4 Trends and qualities of FDI in Thailand

This chapter examines the performance of Thailand in attracting FDI compared to Asian and OECD peers. It examines the sectoral and geographical composition of both greenfield FDI and cross-border merger and acquisitions. The chapter also analyses how FDI contributes to selected aspects of sustainable development, notably productivity, R&D intensity, skills, wages, gender equality and carbon footprint.

Summary

Thailand has historically done very well in attracting foreign direct investment (FDI). Inward FDI has been an important driver of economic growth since 2000. FDI stocks as a share of GDP increased to 50% by 2017 which is considerably higher than the ASEAN average (excluding Singapore). Due to the COVID-19 pandemic and subsequent economic upheaval, FDI flows are expected to fall.

Thailand is the third major FDI destination in ASEAN, marginally behind Indonesia. In the past ten years, Thailand's FDI share in ASEAN increased from 9% to 11%. Japan, the United States and Singapore account for the bulk of inward FDI stocks, while FDI inflows from other countries, including China, have become more important. Singapore is by far the main investor from ASEAN, accounting for 80% of total FDI stocks from the region. As a share of ASEAN, however, both Thai FDI stocks and flows have fallen steadily over the past two decades. This is partly explained by Cambodia, Lao PDR, Myanmar and Viet Nam (CLMV) which are becoming more important destinations of FDI within ASEAN, due to their low-cost labour and increasingly open investment and trade regimes.

Greenfield FDI dominates in manufacturing, while cross-border M&A deals are more prevalent in services. Sectors targeted under the Thailand 4.0 concept, such as automobiles, electronics and logistics, receive significant shares of FDI, especially greenfield investment, but FDI growth has been modest in most target sectors over the past five years. Foreign activity is concentrated primarily in the Bangkok Metropolitan Area (BMA), the Eastern Economic Corridor (EEC), and the rest of the Centre.

FDI contributes to various aspects of sustainable development, and thus the implementation of the Sustainable Development Goals (SDGs), in Thailand. In most manufacturing and services sectors, foreign firms tend to be more productive, invest more in R&D, pay higher wages, and hire larger shares of skilled workers and women. While these performance premia of foreign firms confirm the importance of the direct contribution of foreign firms to the Thai economy, they may also point to remaining gaps in adequate capabilities of domestic firms, which in turn are an important prerequisite of positive FDI spillovers.

FDI also appears to support shifts of the economy towards higher value added and better paid activities. FDI is prevalent in sectors that are more productive, spend more on R&D, have higher average wages and employ higher shares of skilled labour. Many domestic firms engage in supply and buy linkages with foreign firms in Thailand, suggesting that the positive association between FDI and sustainable development outcomes may be partly due to positive FDI spillovers on domestic firms. In fact, Thai firms that develop linkages with foreign firms are more productive relative to Thai firms that do not.

FDI is also found to support the greening of the economy in Thailand. As in most ASEAN Member States (AMS), FDI is concentrated in less polluting and more energy-efficient sectors. Foreign firms are on average less energy-intensive than Thai firms, especially in high-tech sectors.

Policy directions

Some policy directions are formulated based on the results presented in this chapter. They will be further discussed in other chapters of this Review.

- The assessment shows that targeted sectors under Thailand 4.0 attract relevant shares of FDI, especially greenfield investment. However, the growth of both greenfield FDI and cross-border mergers and acquisitions (M&A) stocks in target sectors have been modest over the past years, suggesting that there is potential to further expand FDI in those sectors. Chapter 5 focuses on Thailand's investment promotion and facilitation strategy and discusses efforts to promote investment in targeted activities.
- Inward FDI is highly concentrated in terms of origin: Japan, the United States and Singapore account for the bulk of total inward FDI stocks. High reliance on FDI from a small group of investors has increased Thailand's vulnerability to changes in economic conditions in those countries.

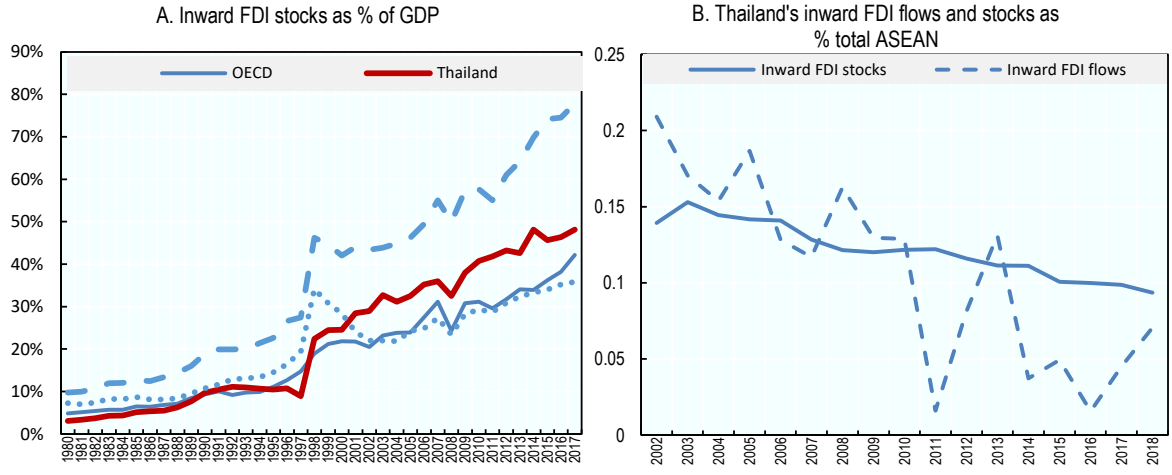
Targeting FDI from other countries, especially from the ASEAN region, is therefore important to reduce the country's exposure to external shocks.

