61) Paper, paperboard, and articles of paper pulp, of paper or of paperboard (SICT 64) Textile yarn, fabrics, made-up articles, and related products (SICT 65) Travel goods, handbags, and similar contain (SICT 83) Articles of apparel and clothing accessories (SICT 84) Footwear (SICT 85)
Medium-Technology Group	Rubber manufactures (SICT 62) Non-metallic mineral manufactures n.e.s (SICT 66) Manufactures of Metals n.e.s (SICT 69) Machinery other than electric (SICT 71)
High-Technology Group	Chemical elements and compounds (SICT 51) Dying, tanning and colouring materials (SICT 53) Electrical machinery, apparatus and appliances (SICT 72) Transport equipment (SICT 73)

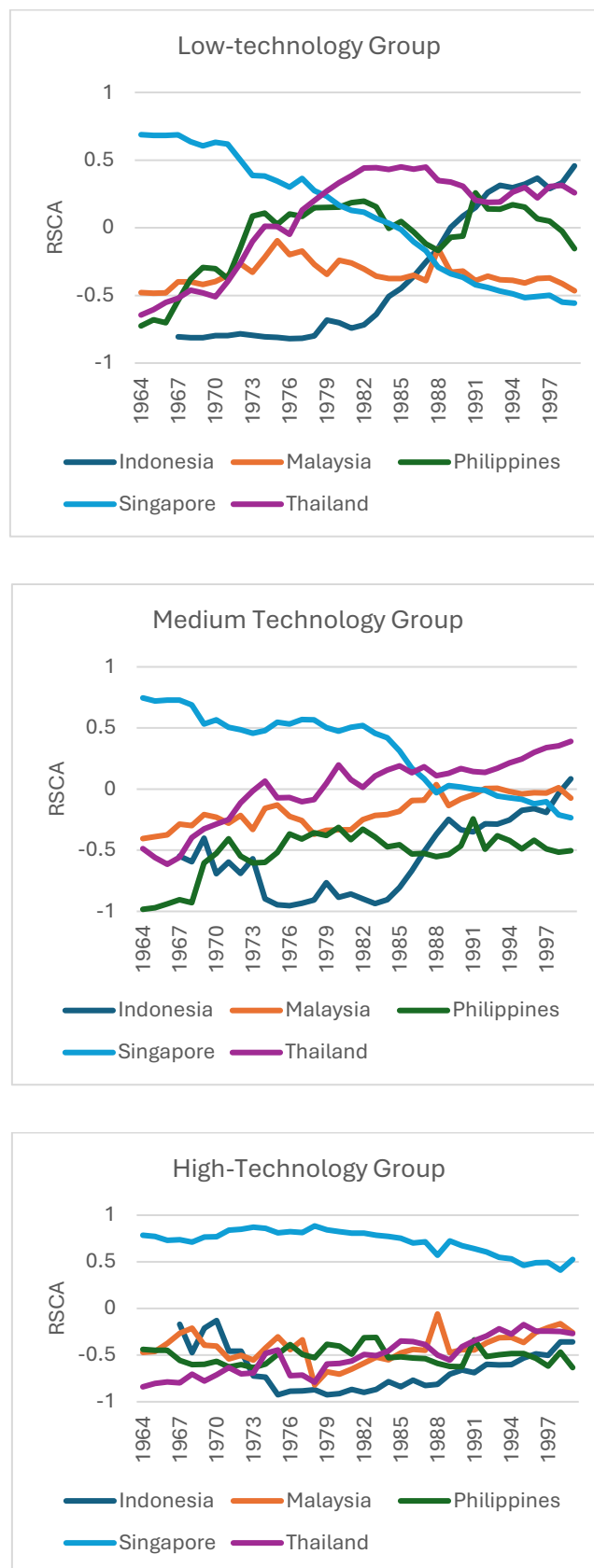
4. How the Geese Flew Across National Boundaries

4.1 The Boom Years: The Flying Geese Take Off

Figure 2 shows the RSCA of Singapore, Thailand, Malaysia, Indonesia and the Philippines in Low, Medium, and High-technology Group manufactures for the period from 1964 to 1999, four conclusions can be drawn. First, Singapore emerged as the leading economy in the region. Second, Thailand and Indonesia sequentially upgraded their industrial structures as expected by the FG pattern. Third, for Malaysia an FG pattern of industrial upgrading is only visible in medium-technology manufactures. Fourth, the Philippine's path of industrial development does not exhibit an FG pattern.

⁵⁹ Thomas Hatzichronoglou. "Revision of the High-Technology Sector and Product Classification." *OECD Science, Technology and Industry Working Paper 1997/2*, 1997, 6. <https://doi.org/10.1787/134337307632>.

Figure 2. RSCA of Singapore, Thailand, Malaysia, Indonesia and the Philippines in low, medium and high technology groups.



Source: UN-COMTRADE, authors calculations.

4.1.1. Comparative Advantage Recycling

In each graph, Singapore's early industrialisation is evident in its considerable comparative advantage in all sectors in 1964. In line with stage four of the FG pattern, Singapore secured its comparative advantage in high-technology manufactures and moves out of low-technology manufactures in the 1970s and medium-technology manufactures in the 1980s. In terms of comparative advantage in exports, we can confirm Singapore emerged as the leading economy in the region.

As Singapore moved out of these industries, Thailand filled the gap, moving into low-technology manufactures in the 1970s and medium-technology manufactures in the 1980s. Thailand's peak comparative advantage in these industries came in the 1980s for low-technology industries and the 1990s for medium-technology industries, following Singapore's exit after a decade's delay.

Indonesia followed Thailand's lead and moved into the low-technology industries in the 1980's and medium technology industries in the 1990s. Indonesia assumed the leading position in the low-technology and labour-intensive industries in the 1990's and almost overtook Thailand in medium-technology and capital investment industries by 1999. Again, it followed Thailand's exit after a decade's delay.

While Singapore maintains its comparative advantage in high-technology manufactures, Thailand and to a lesser extent Malaysia and Indonesia, make consistent gains throughout the period. This signals the beginning stages of the FG pattern, where domestic production increases but exports remain low.

Moreover, the changes in comparative advantages of follower economies with regards to more advanced economies correlate. In low-technology manufactures, Singapore's steepest 5-year drop is between 1971 and 1976, while Thailand's sharpest 5-year increase is between 1970 and 1975. Similarly, Thailand's drop in comparative advantage between 1987 and 1993, while less pronounced, coincides

with Indonesia ‘revealed’ comparative advantage in 1989. In medium-technology manufactures, Singapore’s sharpest 5-year drop mirrors Indonesia’s sharpest increase, between 1983 and 1988.

These trends evidence comparative advantage recycling between Singapore, Thailand, Indonesia for both low- and medium-technology manufactures. Suggesting an FG pattern of international and sequential structural upgrading in the region. However, Malaysia and the Philippines, in different ways, do not follow the expected pattern.

4.1.2. Malaysia’s Divergent Path: Leapfrogging Stages

For Malaysia, comparative advantage recycling is only evident in medium-technology manufactures, where its RSCA appreciates as Singapore’s decreases. However, in low technology manufactures Malaysia’s RSCA exhibits a comparative disadvantage throughout the period. This suggests Malaysia essentially ‘skipped’ low-technology sectors in its industrial upgrading pattern.

