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Catching the Winds of Change: Penang and Malaysia Need to Make the Most of Global Manufacturing Trends

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EXECUTIVE SUMMARY

- Penang's manufacturing sector is heavily affected by global conditions. With recent geopolitical tensions between the US and China disrupting global manufacturing supply chains, particularly in the E&E sector, a shortage of materials and weak demand for electronic products has reduced manufacturing output and trade. Employment is also moderating due to market challenges.
- The US-China trade war has led to an escalation in de-risking measures by tech manufacturers in China. Higher wages in China, options available in Southeast Asia, and pressure from overseas clients have prompted many manufacturers in China, including Chinese-owned companies, to relocate part of their supply chains outside of China.
- This provides opportunities for a developing country like Malaysia. But while Malaysia has a reliable electricity supply, high transparency of tariffs, and protection of minority investors, the country's competitiveness still lags behind in regulations and procedures for starting a business, paying taxes, and trading across borders.
- In this context, Penang, despite being crowned as the fastest-growing state in Malaysia, will benefit greatly from improvements in its competitiveness in doing business. The present procedures, required time, and cost of dealing with construction permits and property registration are not among the top in Malaysia.
- At the same time, Malaysia faces tough competition for trade diversion activities from other Southeast Asian countries and India. A significant influx of investments, specifically in sectors such as EVs, solar energy and semiconductors, is seen as pivoting away from China to Vietnam, India and Thailand. It is hoped that the new Industrial Master Plan 2030 will create a world-class and competitive ecosystem in Malaysia and promote future innovation and creativity.

Introduction

Penang's economy achieved record growth in 2022, with its GDP expanding by about 13% to exceed RM100 billion, making Penang Malaysia's fastest-growing state. The increase was largely due to the continued expansion of the electrical, electronic, and optical products subsector, as well as the resurgence of tourism-related subsectors in wholesale and retail trade, accommodation, and food and beverages, which increased by 21.8% and 17.1%, respectively in 2022.

However, will parallel growth continue for the manufacturing sector in 2023? Most indicators show signs that manufacturing activities slowed in the first half of the year. On top of the post-Covid effect on demand for electronic products, rising geopolitical tensions between the US and China have disrupted global semiconductor supply chains. Businesses remain cautious about the new developments in US-China trade policies and their knock-on effects on other regions.

This paper presents the recent manufacturing and trade trends in Penang, discusses conditions for doing business, and explores how trade diversification can benefit Penang's manufacturing industries.