- FDI contributes unevenly to the development of Thai regions: foreign investors are mainly located in BMA, EEC and the rest of the Centre. Chapter 5 will discuss current policy efforts to attract domestic and foreign investment in laggard regions.
- Foreign firms tend to outperform Thai firms in many areas. They are more productive, employ higher shares of skilled workers and tend to spend more on R&D. While these premia are generally explained by higher technology intensity of foreign firms, as found in many countries, if too large they may denote a lack of domestic capabilities. Benefits from FDI are not automatic and domestic firms must possess some basic skills and knowledge to benefit from the presence of foreign firms. Strengthening domestic firms' capabilities requires policy efforts in different areas including improving human capital development, boosting innovation, and engaging in responsible business conduct (Chapter 9).
- Thailand attracts FDI in less polluting and more energy efficient sectors, while overall, Thai firms are on average more energy-intensive than foreign firms, especially in high-tech sectors. These results suggest that there is the potential to enhance the environmental performance of Thai firms in many sectors, including by leveraging FDI. Chapter 10 focuses on policy considerations to enhance investment for green growth.

Thailand has historically been successful in attracting FDI

In Thailand, as in other ASEAN Member States, inward FDI stocks increased considerably in the mid-1980s. This rise was due to the government's export-led growth strategy, which was accompanied by a gradual reduction of tariffs and export taxes. FDI stocks surged also following the Plaza Accord in 1985, which led to a devaluation of the baht relative to the US dollar and other Asian currencies (Chapter 2). From 1980 to the mid-1990s, FDI stocks relative to GDP increased from 3% to above 10% (Figure 4.1, Panel A).

Figure 4.1. FDI stocks have increased steadily since 1980, but recently FDI flows have fallen



Source: OECD based on World Bank and UNCTAD

During the 1997 Asian Financial Crisis FDI stocks as a share of GDP declined slightly, but grew quickly in the following years. As in other AMS, inward FDI growth was driven primarily by an increase in M&As, as foreign firms acquired assets from Asian companies that faced severe debt and liquidity problems (UNCTAD, 2000). FDI has been an impressive growth driver from 2000 onwards. By 2017, FDI stocks relative to GDP were at almost 50%, considerably higher than average levels in ASEAN (excluding Singapore).

The global economic crisis of 2007-08 affected Thailand less than other relatively advanced AMS, particularly Singapore and Malaysia. Inward FDI stocks kept rising in absolute terms during this period, but declined slightly as a share of GDP going from 36% to 32%. Between 2013 and 2015, a period of political instability, FDI stocks as a share of GDP decelerated although they have since recovered. Due to the COVID-19 pandemic and resulting global economic turmoil, FDI flows are expected to decline in Thailand as well as in most AMS (Box 4.1).

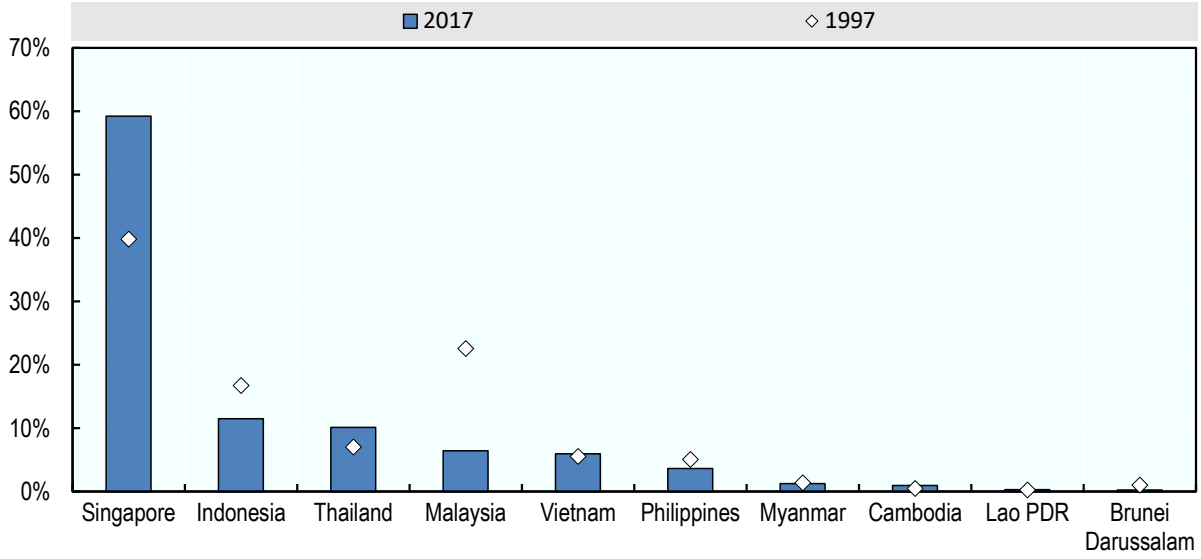
As a share of total FDI in ASEAN, however, both FDI stocks and flows in Thailand have fallen steadily over the past two decades (Panel B). This is partly explained by Cambodia, Lao PDR, Myanmar and Viet Nam (CLMV) becoming more important destinations for FDI within ASEAN, due to their low-cost labour and increasingly open investment and trade regimes.