Nevertheless, this does not disqualify FG pattern of industrial upgrading. The dialectical process of homogenisation and heterogenization in industrial structures means nations are “at times dormant and at other times making leaping advances.”⁶⁰ This follows more recent formulations of the FG pattern, allowing latecomers a certain degree of autonomy within broader regional industrialisation.⁶¹

Industrial Strategy

Malaysia’s trajectory can be explained by its early focus on capital-intensive and higher technology sectors. A classification of skill-intensity of exports, based on wages, shows that 73% of Malaysia’s manufactured export in 1980 were in the

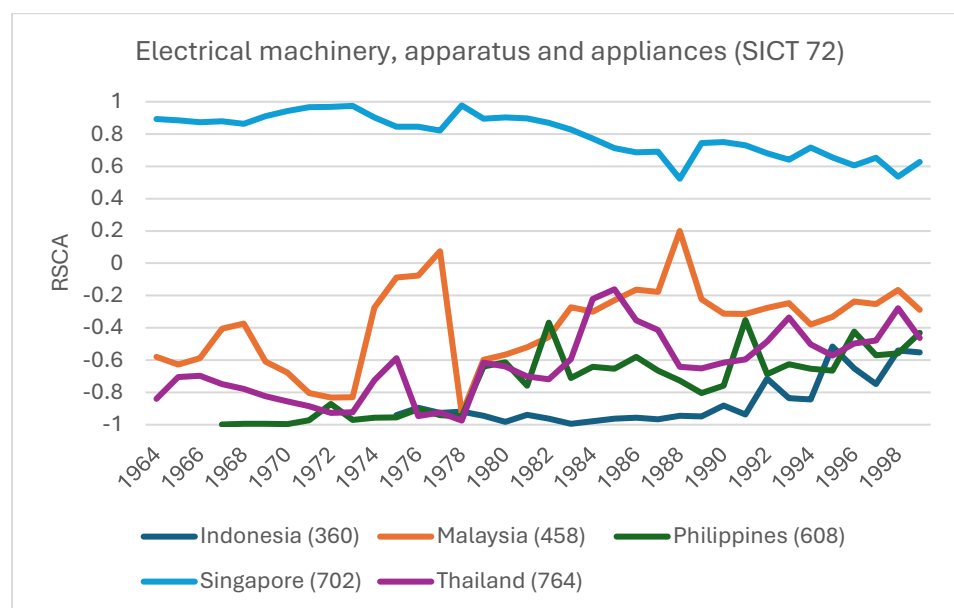
⁶⁰ Akamatsu, “A Historical Pattern of Economic Growth in Developing Countries,” 18.

⁶¹ Schröppel and Mariko, “The Changing Interpretation of the Flying Geese Model of Economic Development,” 209; Ginzburg and Simonazzi, “Patterns of Industrialization and the Flying Geese Model,” 1059.

high skills category.⁶² This differentiates Malaysia's approach to Thailand and Indonesia, whose high-skill exports accounted for 45 of total manufactured exports in 1980.⁶³

The bulk of these high-skill exports were in electronic and electrical products, which accounted for nearly 60% of Malaysia's total manufactured exports by 1990.⁶⁴ As early as the 1960s, Malaysia's comparative advantage was significantly higher than the ones of Thailand, Indonesia and the Philippines in exports of electrical machinery, apparatus and appliances (Figure 3). This strategic choice allowed Malaysia to develop a comparative advantage in more complex industries earlier than its regional peers.

Figure 3. RSCA of Malaysia in Electrical Machinery, Apparatus and Appliances (SICT 72).



Source: UN-COMTRADE.

This led to a concentration and therefore reliance on few manufactured products. In 1990, the top five products (at three-digit SITC level) accounted for 58.9 per

⁶² Sanjaya Lall, "Malaysia: Industrial Success and the Role of Government," in *Learning from the Asian Tigers*, Sanjaya Lall (London: Palgrave Macmillan UK, 1995), 760.

⁶³ Lall, 760.

⁶⁴ Lall, 760.

cent of total exports, as compared, say, to 39.6 per cent in South Korea.⁶⁵ However, it should be noted that the concentration on a relatively small number of electronic and electrical goods led to a sharp decline in exports in the 1980s in response to a recession in developed countries (Figure 3).

4.1.3. The Case of the Philippines

The Philippines comparative advantage in low- and medium-technology manufactures has been volatile, suggesting FG pattern industrial upgrading did not occur. In low-technology manufactures, some gains were made in the 1960s and 1970s but were lost in the 1980s before returning in the 1990s. However, the Philippines never showcased a dominant comparative advantage throughout the period (Figure 1).

According to Akamatsu, stage two industrial policy “should be adopted only when ample development of the protected industry can be foreseen,” otherwise it could “impoverish the national economy.” This means the FG pattern is not a given, a latecomer must tailor its industrial strategy if it wishes benefit from interactions with advanced economies.

This was the case for the Philippines, whose deviation from an FG pattern of industrial upgrading can be explained by inappropriate industrial strategy. However, it can also be attributed to broader structural challenges.

Inconsistent industrial policy

Unlike its regional peers, after initial gains from stage two import substitution the Philippines failed to move to stage three export orientation, despite the exhausted gains from protectionist policies. The Philippines was the first in the region to push for industrialisation through protectionist measures, in the early 1950s. However, it, along with Indonesia, were the last to abandon protective policy for export orientation in 1985.⁶⁶

⁶⁵ Lall, “Malaysia: Industrial Success and the Role of Government,” 769.

⁶⁶ Tongzon, *The Economies of Southeast Asia*, 52.

There were some attempts in the 1970s, such as the Export Incentive Act (1970), which provided tax exemptions for companies exporting over half of their production, and the establishment of the Bataan Export Processing Zone. However, these were short lived as the government re-imposed quantitative restrictions and foreign exchange rationing in the 1980's. These policies were not reversed until 1985.⁶⁷

High protection and incentives discouraged exports, reflected in the Philippines stagnating and declining RSCA in the 1970's and 1980's (Figure 1). Additionally, the manufacturing sector was the most capital intensive in the region, as prolonged protection encouraged capital goods imports and discouraged employment, despite the Philippines being a labour surplus country.⁶⁸

Structural Challenges

This exasperated the long-standing structural challenges in the Philippines. The Philippines inherited some of the highest tenancy rates in Asia because of its colonial past, curtailing opportunities outside the agricultural sector.⁶⁹ Various efforts were made for land reform, but many of these programmes were too limited in scope, eroded by misdeclarations and other loopholes.⁷⁰ Moreover, the lack of opportunities in the capital-intensive manufacturing sector restricted landless and unskilled workers to remain impoverished.⁷¹ The Philippines had and maintains the highest rate of poverty incidence among ASEAN5.

This was accompanied by fluctuating levels of social unrest throughout the period. The long-standing Mindanao conflict, the formation of breakaway military groups and on-going fighting in the south eroded investors' confidence, contributed to

⁶⁷ Tongzon, *The Economies of Southeast Asia*, 52.

⁶⁸ Brian Wawn, *The Economies of the ASEAN Countries: Indonesia, Malaysia, Philippines, Singapore and Thailand* (London: Macmillan, 1982), 87.

⁶⁹ Arsenio M. Balisacan, 'Rural Poverty and Access to Land Resources in the Philippines', in *Rural Poverty in Developing Asia*, vol. 2, ed. M.G. Quibria, (Manila: Asian Development Bank, 1996), 465–99.

⁷⁰ Keiji Otsuka, "Determinants and Consequences of Land Reform Implementation in the Philippines," *Journal of Development Economics* 35, no. 2 (1991), 341.

⁷¹ Tongzon, *The Economies of Southeast Asia*, 35.

capital flights. This constituted a considerable drain on government resources.⁷² Other structural challenges, such as inadequate infrastructure and bureaucratic inefficiencies have also been a barrier to sustained upgrading of industrial capabilities in the Philippines.⁷³

The industrialisation of the Philippines contrasts with the sequential industrial upgrading of Singapore, Thailand, Indonesia (and Malaysia in medium-technology manufactures). Highlighting the importance of the switch to export-orientation in the MPX sequence to the international FG pattern (Chapter X).

4.1.4. MPX sequence: Import-substitution-cum-export-orientation

The driving forces behind the MPX patterns in Singapore, Thailand, Indonesia and Malaysia where their national strategies successfully switching to export-orientation. In the four stages detailed by Akamatsu, the national strategies which underpin the fundamental MPX sequence are crucial to the FG pattern (Section X).

Stage two and stage three are of particular interest as they can be identified on the graphs in Figure 1. In stage two, domestic production and, to a lesser extent, exports take off. There situated when an economy's RSCA is rising, before peaking. In stage three domestic production is met and exports soar. Therefore, found when an economies' RSCA is peaking.