Output, trade and employment trends

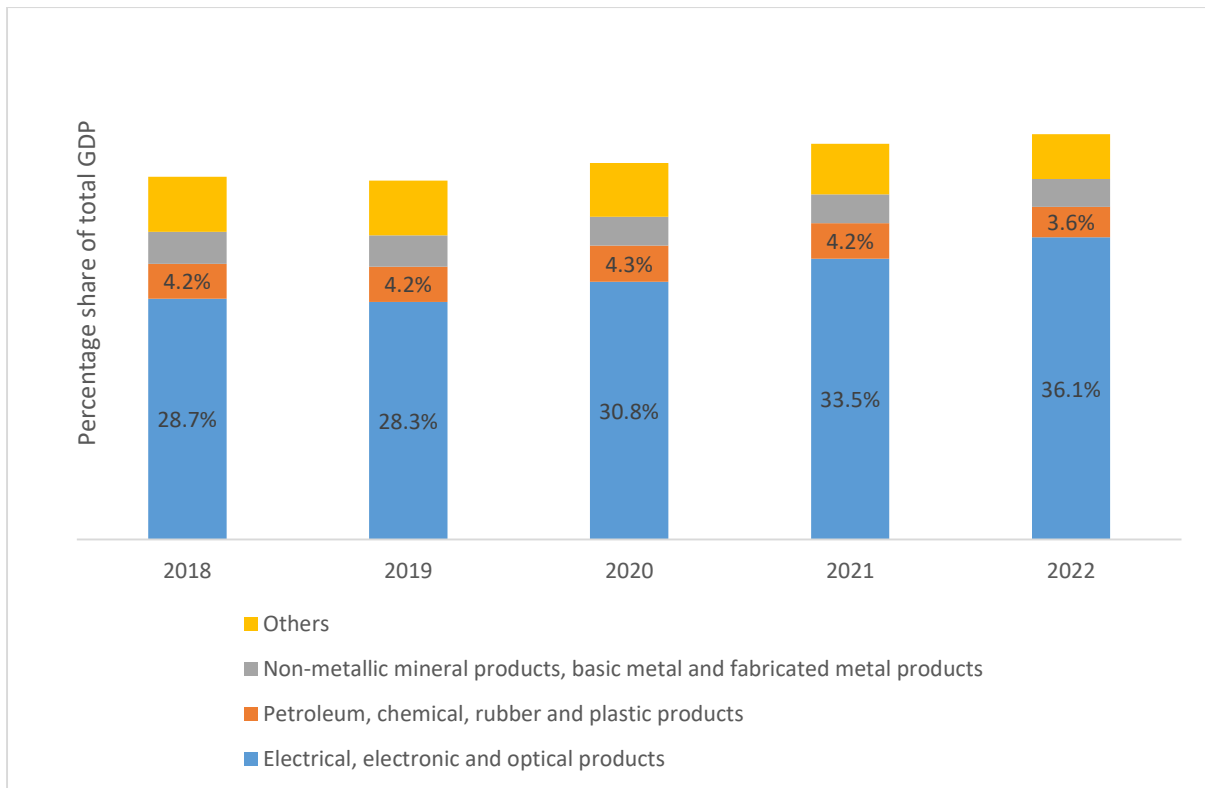
Since the pandemic, Penang's manufacturing sector has gained significant traction in the national economy and in the global manufacturing supply chains. This reflects how strong Penang's manufacturing ecosystem is, particularly with regard to the Electrical & Electronic Products (E&E) industry. With its strong competitive advantage in talent, technology and skills, the state is poised to make deeper footprints in the global manufacturing supply chains.

In the last three years, from 2020-2022, the E&E industry accounted for over 80% of Penang's approved manufacturing investments. Foreign investments contributed almost 98% of this, while domestic investments primarily have been focusing on machinery and equipment. The geopolitical contest between the US and China and the increased demand for electronic products have benefited both local and foreign manufacturers in Penang. These figures demonstrate that Malaysia is favourably placed for trade diversion by new and existing offshore companies.

As Malaysia's second-largest manufacturing state, Penang's contribution increased by 2.1 percentage points, from 12.8% in 2019 to about 15% in 2022. The state's E&E subsector also saw a significant increase of 7.7 percentage points, from 28.3% to 36.1% (Figure 1), consequently raising its share of output within the state's manufacturing sector from 42.8% to 48.3% in 2022, surpassing the services sector at 46.7% in 2022.

Figure 1: Since 2021, the E&E subsector has consistently contributed over one-third of Penang's GDP

The GDP share of the manufacturing subsectors in Penang, 2018-2022



Source: Department of Statistics Malaysia (DOSM).

In 2021, Penang produced the highest value in E&E products of all Malaysian states, accounting for over one-third of the value added in Malaysia's electrical, electronic, and optical products (35.8%). Statistically, each worker in the E&E sector thus produced an average of RM218,817 worth of goods, making E&E the most productive of all manufacturing sectors in Penang.

However, recent geopolitical tensions and a global manufacturing slowdown have raised new challenges. US-China trade tensions have led offshore manufacturers to re-route supply chains, adding to the already weak demand for electronic products in the post-pandemic era. The fear of industrial decoupling threatens to slow economic growth.

In the US, the Institute of Supply Management's (ISM) Manufacturing Purchasing Managers Index (PMI) has fallen below 50 for the past nine months (Figure 2). Demand remains weak, and production has slowed. The readings for new orders, production, inventories and backlog orders are also falling.

Figure 2: ISM PMI is on a declining trend

ISM Manufacturing purchasing managers index, the US, 2019-July 2023



Source: Trading Economics

Likewise, China's buying activities, export sales, and employment show a downward trend. China being one of Malaysia's major trading partners, and the slow growth of the former's economy is expected to affect the latter's production and export performance, particularly with regard to companies with highly integrated global production chains.

Among export-oriented industries, the production index for manufacturing declined 1.6% (YoY) in the second quarter of 2023. Sectors with the biggest drops include rubber products (12.2%), furniture (7.1%), wood products (5.1%), textiles (3.5%), plastic products (3.4%), and computer, electronics and optical products (2%).