In 2017, Thailand ranked as the third largest FDI destination in the ASEAN region, marginally behind Indonesia. Despite intensified regional competition for FDI, Thailand's inward FDI stocks as a share of total ASEAN stocks increased from 9% to 11% between 1997 and 2017 (Figure 4.2).[1] Over the same period, the share of Singapore increased by almost 20 percentage points, while the shares of Malaysia and Indonesia declined by 16 and 5 percentage points, respectively.

A small group of countries is responsible for the bulk of inward FDI in Thailand. Japan, the United States and Singapore jointly account for more than 60% of total inward FDI stocks (Figure 4.3, Panel A). More recently, FDI from Hong Kong (China), Canada, China, and Germany has become relatively more important.

Figure 4.2. Thailand is an important FDI destination in ASEAN

Inward FDI stocks (% in ASEAN total)

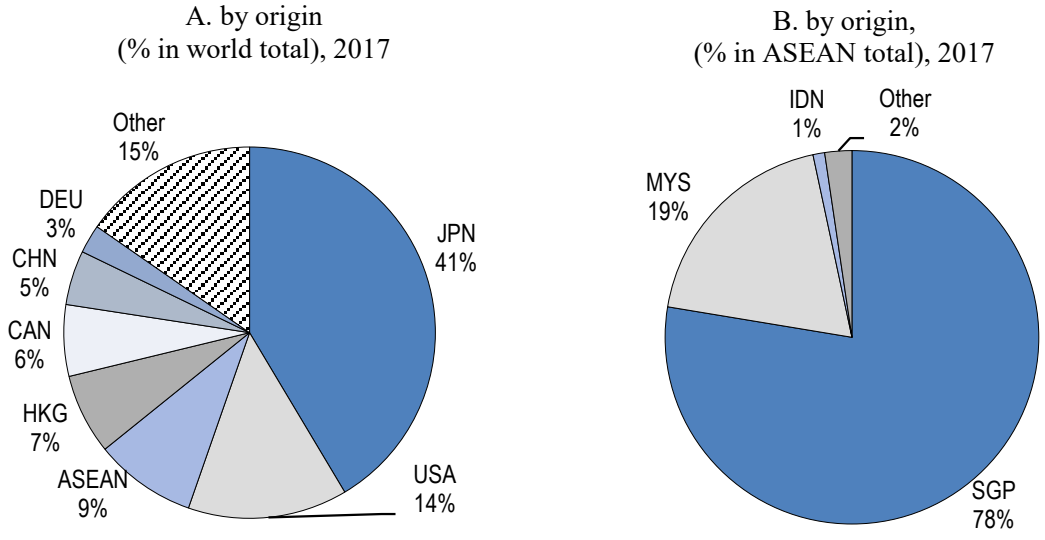


Source: OECD based on UNCTAD

Singapore is by far the largest investor from ASEAN, accounting for almost 80% of total FDI stocks from ASEAN (Panel B), although not all investment from Singapore is by Singapore-owned companies, as foreign MNEs also invest in Thailand, as well as in other countries in the region, through their Singapore operations (ASEAN, 2018). FDI from other AMS remains modest. Malaysia and Indonesia are the second and third largest investors from ASEAN, respectively. Together, they represented just 2% of Thailand's total inward FDI stocks in 2017.

Figure 4.3. Japan, the United States and Singapore are the main investors in Thailand