For Singapore, Thailand, Malaysia and Indonesia, stage two and three happen in tandem in low and medium-technology sectors. First in Singapore, stage two is pre-1960s and stage three in the 1960s for low-technology manufactures and 1970s for medium-technology. Then for Thailand, stage two is in the 1970s for low-technology and the 1980s medium-technology manufactures; then stage three in the 1980s for low-technology manufactures and the 1990s medium-technology manufactures. For Malaysia, stage two is in the 1980's for medium-technology

⁷² Wawn, *The Economies of the ASEAN Countries*, 74.

⁷³ Tongzon, *The Economies of Southeast Asia*, 15.

sectors, and stage three in the 1990's. And last, for Indonesia, stage two is in the 1980's for low-technology and the 1990's for medium-technology manufactures, and reached stage three only in low-technology sectors in the 1990's.

These stages follow an import-substitution-cum-export-orientation pattern. According to Akamatsu, in stage two, once imports stimulate demand, the economies introduce "protective policy to encourage and promote the consumer goods industry," specifically in the shape of "import tariffs" or "direct limitation of imports."⁷⁴ Driving the import to production section of the MPX sequence. In stage three the leading economies, as rational actors, have moved out of formerly competitive industries and follower economies abandon import-substitution for export-orientated strategies. Driving the production to export section of the MPX sequence.

Following expectations, all four economies adopted import-substitution-cum-export-orientation strategies, although timing and intensity varied. Singapore implemented tariffs under the Pioneer of Industries act of 1963,⁷⁵ with nominal rates of protection for the textiles reaching 40% by 1966.⁷⁶ However, due to market size restrictions and political separation from the Malaysian federation, Singapore abandoned import-substitution in 1967, reducing textile tariffs to 10%,⁷⁷ and introducing the Economic Expansion Incentives Act to promote exports.⁷⁸

Thailand adopted import-substitution through the Pioneer Industries Act of 1959,⁷⁹ protection rates in import competing industries rose from 45% to 78% between 1974 and 1978.⁸⁰ However, Thailand's Third Development Plan (1972-

⁷⁴ Akamatsu, "A Historical Pattern of Economic Growth in Developing Countries," 8; Akamatsu, 13.

⁷⁵ Rajah Rasiah, "Capitalist Industrialisation in ASEAN," *Journal of Contemporary Asia* 24, no. 2 (1994), 199.

⁷⁶ Ariff and Hill, *Export-Oriented Industrialisation*, 89.

⁷⁷ Ariff and Hill, 89.

⁷⁸ Rasiah, "Capitalist Industrialisation in ASEAN," 200.

⁷⁹ Rasiah, 199.

⁸⁰ Ariff and Hill, *Export-Oriented Industrialisation*, 91.

1976) stressed the need for re-orientation and by 1982, protection rates had fallen to 47%.⁸¹

While protection rates were lower on average, Malaysia followed a similar path with the introduction of the Pioneer of Industries Act of 1958.⁸² The average effective protection rate increased from 25% to 39% between 1965 and 1978.⁸³ Eventually adopting export-promotion policies under the Investment Incentives Act of 1968.⁸⁴

Indonesia introduced import substitution in 1865 and experienced a significant rise in average trade weighted tariffs, from 20.2% to 38.5% percent between 1976 and 1983.⁸⁵ It was not until the early 1980's that economic challenges, including rising oil prices, forced Indonesia to adopt export-oriented policies.⁸⁶

Therefore, the industrial strategies of all four economies have conformed to the expectations of the FG pattern, initially adopting protective measure in phase two and switching to export-promotion in stage three. This further confirms the presence of an FG pattern of development in the region.

4.1.5. The cascading effect.

Moreover, Thailand and Indonesia's protection rates vary systematically according to factor intensity, referred to as the "cascading" effect of tariff structures.⁸⁷ The shifts within cascading tariff structures followed the changes in their comparative advantages. Suggesting they were specifically targeting low-technology and labour-intensive industries first, then medium technology and capital investment industries, in line with the FG pattern's sequential upgrading of industrial structures.

⁸¹ Ariff and Hill, 91; Ariff and Hill, 17.

⁸² Rasiah, "Capitalist Industrialisation in ASEAN," 199.

⁸³ Ariff and Hill, *Export-Oriented Industrialisation*, 86.

⁸⁴ Rasiah, "Capitalist Industrialisation in ASEAN," 201.

⁸⁵ Rolf J. Langhammer, "Tariff Reductions and Tariff Redundancy in ASEAN Countries," *ASEAN Economic Bulletin* 4, no. 3, (1988), 254–55.

⁸⁶ Ariff and Hill, *Export-Oriented Industrialisation*, 14.

⁸⁷ Ariff and Hill, 76.

In 1974, Thailand's average effective rate of protection for consumer goods stood at 175.1% and 45.78% for intermediate products. Inversing the trend, by 1982 the average rate for intermediate products had risen to 74.4%, while it has decreased to 96.7% for consumer goods (excluding wood furniture which had an effective rate of protection of 1693%, considered an outlier).⁸⁸

In Indonesia, average effective rates of protection in 1975 were higher for consumer goods, at 137%, and lower for intermediate goods, at 81%. By 1980, the inverse was true, consumer goods average effective rate stood at 58% and 61% for intermediate products.⁸⁹

Malaysia, having adopted a different industrial strategy, had no 'cascading' effect in its tariff structure. Instead, its tariff structure reflected its ambition to move into higher technology sectors. In 1970, its highest effective protection rates were in intermediate products of higher levels of fabrication, at 52%, while rates for intermediate products of low levels of fabrication stood at negative 19%.⁹⁰

4.1.6. Singapore as the lead goose

Turning to the "lead goose," Singapore had attained stage four in the cycle of sequential industrial upgrading. This is evidenced by its exit from low-technology industries and medium-technology industries by the 1980s. Instead, Singapore secured its position as the leading economy by focusing on capital goods, shown in its dominance in high-technology manufactures (Figure 1). As such, Singapore has emerged as the leading economy in the region.

Previous studies have highlighted the patron-client value relationship of the FG pattern, with the parties involved on an unequal level of development guided by a dominant economy acting as a benevolent regional leader.⁹¹ This is particularly

⁸⁸ Ariff and Hill, 90–91.

⁸⁹ Ariff and Hill, 85.

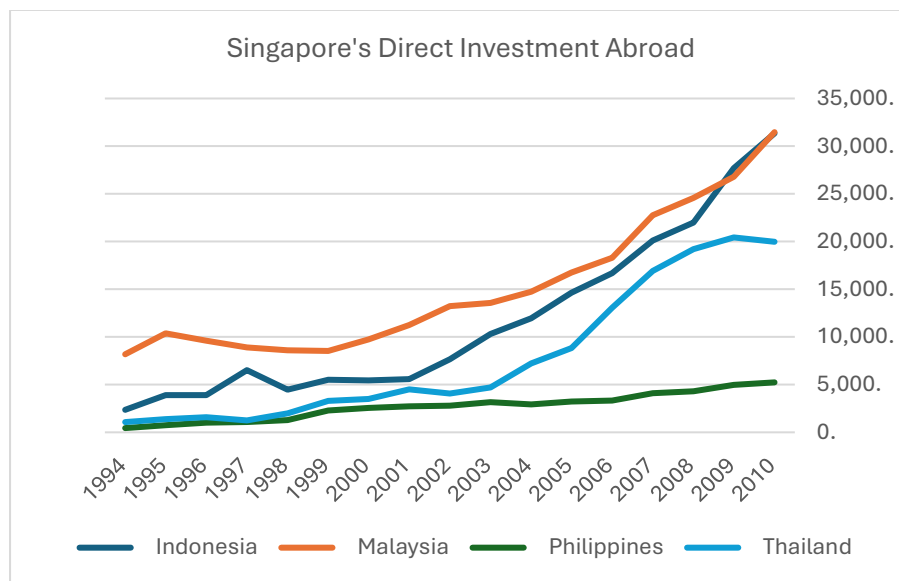
⁹⁰ Ariff and Hill, 86.