Although Malaysia is generally considered a favourable trading partner by most countries, its exports contracted by 4.5% for the first half of 2023, compared to the same period last year. The trade surplus also narrowed by 3.6% to RM118.5 billion, a decrease that can be attributed to subdued agricultural exports in palm oil and palm oil-based products, crude petroleum, natural rubber and timber-based products, following a decline in world commodity prices.

E&E products, which contribute 40.8% of Malaysia's total exports, experienced a marginal acceleration of 1.7%, reaching RM286.8 billion from January to June 2023. This growth was affected by uncertainties in the global semiconductor supply chains, as well as sanctions imposed by the US, China, Japan, the Netherlands and Russia. These global tensions have had ripple effects on Malaysia's trade activities.

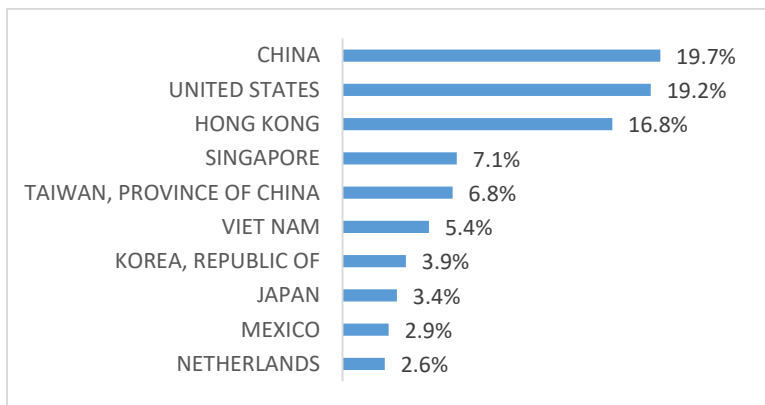
In Penang, the export value declined by 2.7% from January to June 2023 compared to the previous year. Despite this, Penang still sustains the largest export value among all states in Malaysia, while Penang International Airport remains the largest export channel in Malaysia. Exports via Penang's exit and entry points contributed nearly 30% of Malaysia's exports, or about RM210.5 billion, during the first half of 2023.

About 73% of the exports came from the electrical machinery and equipment industry, while 8.7% came from the optical, photographic, medical or surgical instruments and apparatus industry. Another 8.4% of the exports came from the machinery and mechanical appliances industry, primarily from the semiconductor and medical devices sectors.

Penang’s critical position in the global semiconductor supply chains is reflected in its main export destinations. The US remains the largest destination for Penang’s exports at 20.4%, followed by China (18.3%), Hong Kong (14.1%), Taiwan (6.2%), and Singapore (6.2%) from Jan-Jun 2023.¹ Where electrical machinery and equipment is concerned, and over the same period, Penang exported almost an equal share to China and the US, at 19.7% and 19.2%, respectively (Figure 2).

Figure 2: Nearly 40% of Penang’s electrical machinery and equipment exports are to China and the US.

Share of exports for electrical machinery and equipment from Penang by countries, Jan-Jun 2023, per cent



Source: Department of Statistics Malaysia (DOSM).