Cumulative sum of FDI flows between 2010 and 2017



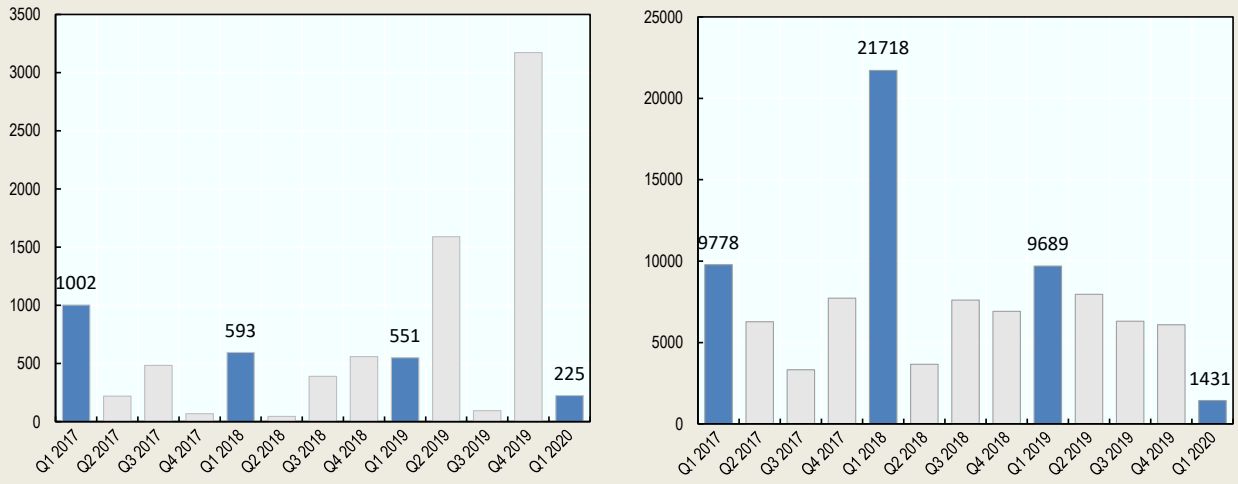
Source: OECD based on Bank of Thailand

Box 4.1. The impact of the COVID-19 pandemic on FDI flows in Thailand

Global FDI flows are expected to fall sharply as a consequence of the COVID-19 pandemic and the resulting supply disruptions, demand contractions, and uncertainty. OECD projections show that, even under the most optimistic scenario, global FDI flows will likely fall by at least 30 percent in 2020 compared to 2019 before returning to pre-crisis levels by the end of 2021 (OECD, 2020). The decline in FDI is expected to be even stronger in developing countries because sectors that have been severely affected by the pandemic represent a larger share of their FDI. The immediate impact on FDI flows will stem from a reduction in reinvested earnings, although equity capital flows will also be affected as companies put some M&As and greenfield projects on hold (OECD, 2020).

The latest data on cross-border M&As from the Refinitiv database show a significant drop in completed deals in the first quarter of 2020 in both Thailand and ASEAN as a whole (Figure 4.4). In Thailand, the value of cross-border M&As dropped by 60% relative to the first quarter of 2019 and by 63% relative to the first quarter of 2018. This decline was even sharper in ASEAN, where the value of cross-border M&A deals fell by 85% and 93% compared to the first quarters of 2019 and 2018, respectively.

Figure 4.4. Value of completed M&A deals, 2018-2020

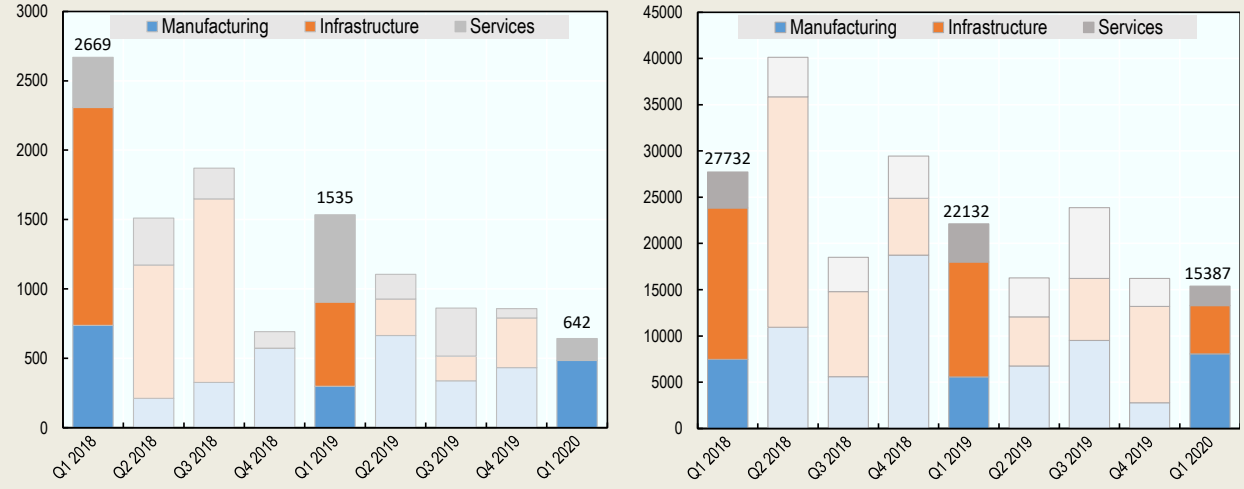


Source: OECD based on Refinitiv M&A database

The latest data on greenfield FDI from the Financial Times' fDi Markets database provide further evidence that investors are becoming more hesitant to explore new investment opportunities owing to the pandemic. In Thailand, the value of greenfield FDI pledges in the first quarter of 2020 dropped by 58% relative to 2019 and by 76% relative to 2018. This decline was less sharp in ASEAN, where FDI pledges decreased by 32% compared to 2019 and 46% compared to 2018 (Figure 4.5). A sectoral breakdown of greenfield investments shows that, both in Thailand and in ASEAN, infrastructure (construction, energy and ICT infrastructure) and services suffered the largest decline. Conversely, announced projects in manufacturing increased relative to 2019.

Figure 4.5. Value of announced greenfield investments by sector, 2018-2020

Announced capital expenditure, USD millions



Note: Infrastructure includes construction, energy and ICT infrastructure.
Source: OECD based on Financial Times fDi Markets (2020).