⁹¹ Justin Yifu Lin, "From Flying Geese to Leading Dragons: New Opportunities and Strategies for Structural Transformation in Developing Countries," Working Paper, *World Bank Policy*

relevant in Southeast Asian society which has a long history of operating under a patron-client model.⁹²

As the most developed economy, Singapore ascended to a position of regional leadership, pushing following economies along the same path of development, as evidenced by its increasing direct investments in the region. The average year on year increase of FDI inflows from Singapore to Thailand, Malaysia, Indonesia and Philippines for the period 1994-2010 is 22.4%, 9.2%, 19.9%, and 18.4%, respectively (Figure 4). In 1996, Singapore emerged as Malaysia’s top foreign investor, with the largest portion of investment going to manufacturing.⁹³ With Singapore’s emergence as a regional leader, the FDI landscape in among ASEAN5 is becoming distinctively more regional.

Figure 4. Singapore’s Direct Investments Abroad in Thailand, Malaysia, Indonesia and the Philippines.



Source: Singapore Department of Statistics.

Research Working Paper 5702, 2011. <https://ssrn.com/abstract=1871599>; Venkatachalam Anbumozhi and Xianbin Yao, “Remaking Energy Policies for Global Sustainability: The Case of Flying Geese Model and Path Dependencies in East Asia,” Working Paper, *Economic Research Institute for ASEAN and East Asia Discussion Paper Series DP-2017-08*, October 2017, 4. <https://www.eria.org/ERIA-DP-2017-08.pdf>.

⁹² James C. Scott. *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia*. (Yale University Press, 1977), 27.

⁹³ *The Straits Times*, January 24, 1997, 80.

<https://eresources.nlb.gov.sg/newspapers/digitised/issue/straitstimes19970124-1>.

However, it should be noted that Singapore was still emerging to its leadership position during the boom years. Extra-regional investment remained dominant throughout the period. This is partially due to investments from Northeast Asia which also rose sharply due to relocation of industries and currency appreciations.⁹⁴

In conclusion, for the boom years, Singapore certainly was the leading economy in terms of comparative advantages in exports. However, in terms of share of regional FDI, the data suggest Singapore was still solidifying its position as a regional leader.

4.1.7. Summary of Analysis and Conclusion

With Singapore emerging as a leading economy and evident comparative advantage recycling in Thailand, Malaysia and Indonesia, a distinctive FG pattern of development is thus verified for the years between 1964 to 1999. Moreover, their economic strategies were in line with the stages of the FG pattern. However, the Philippines does not conform to the FG pattern in the same manner and Malaysia's trajectory differs from Thailand and Indonesia. These divergent experiences are attributed to national strategies running contrary to the MPX sequence and structural factors. Overall, this indicates the FG pattern was a force in the industrialisation of ASEAN5, but it remained contingent on national strategies, historical contingencies and structural factors.

5. Impact of the Flying Geese Pattern

As the FG pattern has been verified, this chapter focuses on the impact the FG pattern had on the industrial and economic development of following economies. In line with several studies on the FG pattern, the impact of FDI-led growth, collaboration of participating economies and poverty reduction are considered.⁹⁵

⁹⁴ Tongzon, *The Economies of Southeast Asia*, 139.

⁹⁵ Lin, *From Flying Geese to Leading Dragons*; Dowlinga and Cheang, "Shifting Comparative Advantage in Asia: New Tests of the 'Flying Geese' Model"; Terutomo Ozawa, "The (Japan-Born)

5.1 FDI-led Growth

The premise of the FG pattern is the facilitation of industrialisation through ‘painless’ and peaceful collaborations among participating economies. In the ASEAN5, a striking feature of such collective industrialisation efforts was the following economies reliance on FDI during stage three export-orientation.

Despite initial reticence in the 1960s, the debt crisis of the 1980s and the experience of NIEs with FDI led to the ASEAN4 liberalising and deregulating capital controls in the 1980s and 1990s.⁹⁶ Several Export Processing Zones (EPZ), capitalist enclaves, such as the Bayan Lepas in Penang, Malaysia were set-up. The liberalization of capital flows, which coincided with the post-Plaza FDI boom, resulted in the region’s emergence as the most attractive investment location in the developing world. Its share of global FDI flows rose from 1 to 9 percent between 1980 and 1994.⁹⁷

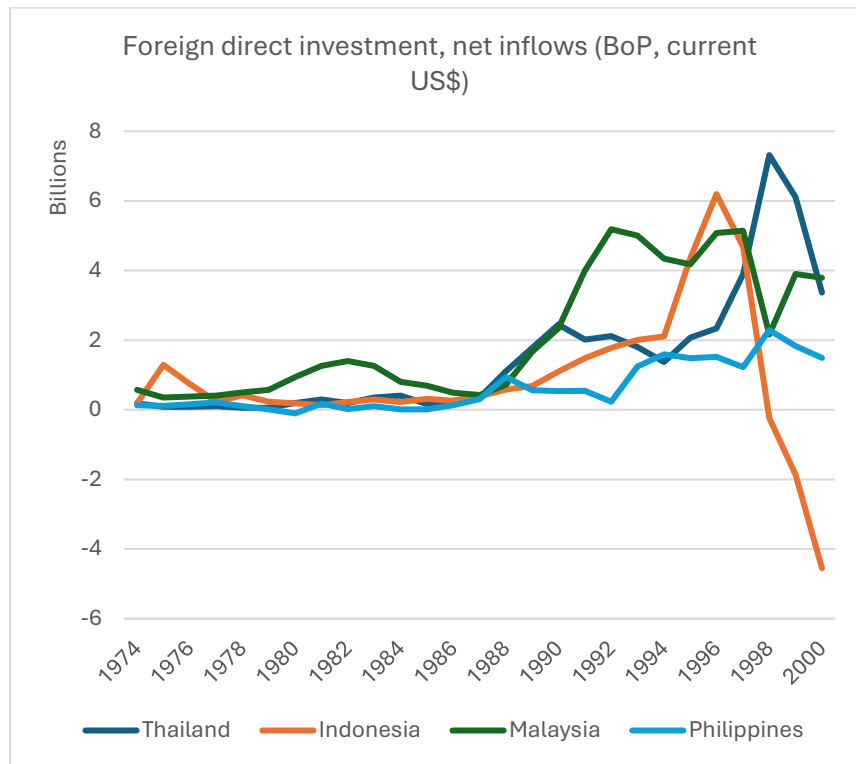
The export-orientation of foreign capital, through multinational corporations (MNCs) organising production as part of global value chains, complemented the export-driven industrialisation strategies, a core component of the MPX sequence. The inflows of FDI between each ASEAN4 member reflects a sequential FG pattern, with Malaysia and Thailand attracting inflows first, followed by Indonesia. On the other hand, the Philippines which failed to satisfactorily complete the MPX sequence, received the smallest share of FDI among ASEAN4 (Figure 4). Thus, the economies which followed the MPX sequence relied on FDI.

‘Flying-Geese’ Theory of Economic Development Revisited - and Reformulated from a Structuralist Perspective: Flying-Geese Theory Reformulated,” *Global Policy* 2, no. 3 (2011), 272–85; Terutomo Ozawa, *The Rise of Asia: The “flying-Geese” Theory of Tandem Growth and Regional Agglomeration*, (Cheltenham: Edward Elgar, 2009); Ginzburg and Simonazzi, “Patterns of Industrialization and the Flying Geese Model.”

⁹⁶ Tongzon, *The Economies of Southeast Asia*, 135.

⁹⁷ Prema-Chandra Athukorala and J. Menon, ‘Foreign Direct Investment in ASEAN; Can AFTA Make a Difference?’, in *AFTA in the Changing International Economy*, ed. Joseph Tan, (Singapore: Institute of Southeast Asian Studies, 1996), 77.

Figure 5. Net Inflows of Foreign Direct Investment in Thailand, Malaysia, Indonesia and the Philippines.



Source: World Bank Data.

5.1.1. The Benefits of FDI-led Growth: Accelerated Growth

This allowed the economies to accumulate the capital and technology for industrialisation. This borrowed growth stimulated ‘input-driven’ industrialisation, *à la* Krugman.⁹⁸ In Thailand, capital inflows had increased 20-fold between 1987 and 1998, 16-fold for Indonesia between 1987 and 1996, and 12-fold for Malaysia between 1987 and 1997 (Figure 5). The sharp increase in capital led to booms in exports (Figure 1), which stimulated industrialisation, itself attracting more capital, encouraging a virtuous circle. Highlighting, the importance capital and technological accumulation for dynamic comparative advantage recycling.