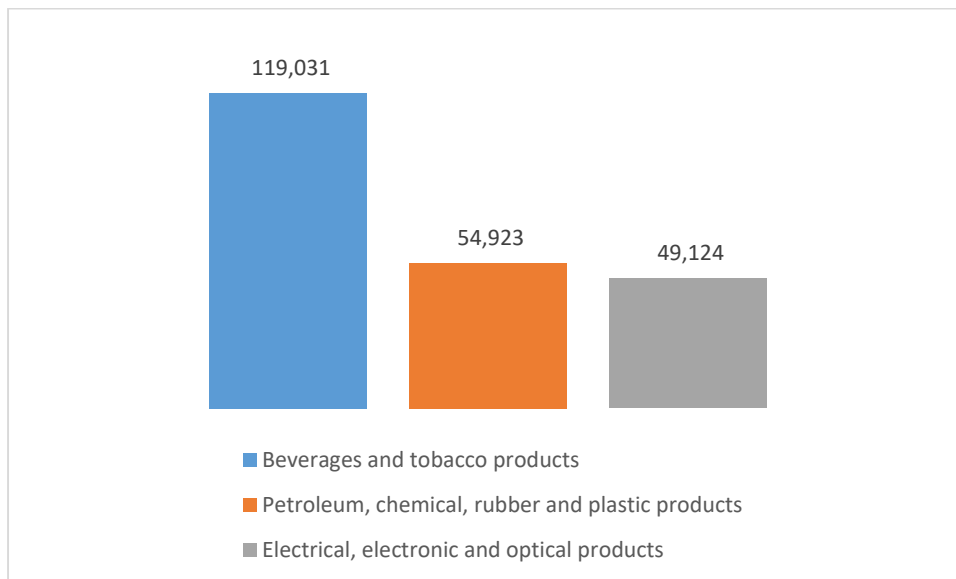
Despite sluggish manufacturing activities, companies are still advertising job openings on the Social Security Organisation (SOCSO)’s MyFutureJobs portal, albeit with signs of slowing. As of June 2023, about 12,200 active job vacancies were available in Penang, with one-third in the manufacturing sector. Loss of employment from the manufacturing sector affected 2,074 people as of August 4, 2023, an increase from 1,232 people in 2022. The rise in layoffs and decline in job openings indicate that the labour market is cooling down. Most importantly, the number of low-skilled job openings remains unchanged while jobs available for semi- and high-skilled workers are rising.

Among manufacturing activities, electrical, electronic, and optical products recorded the third-largest labour productivity in Malaysia, trailing only beverage and tobacco products, and petroleum, chemical, rubber, and plastic products (Figure 3). The value created for each employment slowed in the first quarter of 2023, declining by 2.2% (YoY) to RM49,124, and the value added per hour worked also moderated by 0.9% (YoY) to RM82.80.

¹ Malaysia’s key trading partners have a slightly different structure. Singapore is Malaysia’s main export destination, accounting for 16.1% of its exports, followed by China (13%) and the United States (11%).

Figure 3: Electrical, electronic and optical products registered the third-largest labour productivity in the manufacturing sector.

Value added per employment in Malaysia, Q1 2023, RM



Source: Department of Statistics Malaysia.

Although the prospects for global manufacturing remain weak, manufacturing continues to expand in Penang. For instance, Ericsson, a 5G equipment manufacturer, chose Penang as its first manufacturing facility in Southeast Asia. Enovix Corporation, an advanced silicon battery company, unveiled its plan for a second plant focusing on cutting-edge next-generation battery manufacturing at the Penang Science Park. Coraza Integrated Technology purchased land in Nibong Tebal to expand its production capacity in sheet metal fabrication, precision machining and electromechanical assembly.

The ease of doing business

According to the World Bank’s Doing Business 2020 report, Malaysia ranks 12th in business-friendly regulations, ahead of Thailand, Indonesia, and Vietnam, but behind Singapore (which is ranked 2nd). Malaysia’s competitiveness is boosted by a reliable supply of electricity, high transparency of tariffs, and protection of minority investors in terms of disclosure.

However, Malaysia needs to work harder on streamlining regulations for **starting a business, paying of taxes, and trading across borders**. For instance, it takes a business owner 8.5 procedures to start a business in Malaysia, which takes about 17.5 days to complete. In contrast, Singapore only requires two procedures to start a business, which takes only 1.5 days. Reducing red tape and simplifying procedures is an important step to elevate Malaysia’s competitiveness in doing business.

In Malaysia, 38.7% of profits go towards taxes² compared to 33.6% in East Asia & Pacific, and 21% in Singapore. Malaysia's efficiency in collecting information and computing payable tax is also comparatively lower, as it takes more than three times the hours needed when measured against Singapore.

Regarding the time and cost associated with exporting and importing goods, Malaysia ranks high for the time and cost of documentary compliance. At the same time, border compliance procedures such as customs clearance and inspections need to be sped up. Custom authorities in Malaysia require five hours for completion, which is a great disadvantage when compared for example to Singapore, where only half an hour is needed. Nonetheless, Malaysia possesses the advantage of lower costs of trading across borders.

It should be noted that the efficiency level of custom compliance and clearance depends on the available workforce and how productive are the workers in each port in Malaysia. Customs in some airports perform relatively more efficiently than others.