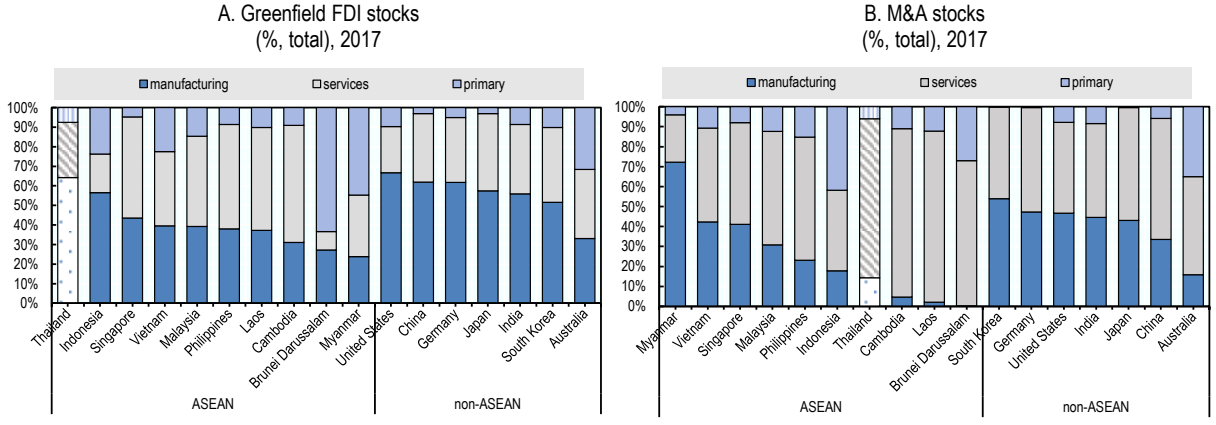
Greenfield FDI dominates manufacturing while M&A is prevalent in services

Greenfield investment and cross-border M&As are two important forms of direct investment undertaken by foreign firms. In Thailand, greenfield FDI is most prevalent in manufacturing (Figure 4.6, Panel A).[2] Its share of manufacturing in total greenfield FDI is the highest in the ASEAN region, but similar to that of other economies including the United States, China and Germany. Thailand's greenfield FDI in manufacturing is mainly explained by the dominance of Japanese firms, which have established operations in the automobile value chain and other industries since the mid-1980s.

The sectoral distribution of cross-border M&A reveals a different picture: only 15% of cross-border M&A goes to manufacturing (Panel B). Thailand's share is smaller than in most advanced ASEAN and non-ASEAN countries. Conversely, the share of services in cross-border M&A is significantly higher than in greenfield FDI. While services M&As tend to prevail over manufacturing in most countries, Thailand has one of the highest shares in services in the region.

The relative importance of cross-border M&A in services might be overstated in Thailand, as well as in other AMS. With a growing importance of services for value creation in manufacturing, a high services share in cross-border M&A may capture in part the services content of increasingly important regional value chains in manufacturing (ASEAN, 2017).

Figure 4.6. Greenfield FDI goes primarily to manufacturing, while M&A deals are prevalent in services

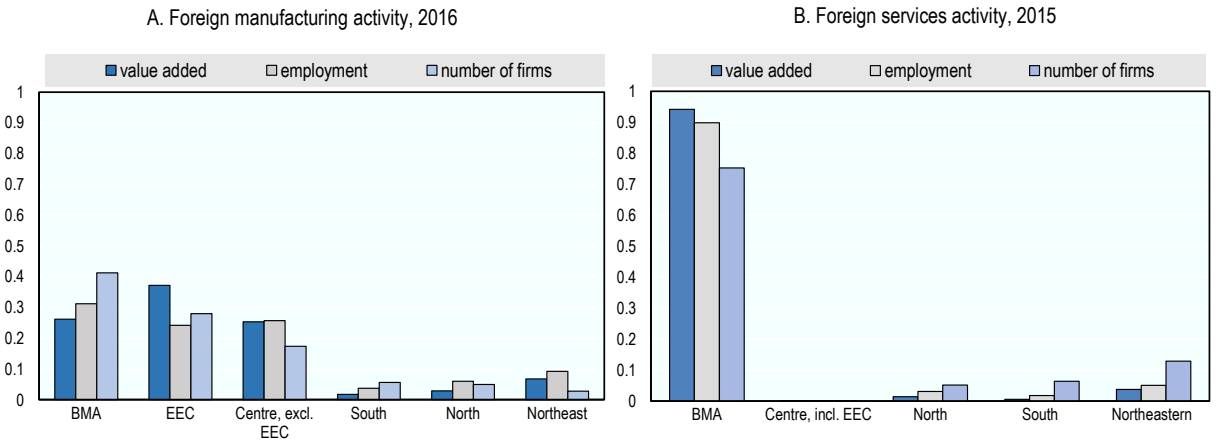


Note: Greenfield FDI data do not include agriculture.
Source: OECD based on Financial Times's fDi markets and Refinitiv M&A database.

…and manufacturing and services FDI is highly concentrated within Thailand

With respect to dispersion of FDI within Thailand, data show that foreign manufacturing activity, whether measured by value added, employment or number of firms, is concentrated in just three sub-national regions (Figure 4.7): Bangkok Metropolitan Area (BMA), Eastern Economic Corridor (EEC), and the rest of the Centre. Foreign activity in selected services is even more concentrated: above 70% of foreign services providers are located in BMA.[3] In addition, they account for about 90% of both total foreign services value added and foreign services employment. The high concentration of foreign firms in those regions is explained by economies of agglomeration such as better infrastructure, greater supply of labour, and accumulation of knowledge and skills.