⁹⁸ Paul Krugman, “The Myth of Asia’s Miracle,” *Foreign Affairs*, November 1994. <https://www.foreignaffairs.com/articles/asia/1994-11-01/myth-asias-miracle>.

There was also a significant multiplier effect in sequential FDI-led development, as industries were passed around and re-exploited through FDI.⁹⁹ As seen in low-technology and labour-intensive industries in Figure 1, Indonesia's rise in comparative advantage in the 1980's was sharper than Thailand's in the 1970's. This suggests Indonesia benefitted from a Gerschenkronian advantage of backwardness.

Moreover, sequential industrial development led by foreign capital avoided the 'fallacy of composition' problems associated with outward-oriented, export-driven industrialisation regarding foreign demand constraints.¹⁰⁰ As ASEAN4 progressed along the international FG pattern, their export supplanted the exports of members which have graduated to a higher level. This is evident in the comparative advantage recycling among Singapore, Thailand, Malaysia and Indonesia (Figure 1).

5.1.2. The Cost of FDI-led Growth: The Crisis of 1997

During the boom years, FDI facilitated industrialisation, however the crisis of 1997 exposed FDI-led growth as a double-edged sword. The liberalisation of capital inflows provided an easy entry for foreign capital necessary to develop competitive industries, but it also provided an easy exit.

Massive speculation had put pressure on Thailand's foreign exchange reserves, which had been depleted to defend its currency peg to the dollar. In 1997, when the government floated the currency, its value depreciated substantially. Other currency also depreciated in value ranging from 35% to almost 500% at the peak of the crisis.¹⁰¹ Quickly the currency crisis had turned into a financial one, as it prompted massive capital flight – enabled by earlier measures of liberalisation. In terms of FDI inflows, Indonesia was worst hit, whose inflows turned negative in 1998, continually depreciating to negative 4 billion US dollars by the year 2000.

⁹⁹Ozawa, *The Rise of Asia*, 89.

¹⁰⁰ Bela Balassa, *Comparative Advantage, Trade Policy and Economic Development*, (New York, NY: Harvester Wheatsheaf, 1989), 28.

¹⁰¹ Tongzon, *The Economies of Southeast Asia*, 156.

Between 1997 and 1998, Malaysia's inflows more than halved. Similarly, Thailand's inflows halved between 1998 and 2000 (Figure 5).

As the ASEAN economies were running on borrowed growth, the blow of capital flight was particularly hurtful. The ASEAN economies all had considerable current account deficits. In 1996, Thailand, Malaysia and Indonesia's current account deficits as a percentage of GDP stood at 8, 9.7 and 2.3 percent, respectively.¹⁰² Therefore, the sudden reversal of capital halted capital and technological accumulation required for export-oriented industrialisation.

The liberalisation which had supported industrialisation, had made the follower economies reliant on capital inflows. Understandably, the FG pattern, touted as an engine of industrialisation and economic growth in the region, was put into question. To benefit from interactions with advanced economies, ASEAN4 had liberalised its capital accounts. Following the MPX sequence they had relied heavily on FDI to support their outward-looking export-oriented industrialisation. However, this reliance came at the price of susceptibility to changes in the global economy.

5.2 Regional and Sub-regional Economic Co-operation

Besides FDI led growth, co-operation under FG pattern industrialisation was also visible in regional and sub-regional activities. However, it is suggested their scope was limited and impact on industrialisation unclear.

5.2.1. Preferential Trade Agreements

First, collaboration was notable in the adoption of unilateral agreements to reduce tariff on a set of agreed products through the adoption of Preferential Trade Agreements (PTAs). However, as evidenced by inconsequential increases in intra-ASEAN trade, the impact of PTAs was limited.

¹⁰² World Bank. 2023. "Current Account Balance (% of GDP) – Thailand, Malaysia, Indonesia" *World Development Indicators*. Accessed August 30, 2024. <https://data.worldbank.org/indicator/BN.CAB.XOKA.GD.ZS?end=2023&locations=TH-MY-ID&start=1960&view=chart>

ASEAN Preferential Trading Agreements (PTAs) were signed in 1977. The main achievements of the agreement were the adoption of tariff preferences which required participating members to have at least 50% ASEAN content in imports and localise final stage manufacturing in the ASEAN exporting country.¹⁰³ The aim of PTAs was to increase intra-ASEAN trade.

While PTAs represented an important step towards integration, their scope was limited. By 1986 the number of items tariff reductions made up only 2.6% of the total number of items offered.¹⁰⁴ Many of the items offered under the PTA were either not traded or imported by ASEAN countries.¹⁰⁵ Therefore, the impact of PTAs on intra-ASEAN trade were limited.

It is estimated that PTAs in the 1980's increased intra-ASEAN imports by no more than 5%.¹⁰⁶ Although intra-ASEAN trade still accounted for between 8% and 29% of total trade for ASEAN5, much of this was due to the dominance of Singapore and its role as an entrepot in the region. In fact, the trade between Singapore and other ASEAN countries accounted for 62.1% to 73.6% of intra-ASEAN trade in 1992.¹⁰⁷

The underlying reason for limited increases in intra-ASEAN trade is that, except Singapore, the economic structures of ASEAN4 were, to a certain extent, competitive. Despite the push towards diverse manufactures, the primary exports of ASEAN4, whose markets are usually outside ASEAN, were generally competitive. While Singapore, as the most industrialised in the region had a high degree of complementarity with the other ASEAN countries.

¹⁰³ Gerald Tan, *ASEAN Economic Development and Co-Operation* (Singapore: Times Academic Press, 1996), 140.

¹⁰⁴ Tan, 141.

¹⁰⁵ Gerald Tan, "Intra-ASEAN Trade Liberalisation: An Empirical Analysis," *JCMS: Journal of Common Market Studies* 20, no. 4 (1982), 331; Tan, 45.

¹⁰⁶ Ooi Guat Tin, "ASEAN Preferential Trading Arrangements (PEA): An Analysis of Potential Effects on Intra-ASEAN Trade," *Institute of Southeast Asian Studies Discussion Paper 26*, 1981, 21. <https://doi.org/10.1355/9789814377539>.

¹⁰⁷ Tan, *ASEAN Economic Development and Co-Operation*, 142.

5.2.2. Growth Triangles

Economic collaboration was also evident in the formation of growth triangles, which are transnational economic zones spread over geographically proximate areas to exploit differences in factor endowments and promote trade and investments.¹⁰⁸ Growth triangles successfully attracted foreign capital but concerns over their ability to promote linkages and positive externalities prevailed.

The first growth triangle, SIJORI, was created in 1988. As early as 1979, rising wages and tightening labour markets in Singapore had pushed industrialists to invest in Malaysia and Indonesia, where wages were much lower.¹⁰⁹ The SIJORI formalised this trend by integrating Singapore's technology and infrastructure with cheap land and labour from Johor, Malaysia and Riau, Indonesia. After formalisation of the SIJORI growth triangle, direct investments from Singapore to Johor more than doubled in just one year.¹¹⁰ This suggests growth triangles were successful in attracting foreign capital.

The success of SIJORI led to three more proposals for growth triangles, the Northern Triangle, comprising Indonesia, Malaysia and Thailand, the East Triangle of the Philippines, Indonesia, Malaysia and Brunei and the Greater Mekong Economic Sub-region, including Thailand, Cambodia, Laos, Myanmar, Vietnam and China.¹¹¹ Their purpose was to support regional economic integration to exploit proximity and complementarity of factor endowments for mutual benefits.

There were however questions on the ability of Johor and Riau to capitalise and upgrade their industrial structures through local requirements and taking

¹⁰⁸ Min Tang, and Myo Thant. "Growth Triangles: Conceptual Issues and Operational Problems." Asian Development Bank *Staff Paper 54*, 1994. <https://www.adb.org/publications/growth-triangles-conceptual-issues-and-operational-problems>.

¹⁰⁹ Tan, *ASEAN Economic Development and Co-Operation*, 165.