At the subnational level, streamlining the procedures for dealing with construction permits and property registration is also necessary to increase state-level competitiveness in doing business. Presently, land costs in George Town are higher than in other major cities, and the procedures for completing construction permits and registering properties need a longer time when compared to Kuala Lumpur, Johor Bahru and Kuantan (Table 1).

There are 21 procedures involved in obtaining a construction permit, which includes developmental approval from various government departments, including the water authority, the fire and rescue department, the local council, the sewerage agency and the public works department (Table 2). Penang's 141 days for completion put it at a disadvantage when compared to 136 days for Johor Bahru and 118 days for Kuantan. Regionally, George Town did better than the average of OECD high-income countries.

The number of procedures required is similar across all states in Malaysia, but the time taken to finalise registration processes differ. For example, George Town takes 32 days to complete the procedures, while Kuala Lumpur ranks as the most effective, only needing 16.5 days. George Town also falls behind Johor Bahru, where only 25 days is needed for completion (Table 3).

Importantly, George Town (and Malaysia) falls far behind East Asia & Pacific and OECD high-income countries when it comes to efficiency and costs of doing business. In this sense, the streamlining of business processes and permits is greatly needed in order to increase the country's competitiveness in ease of doing business.

² These include social contributions, corporate income tax, dividends, capital gains, financial transactions taxes, etc.

Table 1: Penang ranked fourth in dealing with construction permits and third in property registration as part of the ease of doing business indicators.

Subnational economy rankings in Doing Business in Malaysia, 2020

Location	Dealing with Construction Permits	Registering Property
George Town	4	3
Johor Bahru	3	2
Kota Kinabalu	5	5
Kuala Lumpur	1	1
Kuantan	2	4
Kuching	6	6

Source: The World Bank Group <https://archive.doingbusiness.org/en/rankings/malaysia>

Table 2: Penang’s number of procedures dealing with construction permits is far above Kuantan and Johor Bahru.

Dealing with construction permits in George Town, 2020

Indicator	George Town	Kuantan	Johor Bahru
Procedures (number)*	21	20	19
Time (days)**	141	118	136
Cost (% of warehouse value)	5.0	1.6	2.0
Building quality control index (0-15)***	13	13	13

Notes: * The total number of procedures required to build a warehouse. A procedure is any interaction of the company’s employees or managers with external parties.

** The total number of days required to build a warehouse. The measure captures the median duration that local experts indicate is necessary to complete a procedure in practice.

*** The building quality control index is based on six other indices – the quality of building regulations, quality control before, during, and after construction, liability and insurance regimes, and professional certifications indices.

Source: Subnational Studies, Measuring Business Regulations, The World Bank Group. Retrieved from <https://subnational.doingbusiness.org/en/data/exploreconomies/malaysia/sub/george-town>

Table 3: More time is needed for property registration in Penang compared to Kuala Lumpur and Johor Bahru.

Registering property in George Town, 2020

Indicator	George Town	Kuala Lumpur	Johor Bahru
Procedures (number)*	8	6	8
Time (days)**	32.0	16.5	25
Cost (% of property value)***	4.4	4.1	4.3
Quality of the land administration index (0-30) ****	26.0	26.5	26.5

*Notes: * The total number of procedures legally required to register property. A procedure is defined as any interaction of the buyer or the seller, their agents (if an agent is legally or in practice required) with external parties.*

*** The total number of days required to register property. The measure captures the median duration that property lawyers, notaries or registry officials indicate is necessary to complete a procedure.*

**** Cost is recorded as a percentage of the property value, assumed to be equivalent to 50 times income per capita. Only official costs required by law are recorded.*

***** The quality of land administration index has five dimensions: infrastructure reliability, information transparency, geographic coverage, land dispute resolution, and equal access to property rights.*

Source: Subnational Studies, Measuring Business Regulations, The World Bank Group. Retrieved from <https://subnational.doingbusiness.org/en/data/exploreconomies/malaysia/sub/george-town>

Industrial decoupling

Geopolitical risks and rising costs from US tariffs and sanctions have caused growing foreign-based and Chinese manufacturers to move part of their supply chains out of China. The China-American technological rivalry has deepened the industrial decoupling at a crucial time. While the Americans have softened their tone to frame these actions as ‘de-risking’, electronics manufacturers have been forced to rethink their dependence on China nonetheless. Three essential factors drive this motivation.