Figure 4.7. Foreign activity is concentrated in BMA, EEC and the Centre



Note: BMA = Bangkok Metropolitan Area; EEC = Eastern Economic Corridor. Services include trade, hospitality and professional services.
Source: OECD based on Thailand's Industrial Census and Business Trade and Services Survey

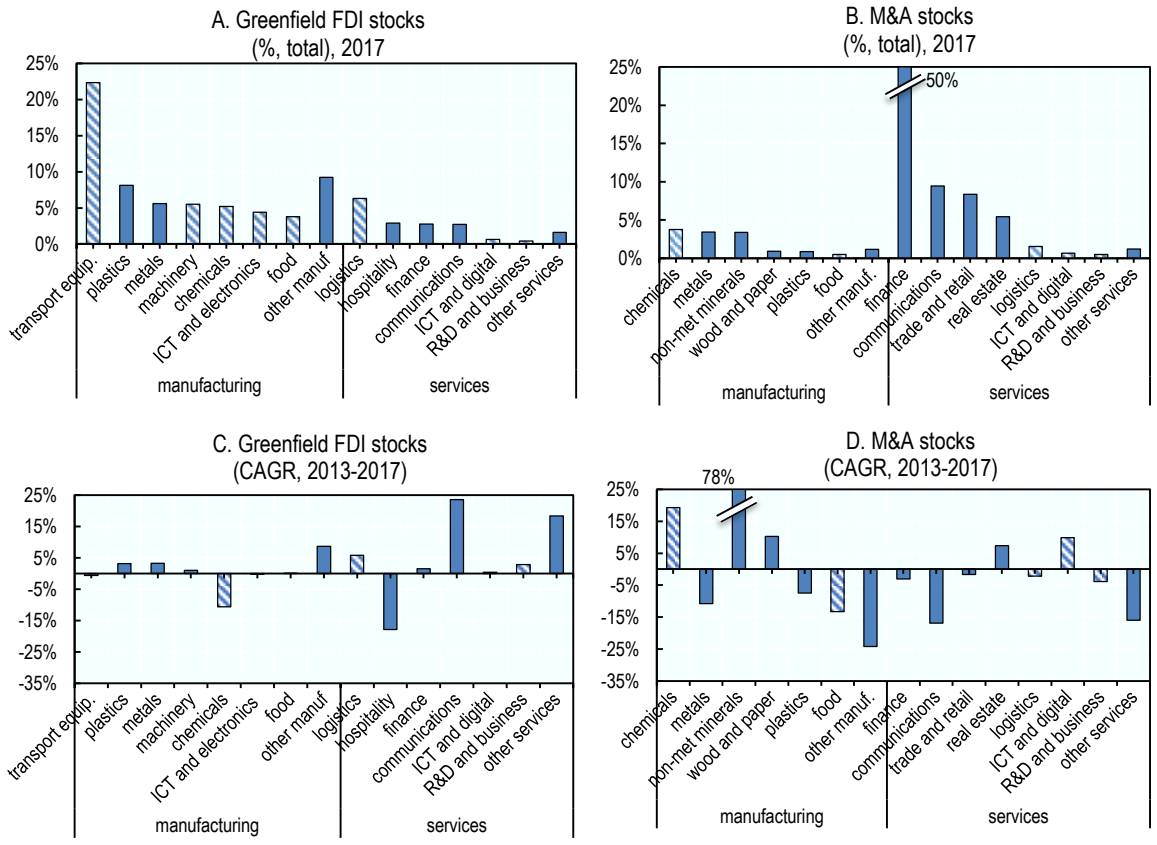
Modest FDI growth in sectors which Thailand would like to develop further

Key engines of growth and productivity in the Thailand 4.0 strategy comprise several manufacturing industries, namely (bio) fuels, (bio) chemicals, electronics, automotive, machinery (robotics), and food (Chapter 2). Activities targeted in those sectors cannot be singled out in broad FDI classifications, and they are not clearly defined in official documents. Nevertheless, assessing FDI trends in those broad industries provides an indication of the ability of Thailand to develop economic activity in those sectors, including by attracting foreign investors. Besides this set of manufacturing industries, Thailand 4.0 also promotes services activities that are important for advanced manufacturing production (e.g. ICT services and R&D) and some backbone services (e.g. logistics).

The data show that about half of greenfield FDI stocks are concentrated in approximated target sectors (Figure 4.8, Panel A). Transport equipment accounts for the largest share (22%), followed by machinery (5%), chemicals (5), ICT and electronics (4%) and food (4%). With the exception of logistics (6%), small shares are found in target services, namely ICT and digital (0.7%) and R&D and business (0.4%). The share of M&A stocks concentrated in approximated target sectors is modest (Panel B). Chemicals has the largest share (3.7%), followed by food (0.5%).

Growth rates of greenfield FDI and cross-border M&A deals in approximated target sectors and other target services indicate Thailand's performance in attracting foreign investors in sectors highly prioritised in its development strategy. Over 2013-17, the growth of greenfield FDI stocks in target sectors was modest or even negative (Panel C). Exceptions include logistics as well as R&D and business services where greenfield FDI stocks increased at an annual rate of 6% and 3%, respectively. During the same period, M&A stocks decreased in most target sectors and key services, with the exception of chemicals (20%) and ICT and digital (10%) (Panel D).