¹¹⁰ James Parsonage, "Southeast Asia's 'Growth Triangle': A Subregional Response to Global Transformation," *International Journal of Urban and Regional Research* 16, no. 2 (1992), 310.

¹¹¹ Tongzon, *The Economies of Southeast Asia*, 81.

advantage of linkages. The bulk of investments focused on textiles, light industry and low value electrical components. Singapore had specifically placed emphasis on vertical division of labour within the growth triangle. These concerns were raised by Malaysia over a 'dependence' in Singapore in the form of a core-periphery relationship.¹¹²

5.2.3. Co-operation and Localisation: How to Promote Economic Linkages and Positive Externalities?

Malaysia's concerns were an example of a broader concerns of the ability of FDI-led and collaborative export-oriented industrialisation in fostering internal economic integration within the exporting country. On a global scale this was relevant for EPZ, on a regional scale this was reflected in the internal structures of co-operative measure such as growth triangles.

The critical view of FDI and export-led industrialisation suggests latecomers struggle to establish backward linkages and tend to specialise in low-technology industries. This view interprets FDI-reliance as form of 'captive development', thwarting autonomous development with networks of control restricting access to technology and know-how to extract high rents.¹¹³The alternative view suggests export-orientation and FDI enables comparative advantage recycling through technological transfers and dynamic exchanges enabling structural change.¹¹⁴

Evidently, these concerns were present in the ASEAN4 economies. In the 1970s and 1980s, ASEAN governments implemented policies to stimulate localisation. Malaysia introduced various schemes which including, rewarding 'umbrella' companies for aiding local enterprises with government contracts and relocating

¹¹² Parsonage, "Southeast Asia's 'Growth Triangle'," 314.

¹¹³ John Borrego, Alejandro Álvarez, and Jomo K. S., eds., *Capital, the State, and Late Industrialization: Comparative Perspectives on the Pacific Rim* (New York, NY: Routledge, 2018); Bernard and Ravenhill, "Beyond Product Cycles and Flying Geese: Regionalization, Hierarchy, and the Industrialization of East Asia," 171–209

¹¹⁴ Ipeei Yamazawa, *Economic Development and International Trade: The Japanese Model* (Honolulu, Hawaii: Resource Systems Institute, East-West Center, 1990); Peter A Petri, "The East Asian Trading Bloc: An Analytical History," in *Regionalism and Rivalry: Japan and the United States in Pacific Asia*, eds. Miles Kahler et al., 1993, 21–48.

small vendors for cluster creation. Indonesia introduced the Foster Father Plan which required MNCs to market the products of small local enterprises. While Thailand did not promote interfirm technological transfers directly, it established an information exchange programme operated by its Board of Investment for Industrial Linkages.¹¹⁵

Evidence suggests the extent to which such measures promoted economic linkages and positive externalities were mixed. In 1975, the domestic intermediate input context of Indonesia, Malaysia, Thailand were between 49% and 57% on total inputs, as compared to imported intermediate inputs between 12% and 17% percent.¹¹⁶ Moreover, the net foreign exchange earnings (NFEE) index, which indicates the foreign exchange balance per unit of final demand, for manufactured exports were above unit in terms of production and employment,¹¹⁷ suggesting exports of manufactures generated more foreign exchange per unit of output than total manufacturing production.

However, this seemingly impressive performance is largely due to resource-based exports, as non-resource-based exports were below unity.¹¹⁸ Suggesting relatively little net foreign exchange per export unit and therefore import dependent nature of manufacturing activities in non-resource-based exports. Additionally, the ASEAN's EPZs tended to have the lowest NFEE indices. For example, in 1978 electronic firms in Malaysia's Penang EPZ imported 97 percent of raw material inputs and 80 percent of their capital goods.¹¹⁹

Paradoxically, there is evidence some ASEAN policies attempting to encourage linkages had the opposite effect. Firms in EPZ tended to be discouraged from sourcing inputs domestically due to tariffs and other regulations. The Philippines

¹¹⁵ Tongzon, *The Economies of Southeast Asia*, 150.

¹¹⁶ Ariff and Hill, *Export-Oriented Industrialisation*, 49.

¹¹⁷ Ariff and Hill, 51.

¹¹⁸ Ariff and Hill, 51.

¹¹⁹ Mrinal Datta-Chaudhuri, "The Role of Free Trade Zones in the Creation of Employment and Industrial Growth in Malaysia," Working Paper, *Asian Employment Programme Working Paper ILO-ARTEP*, 1982, 40. <https://digitallibrary.un.org/record/252?ln=en>.

Bataan EPZ discourages linkages because of remote location.¹²⁰ As such, it could be said the success of increasing linkages from EPZs lays in part on general economic and trade environments.

In sum, the following economy's ability to foster internal linkages through localisation during the boom years was mixed, but not impossible. Thus, the critical view of export-oriented industrialisation as 'captive development' appears to be overstated – at least in the context of the ASEAN5 boom years. Nonetheless, the governments proactive stance on localisation through policy indicates export-orientation alone cannot achieve remarkable growth of the scale seen in ASEAN5 during the boom years.

5.3 Poverty Reduction

In ASEAN5, this economic growth led to a remarkable reduction in poverty. Similar poverty reduction in Northeast Asia has naturally drawn attention to the link between the FG pattern of economic development and poverty incidence.¹²¹ There are two competing views on the FG pattern's process of comparative advantage recycling in labour intensive industries through globalisation and poverty reduction. The positive view holds that globalisation through international business brings employment opportunities and increases wages.¹²² The negative view contends that market-driven economic development has adverse effects on income distribution against the poor.¹²³

The process behind comparative advantage recycling in labour-intensive industries observed in Figure 1 is paradoxical. As in, the more labour abundant a nation is, the faster the occurrence of labour shortage and wages rising, as it

¹²⁰ Ariff and Hill, *Export-Oriented Industrialisation*, 52.

¹²¹ Ozawa, *The Rise of Asia*, 68.

¹²² Jagdish N. Bhagwati, *In Defense of Globalization*, (New York, NY: Oxford Univ. Press, 2004); David Dollar and Aart Kraay, "Trade, Growth, and Poverty," *The Economic Journal* 114, no. 493 (2004), 22–49.

¹²³ Joseph E. Stiglitz, *Globalization and Its Discontent*, (New York, 2003); Paul Collier, *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*, (Oxford, Oxford University Press, 2007).

exploits endowed comparative advantage in labour-intensive industries.¹²⁴ The rise in wages is inevitable in labour-driven growth and in turn, compels search for lower-wage labour via FDI. This is the process of industrial transmigration in low-technology and labour-intensive industries behind the FG pattern. This is observed in Figure 1, from Singapore to Thailand, then Indonesia.

It is therefore unsurprising that follower economies' development has been marked by significant poverty reduction, because of rising demand for unskilled labour. The percentage of population living below poverty line in Singapore dropped from 31% to 10% between 1972 and 1982, in Thailand from 59% to 26% between 1962 and 1986, in Malaysia from 37% to 14% between 1873 and 1987 and in Indonesia from 58% to 17% between 1972 and 1982.¹²⁵

Studies of poverty reduction focused on Northeast Asia and found that its success in poverty reduction was a consequence of pro-growth and pro-poor policies.¹²⁶ This provides support for the negative view on the effects of globalisation on poverty incidence, by emphasising the governments' proactive role in curbing poverty.

However, except for some government efforts to assist indigenous groups, ASEAN countries have prioritised promoting economic growth over income redistribution. In the 'boom' years, the ASEAN5 countries had very limited welfare assistance programmes for the poor, nor redistributive measures in the form of high marginal tax rates.¹²⁷ Therefore, the ASEAN experience of poverty reduction cannot be explained by the same factors as the East Asian experience.

Instead, the common denominator in the East Asian and Southeast Asian experience is remarkable economic growth. Therefore, while there is no doubt

¹²⁴ Ozawa, *The Rise of Asia*, 68.

¹²⁵ The World Bank, *The East Asian miracle: economic growth and public policy*, World Bank Policy Research Report, (Washington, D.C.: World Bank Group, 1993), 33.
<http://documents.worldbank.org/curated/en/975081468244550798/Main-report>

¹²⁶ Ozawa, *The Rise of Asia*, 73.