First, the notion of China as a cheap-labour country two decades ago is no longer valid today. The increasing cost of labour prompts overseas tech companies to move part or all of their operations out of China. At the same time, Chinese manufacturers seek an extension of the value chain from China. Chinese manufacturing wages doubled between 2013 and 2022 to an average of US\$8.27 per hour (The Economist, 2023). The average wage level in China is about 2-3 times that of Indonesia (HSBC, 2020), and Malaysia’s manufacturing labour cost grows at marginal rates, presenting opportunities for global tech manufacturers in China to seek alternative manufacturing bases in Southeast Asia.

Second, the distinct resources and strengths in the supply chain ecosystem and a diverse availability of both skilled and trainable workforce have prompted manufacturers to explore alternative manufacturing bases outside of China, while remaining close to their suppliers and consumer market in China. The proximity of Southeast Asia countries to China and the availability of established manufacturing ecosystems in the region make it an even more attractive option for semiconductor firms looking for alternative production sites outside China amid geopolitical uncertainties. The presence of design and development of sophisticated components, product tests and assembly in finished devices in the region has motivated semiconductors to relocate at a competitive cost and in light of the US-China rivalry.

Third, forces from overseas clients and suppliers of global manufacturers pose significant challenges to maintaining production in China. Due to US protection regulations, the Netherlands announced new regulations to restrict the export of specific advanced chipmaking equipment to China (China Daily, 2023). But, Dutch company ASML, the world's key chip equipment producer, thinks self-reliance in chipmaking is very expensive and highlights how challenging it might be to rebuild the already long-time collaboration with global top suppliers (Financial Times, 2023).

The containment measures have slowed the semiconductor industry and jeopardised international economic and trade cooperation,³ further disrupting the global semiconductor supply chains and weakening global economic growth.

Rising regional competition

Malaysia faces tough competition for trade diversion activities from other Southeast Asian countries and from India. Vietnam, for example, has experienced a surge in Chinese investments in solar panel manufacturing, which has also attracted ancillary providers from China. The latter includes Growatt, a power storage firm, and Hangzhou First Applied Material, a solar panel component maker (South China Morning Post, 2023).

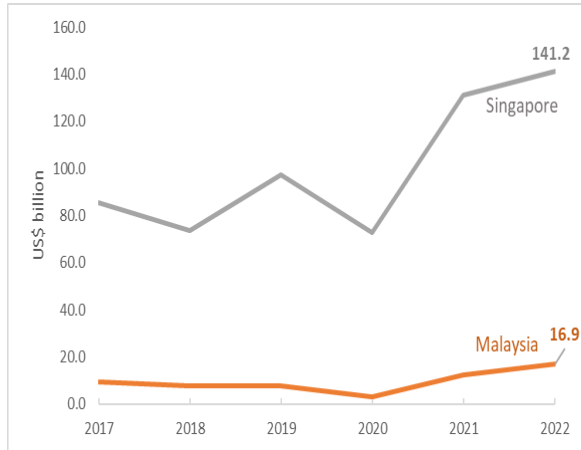
According to The Economist (2023), Sony is moving its production of cameras sold in Japan from China to Thailand. HP, the world's second-largest PC maker, is following Dell's example and shifting millions of commercial notebook, PC and laptop production from China, and its suppliers to Mexico, Thailand, and Vietnam (Nikkei Asia, 2023). Meanwhile, Risen Energy, a solar energy firm in China, invested in a new production facility in Kulim to manufacture high-efficiency photovoltaic modules (UNCTAD, 2023). Eve Energy, a China-based lithium battery maker, is also constructing a manufacturing facility in Kulim to support the production of two-wheeled electric vehicles (EVs) and power tool manufacturing enterprises in the region.

While Malaysia's foreign direct investment (FDI) inflows have risen sharply during the pandemic, the country still lags behind other ASEAN countries on that front. Malaysia is catching up with Vietnam's FDI inflows, but Singapore's FDI inflows have been eight times larger than Malaysia's (Figure 4). Vietnam, in turn, has registered a solid investment trend over the last five years, between \$15 billion and \$18 billion (Figure 5).