Figure 4.8. FDI growth was modest in approximated target sectors



Note: CAGR: compound annual growth rate. See calculation details here: https://www.investopedia.com/ terms/c/cagr.asp. Bars with diagonal stripes indicate targeted sectors under Thailand 4.0.
Source: OECD based on Financial Times's fDi markets and Refinitiv M&A database

The contribution of FDI to sustainable development in Thailand

Besides providing a source for financing, FDI may support sustainable development in the host country. FDI can contribute to the diversification of the economy; the provision of technology and knowledge; the development of the host country's skills base; a boost of productivity, and the establishment of linkages with local firms, which help them to access new markets and integrate in global value chains. Aside from the pure economic benefits, FDI can also support social and environmental goals, for instance by promoting responsible business conduct and the use of cleaner technology.[4]

The rest of this chapter investigates how FDI contributes to selected aspects of sustainable development (i.e. the Sustainable Development Goals, SDGs) highlighted in Thailand's current development model (Thailand 4.0). Thailand 4.0 aims to transform the country into a value-based economy where economic growth and living standards are driven by innovation, technology and talent. The model further addresses social and environmental challenges, including reducing social disparity, improving the education system, curbing CO_2 emission and increasing the country's ability to adjust to climate change. The analysis makes use of the new OECD FDI Qualities Indicators (Box 4.2).

Box 4.2. The OECD FDI Qualities Indicators

The OECD FDI Qualities Indicators describe how FDI relates to specific aspects of sustainable development in host countries. An in-depth assessment of all 17 SDGs, and their corresponding targets, was undertaken to identify the full spectrum of FDI Qualities – that is, areas where FDI may contribute to achieving the SDGs. This assessment further considers the extent to which FDI's potential for advancing the SDGs is reflected in the OECD Policy Framework of Investment (PFI), including related frameworks and guidelines, such as the OECD Guidelines on Multinational Enterprises and the OECD Policy Guidance for Investment in Clean Energy Infrastructure.

The FDI Qualities Indicators currently focus on five clusters; namely, productivity and innovation, employment and job quality, skills, gender equality, and carbon footprint. These clusters have been selected in consultation with various stakeholders of the FDI Qualities Policy Network, which includes policymakers, the private sector, the civil society, international organisations and the academia. For each of the five clusters, a number of different outcomes are identified and used to produce indicators that relate them to FDI or activity of foreign multinationals, allowing for comparisons both within and across clusters so as to identify potential sustainability trade-offs.

Taking into account the country-specific context, policymakers can use the FDI Qualities Indicators to assess how FDI supports national policy objectives, where challenges lie, and in what areas policy action is needed. Indicators also allow cross-country comparisons and benchmarking against regional peers or income groups, which, taking into account the country context, can help to identify good practices and make evidence-based policy decisions. Annex 4.A provides details on the methodology.

The OECD work on FDI Qualities will continue expanding over the next years. Main activities will include to develop an FDI Qualities Policy Toolkit to provide policy directions for the implementation of specific policy objectives; namely in the area of FDI (i) as a driver of productivity and innovation, (ii) an enabler of decent work (job quality, skills, gender inclusion), and (iii) a catalyst of climate change mitigation. The work aims at deepening the understanding of FDI Qualities and impacts in existing clusters through additional indicators and empirical analysis and measuring FDI Qualities in additional SDG-based clusters (such as agriculture, infrastructure, and income inequality).

Source: OECD (2019), FDI Qualities Indictors: Measuring the sustainable development impacts of investment, OECD Publishing, Paris, http://www.oecd.org/investment/fdi-qualities-indicators.htm

Foreign firms contribute positively to economic and social outcomes

Descriptive statistics show that affiliates of foreign firms established in Thailand perform better than Thai firms. Foreign manufacturers are larger and more productive than their Thai peers: on average they employ 12 times more workers and have 15 times higher sales (Table 4.1). They pay higher wages and hire more skilled workers. Foreign manufacturers are also more integrated in GVCs, as shown by their higher export and import intensities. Foreign services providers also appear to have a premium relative to domestic firms; they report higher sales and employment, pay better wages, and are more productive.

Table 4.1. Foreign firms perform better than Thai firms

Differences between foreign and domestic firms in Thailand, comparative statistics

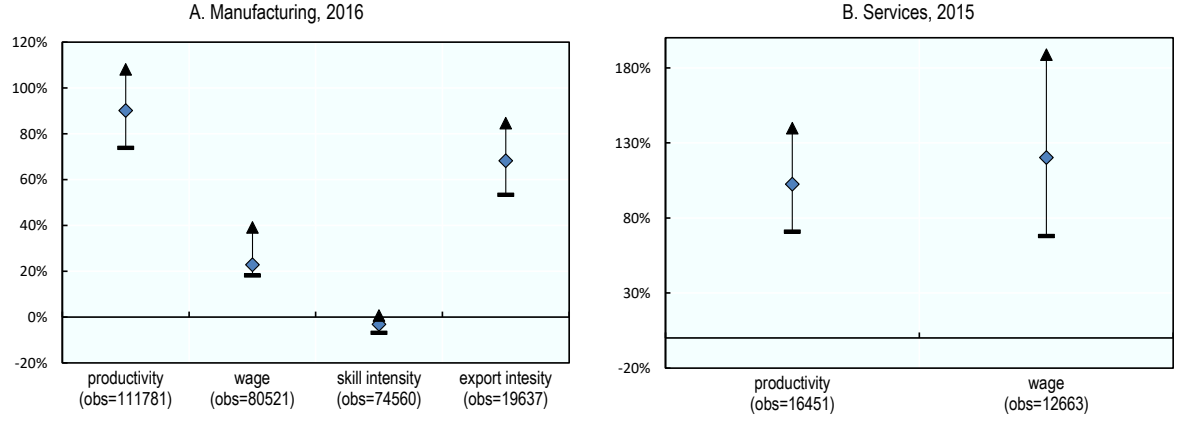
	Manufacturing (2016)		Services (2015)	
	Domestic	Foreign	Domestic	Foreign
Sales (in mln USD)	3.4	51.3	3.2	31.9
Number of workers	25.8	317.2	12.6	54.9
Average wage (USD)	2238	6860	12118	31093
Skilled workers (% of total number of workers)	38.5	56.7	-	-
Labour productivity (USD)	15602	64721	29700	95032
Export intensity (%)	43.6	53.2	-	-
Import intensity (%)	39.6	45.1	-	-