¹²⁷ Tongzon, *The Economies of Southeast Asia*, 41.

policy had a positive impact on the East Asian experience of poverty reduction, the ASEAN5 experience provides support to the positive view of the effects of globalisation on poverty incidence. By nature, market-driven growth trends to unequal income distribution. However, if the economy grows vigorously enough, the experience of ASEAN5 in poverty reduction suggests the positive spillovers from economic growth can off-set adverse distribution effects.

6. Conclusions: What Difference did the Flying Geese Pattern Make During the Boom Years of the ASEAN5?

This dissertation contributes to scholarly discussion adapting the framework of the FG pattern in diverse geographical and temporal contexts. Specifically, it set out to verify the presence of an FG pattern of development during the boom years of industrialisation in ASEAN5.

The analysis, centred on RSCA index derived from export data, reveals that a pattern of comparative advantage recycling from low to medium-technology manufactures emerged between economies of Singapore, Thailand, Malaysia and Indonesia. Singapore's emergence as a regional leader, underscored by its technology-intensive industrial base and significant direct investments, positions it at the helm of the FG pattern. However, Malaysia trajectory shows slight deviations from the expected pattern, while the Philippines did not exhibit a clear FG pattern.

The conclusion from these findings is that the FG pattern was a force in the industrialisation of ASEAN5 during the boom years, but it remained contingent on national strategies, structural factors and historical contingencies.

The second aim of this dissertation, to scrutinise the implications of the FG pattern, suggests its impact was mixed. The FG pattern encouraged openness, reflected in the FDI-led growth supported by liberalisation efforts. This allowed the following economies to accumulate the capital and technology necessary for

rapid industrialisation. However, this 'borrowed growth' exposed the economies to the vagaries of financial markets, ultimately leading to the crisis of 1997.

On a regional scale, the openness of the FG pattern encouraged co-operation in the form of growth triangles and PTAs. However, while PTAs were an important step towards integration, they failed to stimulate intra-ASEAN trade, in-part because of the competitive nature of different economies industrial structures. Growth triangles facilitated vertical integration of regional division of labour and capital accumulation. Despite efforts toward localisation on behalf of ASEAN5 governments, growth triangles integration with local industry to promote linkages and positive externalities was mixed.

Despite these limitations, the period of rapid growth afforded by capital accumulation from borrowed growth and regional vertical integration, reduced poverty incidence significantly. This reduction highlights the potential benefits of open economic policies and regional integration in reducing poverty incidence.

The mixed outcomes among ASEAN5 underscore broader debates on globalisation and economic development. The ASEAN5 economies adopted a relatively open stance, despite initial import-substituting policies and some interventions to localise processes. Yet the result was, overall, mixed. This challenges the notion that external forces alone induce industrial upgrading and economic development. This insight is particularly relevant to countries grappling with the dual challenges of industrialisation and ensuring equitable growth.

Bibliography

- Akamatsu, Kaname. "A Historical Pattern of Economic Growth in Developing Countries." *The Developing Economies* 1, no. 1 (1962), 3–25.
- . "A Theory of Unbalanced Growth in the World Economy." *Weltwirtschaftliches Archiv* 86, no. 2 (1961), 196–217.
- Akinboade, Oludele A., and Daniel Makina. "The Flying Geese Model and Africa's Economic Development: What Are the Prospects That South Africa Will Play a Leading Role?" *African Finance Journal* 7, no. 1 (2005), 49-69.
- Anbumozhi, Venkatachalam, and Xianbin Yao. "Remaking Energy Policies for Global Sustainability: The Case of Flying Geese Model and Path Dependencies in East Asia." Working Paper. *Economic Research Institute for ASEAN and East Asia Discussion Paper Series DP-2017-08*, October 2017. <https://www.eria.org/ERIA-DP-2017-08.pdf>.
- Ariff, Mohammed and Hill, Hal. *Export-Oriented Industrialisation: The ASEAN Experience*. New York: Routledge, 1985.
- Athukorala, Prema-Chandra and J. Menon. 'Foreign Direct Investment in ASEAN; Can AFTA Make a Difference?', in *AFTA in the Changing International Economy*, ed. Joseph Tan, 76–92. Singapore: Institute of Southeast Asian Studies, 1996.
- Babones, Salvatore. "The World-Systems Perspective." in *The Essential Guide to Critical Development Studies*, eds. Henry Veltmeyer and Paul Bowles, 109-117. London: Routledge, 2018.
- Balassa, Bela. *Comparative Advantage, Trade Policy and Economic Development*. New York, NY: Harvester Wheatsheaf, 1989.
- . "Trade Liberalisation and 'Revealed' Comparative Advantage." *The Manchester School* 33, no. 2 (May 1965): 99–123.
- Balisacan, Arsenio M. "Rural Poverty and Access to Land Resources in the Philippines." In *Rural Poverty in Developing Asia, Vol. 2*, ed. by M.G. Quibria, 465–99. Manila: Asian Development Bank, 1996.
- Ballance, Robert H., Helmut Forstner, and Tracy Murray. "Consistency Tests of Alternative Measures of Comparative Advantage." *The Review of Economics and Statistics* 69, no. 1 (1987), 157–61.
- Bernard, Mitchell, and John Ravenhill. "Beyond Product Cycles and Flying Geese: Regionalization, Hierarchy, and the Industrialization of East Asia." *World Politics* 47, no. 2 (1995), 171–209.
- Bhagwati, Jagdish N. *In Defense of Globalization*. New York, NY: Oxford University Press, 2004.
- Borrego, John, Alejandro Álvarez, and Jomo K. S. eds. *Capital, the State, and Late Industrialization: Comparative Perspectives on the Pacific Rim*. New York, NY: Routledge, 2018.
- Borrus, Michael and John Zysman. "Wintelism and the Changing Terms of Global Competition: Prototype of the Future?" Working Paper. *Berkley Roundtable of International Economy Working Paper 96B*, 1997. https://brie.berkeley.edu/sites/default/files/wp_96b.pdf
- Collier, Paul. *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*. (Oxford: Oxford University Press, 2007).

- Datta-Chaudhuri, Mrinal. "The Role of Free Trade Zones in the Creation of Employment and Industrial Growth in Malaysia." Working Paper. *Asian Employment Programme Working Paper ILO-ARTEP*, 1982.
<https://digitallibrary.un.org/record/252?ln=en>.
- Dollar, David, and Aart Kraay. "Trade, Growth, and Poverty." *The Economic Journal* 114, no. 493 (2004), 22–49.
- Dowlinga, Malcolm, and Chia Tien Cheang. "Shifting Comparative Advantage in Asia: New Tests of the 'Flying Geese' Model." *Journal of Asian Economics* 11, no. 4 (2000), 443–63.
- Felker, Greg B. "Southeast Asian Industrialisation and the Changing Global Production System." *Third World Quarterly* 24, no. 2 (2003), 255–82.
- Frank, Andre Gunder. *Capitalism and Underdevelopment in Latin America; Historical Studies of Chile and Brazil*. New York: Monthly Review Press, 1967.
- Fukasaku, Kiichiro, "Economic Regionalisation and Intra-Industry Trade." Working Paper. *OECD Development Centre Working Paper 53*, 1992.
<https://doi.org/10.1787/035300332827>.
- Gerschenkron, Alexander. *Economic Backwardness in Historical Perspective: A Book of Essays*. New York, Washington: Praeger 1965.
- Ginzburg, Andrea, and Annamaria Simonazzi. "Patterns of Industrialization and the Flying Geese Model: The Case of Electronics in East Asia." *Journal of Asian Economics* 15, no. 6 (2005): 1051–78.
- Guat Tin, Ooi. "ASEAN Preferential Trading Arrangements (PEA): An Analysis of Potential Effects on Intra-ASEAN Trade." *Institute of Southeast Asian Studies Discussion Paper 26*, 1981. <https://doi.org/10.1355/9789814377539>.
- Guerrieri, P. "International competitiveness, regional integration, and corporate strategies in the East-Asian electronic industry." In *International production networks in Asia. Rivalry or riches?* eds. M. Borrus, D. Ernst & S. Haggard. London: Routledge, 2000.
- Hatch, Walter F. *Asia's Flying Geese: How Regionalization Shapes Japan*. Ithaca, NY: Cornell University Press, 2010.
- Hatch, Walter F. and Kozo Yamamura. *Asia in Japan's Embrace: Building a Regional Production Alliance*. 1st ed. Cambridge University Press, 1996.
- Hatzichronoglou, Thomas. "Revision of the High-Technology Sector and Product Classification." *OECD Science, Technology and Industry Working Paper 1997/2*, 1997. <https://doi.org/10.1787/134337307632>.
- Hirschman, Albert O. *The Strategy of Economic Development*. New Haven: Yale University Press, 1958.
- Johnson, Chalmers A. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925 - 1975*. Reprinted. Stanford, California: Stanford University Press, 2007.
- Kasahara, Shigehisa. "The Flying Geese Paradigm: Critical Study of Its Application to East Asian Regional Development." *United Nations Conference on Trade and Development Discussion Paper 169*, 2004.
https://unctad.org/system/files/official-document/osgdp20043_en.pdf.
- Kojima, Kiyoshi. "A Macroeconomic Approach to Foreign Direct Investment." *Hitotsubashi Journal of Economics* 14, no. 1 (1973), 1–21.