³ In early July 2023, China retaliated against the expansion of US-led controls on technology exports by imposing curbs on exports of metals used in chipmaking, such as gallium and germanium. This caused greater disruption to the global supply chain, as Taiwan, South Korea and Japan rely on these materials in semiconductors and electric vehicles (Reuters, 2023).

Figure 4: Singapore remains the largest recipient of FDI in ASEAN.

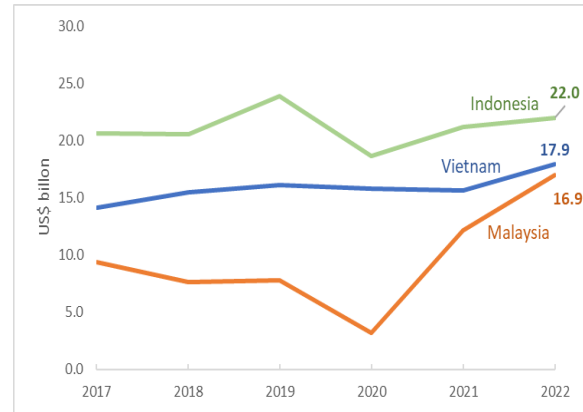
FDI inflows in Singapore and Malaysia, 2017-2022



Source: UNCTAD, 2023

Figure 5: Malaysia’s FDI inflows rose steeply during the pandemic, but the value was still lower than that of Indonesia and Vietnam.

FDI inflows in Indonesia, Vietnam and Malaysia, 2017-2022



According to the World Investment Report 2023, infrastructure, global value chains (GVCs) and chips saw increased investments in 2022, with semiconductors investments rising by 26% globally. The report projects a negative FDI outlook for 2023 due to the challenging global environment for international business and cross-border investment (UNCTAD, 2023).

Vietnam may be a major beneficiary of trade and investment diversion, with its share in US imports rising rapidly (IDE-JETRO, 2022). The country has jumped five places to 19th in the world ranking of FDI inflows.

Vietnam’s manufacturing sector specialising in low-value activities may soon become irrelevant. As more investments pour into Vietnam, and with greater contributions to global supply chains, technological revolutions may converge in the local manufacturing ecosystem to meet future manufacturing needs. Comparatively, Malaysia is more prepared to enter the global supply chains than Vietnam, but Taiwan is ahead in terms of political effectiveness, FDI policy, labour market, infrastructure and technological readiness (Economist Intelligence Unit, 2023). Therefore, Malaysia should leverage the competitive advantage of its established ecosystems and uplift the local capability for further breakthroughs.

The way forward

An improved manufacturing ecosystem is crucial in attracting high-value domestic and foreign investments into Malaysia, in order to create more high-quality jobs, and attract world-class talent. The country must increase its regional competitiveness by benchmarking against best practices in high-income economies to continually put its manufacturing supply chain on the map of global value chains (GVCs). With Biden’s Indo-Pacific Economic Framework (IPEF), global trade and supply chains are

expected to benefit the US and participating countries. This also means that more investments will gradually be diverted from China, benefiting Southeast Asian countries such as Vietnam, Malaysia and Thailand. However, Malaysia must be agile to capitalise on business and investment opportunities and leverage its strengths in automotive, semiconductors, medical devices and renewable energy.

The New Industrial Master Plan (New IMP) 2030, scheduled to be released in September 2023, should include elements of doing business that provide businesses with an exclusive business setup in Malaysia. It should also promote future innovation and invention through close collaboration with industry and universities. It should be noted that multinational corporations (MNCs) in Penang tend to boast more patents with a high level of originality compared to Dublin and Singapore, but they have yet to perform well in university-industry (U-I) linkages (Wong et al., 2021).

Creating a competitive and world-class manufacturing innovation ecosystem will attract high-quality talents worldwide to contribute to the country's productivity. However, this requires cooperation from local and state government offices and policymakers to:

- a. Build and maintain world-class infrastructure for young talents to live, learn, work and play;
- b. Provide highly integrated transport services that connect the mainland and the island;
- c. Simplify business application processes and construction permits; and
- d. Strengthen the connectedness of lifelong learning institutions and industry development.

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