- Korhonen, Pekka. "The Theory of the Flying Geese Pattern of Development and Its Interpretations." *Journal of Peace Research* 31, no. 1 (1994): 93–108.
- Krugman, Paul. "The Myth of Asia's Miracle." *Foreign Affairs*, November 1994. <https://www.foreignaffairs.com/articles/asia/1994-11-01/myth-asias-miracle>.
- Kumagai, Satoru. "A Journey through the Secret History of the Flying Geese Model." Working Paper. *Institute of Developing Economies and Japan External Trade Organization IDE Discussion Paper 158*, 2008. https://ir.ide.go.jp/record/38009/files/IDP000158_001.pdf.
- Lall, Sanjaya. "Malaysia: Industrial Success and the Role of Government." In *Learning from the Asian Tigers*, Sanjaya Lall, 148–65. London: Palgrave Macmillan UK, 1995.
- Langhammer, Rolf J. "Tariff Reductions and Tariff Redundancy in ASEAN Countries." *ASEAN Economic Bulletin* 4, no. 3 (1988): 252–70.
- Lin, Justin Yifu. "From Flying Geese to Leading Dragons: New Opportunities and Strategies for Structural Transformation in Developing Countries." Working Paper. *World Bank Policy Research Working Paper 5702*, 2011. <https://ssrn.com/abstract=1871599>.
- Lenin, Vladimir. 1963. "Imperialism: The Highest Stage of Capitalism," in *Lenin Selected Works*, eds. Tim Delaney and Kevin Goin. Reprinted. *Marxist Internet Archives*, 2008. <https://www.marxists.org/archive/lenin/works/1916/imp-hsc/>
- Lucas, Robert E. "On the Mechanics of Economic Development." *Journal of Monetary Economics* 22, no. 1 (1988): 3–42.
- Marx, Karl, and Friedrich Engels. 1848. *The Communist Manifesto*. Reprinted. London: Penguin Classics, 2002.
- Nurkse, Ragnar. "Problems of Capital Formation in Underdeveloped Countries (1953)," in *Ragnar Nurkse: Trade and Development*. Eds. Rainer Kattel, Jan Kregel, and Erik Reinert, 99–212. Anthem Press, 2009.
- Otsuka, Keijiro. "Determinants and Consequences of Land Reform Implementation in the Philippines." *Journal of Development Economics* 35, no. 2 (1991): 339–55.
- Ozawa, Terutomo. *Multinationalism, Japanese Style*. Princeton University Press, 1979.
- . "The Emergence of Japan's Multinationalism: Patterns and Competitiveness." *Asian Survey* 15, no. 12 (1975): 1036–1053.
- . "The (Japan-Born) 'Flying-Geese' Theory of Economic Development Revisited - and Reformulated from a Structuralist Perspective: Flying-Geese Theory Reformulated." *Global Policy* 2, no. 3 (2011): 272–85.
- . *The Rise of Asia: The "flying-Geese" Theory of Tandem Growth and Regional Agglomeration*. (Cheltenham: Edward Elgar, 2009).
- Ozawa, Terutomo, and Christian Bellak. "Will the World Bank's Vision Materialize? Relocating China's Factories to Sub-Saharan Africa, Flying-Geese Style." Working Paper. *Asia-Pacific Economic Co-operation Discussion Paper 70*, 2011.
- Parsonage, James. "Southeast Asia's 'Growth Triangle': A Subregional Response to Global Transformation." *International Journal of Urban and Regional Research* 16, no. 2 (1992), 307–17.

- Petri, Peter A. "The East Asian Trading Bloc: An Analytical History." In *Regionalism and Rivalry: Japan and the United States in Pacific Asia*, eds. Miles Kahler, Jeffrey A Frankel, Miles Kahler, and Jeffrey A Frankel, 1993, 21–48.
- Rasiah, Rajah. "Capitalist Industrialisation in ASEAN." *Journal of Contemporary Asia* 24, no. 2 (1994): 197–216.
- Ricardo, David. *On the Principles of Political Economy, and Taxation*. 1st ed. Cambridge University Press, 2014.
- Romer, Paul M. "Endogenous Technological Change." *Journal of Political Economy* 98, no. 5 (1990): 71–102.
- Ruan, Jianqing, and Xiaobo Zhang. "Flying Geese' in China: The Textile and Apparel Industry's Pattern of Migration." *Journal of Asian Economics* 34 (2014): 79–91.
- Schröppel, Christian, and Nakajima Mariko. "The Changing Interpretation of the Flying Geese Model of Economic Development." *Japanstudien* 14, no. 1 (2003): 203–36.
- Stiglitz, Joseph E. *Globalization and Its Discontent*. New York, 2003.
- Tan, Gerald. *ASEAN Economic Development and Co-Operation*. Singapore: Times Academic Press, 1996.
- . "Intra-ASEAN Trade Liberalisation: An Empirical Analysis." *JCMS: Journal of Common Market Studies* 20, no. 4 (1982), 321–31.
- Tang, Min, and Myo Thant. "Growth Triangles: Conceptual Issues and Operational Problems." Asian Bank of Development *Staff Paper* 54, 1994. <https://www.adb.org/publications/growth-triangles-conceptual-issues-and-operational-problems>.
- Tongzon, Jose L. *The Economies of Southeast Asia: Before and after the Crisis*. 2nd ed. Cheltenham: Elgar, 2002.
- Tung, An-Chi. "Beyond Flying Geese: The Expansion of East Asia's Electronics Trade." *German Economic Review* 4, no. 1 (2003): 35–51.
- Vollrath, Thomas L. "A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage." *Weltwirtschaftliches Archiv* 127, no. 2 (1991): 265–80.
- Wade, Robert. *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*. 2nd ed. Princeton, NJ: Princeton Univ. Press, 2004.
- Wallerstein, Immanuel. *The Modern World-System I*. 1st ed. University of California Press, 2011.
- Wawn, Brian. *The Economies of the ASEAN Countries: Indonesia, Malaysia, Philippines, Singapore and Thailand*. London: Macmillan, 1982.
- World Bank. 2023. "Current Account Balance (% of GDP)" World Development Indicators. Accessed August 30, 2024. <https://databank.worldbank.org/source/world-development-indicators>.
- . *The East Asian miracle: economic growth and public policy*. World Bank Policy Research Report (Washington, D.C.: World Bank Group, 1993). <http://documents.worldbank.org/curated/en/975081468244550798/Ma-in-report>
- Wörz, Julia. "Dynamics of Trade Specialization in Developed and Less Developed Countries." *Emerging Markets Finance and Trade* 41, no. 3, (2005): 92–111.

Yamazawa, Ipei. *Economic Development and International Trade: The Japanese Model*. (Honolulu, Hawaii: Resource Systems Institute, East-West Center, 1990).