Note: Labour productivity: value added per employee; Export intensity: share of production that is exported; Import intensity: share of intermediate inputs that are imported.
Source: Thailand's Industrial Census and Business Trade and Services Survey

The positive contribution of foreign firms to the Thai economy holds even when controlling for firm size and sector-specific factors. Empirical analysis suggests that foreign ownership is significantly and positively associated with firm productivity, wages and export intensity independent of firm size and sector (Figure 4.9, Panel A). Foreign ownership is associated with 90% higher productivity in manufacturing, more than 20% higher wages, and about 70% higher export intensity. But foreign ownership has no significant impact on the share of skilled workers, possibly suggesting that firm scale and sector-specific factors are more relevant to explain differences in skill intensity between domestic and foreign firms. Foreign ownership is also significantly and positively correlated with productivity and wages in a sample of services firms (Panel B). Foreign ownership raises productivity of services providers by 100% and their wages by 120%.

Figure 4.9. Foreign ownership has a significant and positive effect on firm performance

Impact of foreign ownership on firm performance



Note: The figures show percentage impacts estimated from regression models and their respective 95% confidence interval. Dependent variables (e.g. productivity) are in logarithms. Foreign ownership is a dummy variable that takes value 1 if the investor owns directly 10% or more of the ordinary shares or voting power and 0 otherwise. All regressions control for firm size and sector fixed effects.
Source: OECD based on Thailand's Industrial Census and Business Trade and Services Survey.

There are a number of reasons why foreign firms may perform differently than domestic firms. The theoretical literature for instance predicts that, due to the fixed cost of investing abroad, foreign firms tend to be larger and more productive than purely domestic firms (Melitz, 2003; Helpman et al. 2004). Another argument emphasises the notion of foreign firms being technologically more advanced than domestic firms. This argument is backed by several empirical studies, which find that foreign firms tend to have a productivity premium over domestic firms (OECD, 2019).

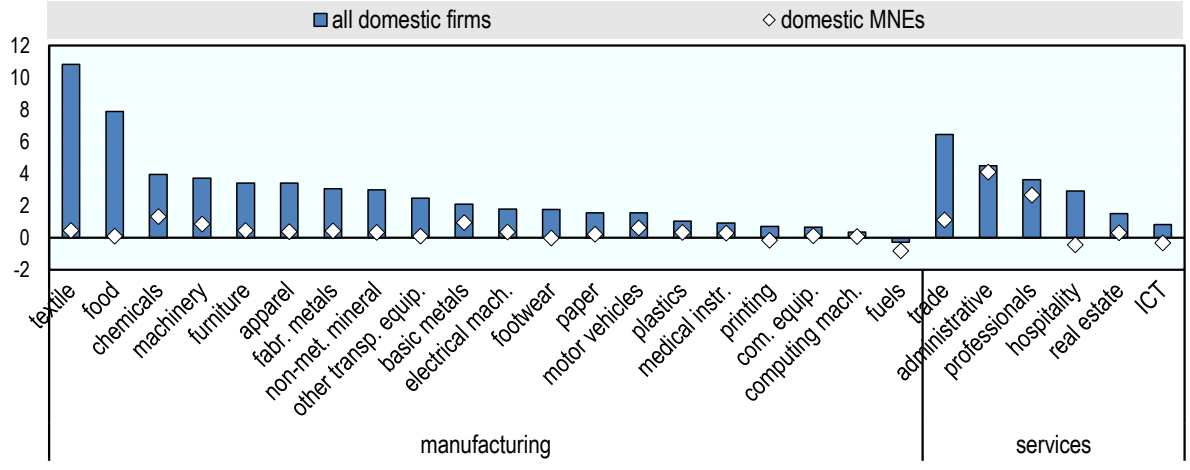
Foreign firms' contribution to productivity varies considerably across sectors

A key objective of Thailand 4.0 is to boost productivity in existing manufacturing capabilities. An indicator compares the productivity performance of foreign and domestic firms, providing an indication of the direct contribution of foreign firms to domestic productivity. The indicator shows that foreign firms enjoy a productivity premium across most manufacturing sectors (Figure 4.10). Foreign premiums are larger in low-tech sectors, namely textile and food, possibly due to the higher capital intensity of foreign firms in those sectors. For instance, in textile, foreign firms are more than 10 times as productive as Thai firms, whereas in computing machinery, a more technology-intensive sector, the productivity premium of foreign firms is much lower. Productivity differences are significantly lower when comparing foreign firms with domestic multinational enterprises (MNEs)[5], which suggests that firm size is an important factor of firm-level productivity.

Foreign services firms are, on average, also more productive than Thai firms. The largest productivity premium is observed in trade where foreign firms are 7 times as productive as Thai firms, while the smallest is found in ICT services where foreign firms are half as productive. In several services sectors, namely trade, administrative activities, and professional services, a foreign productivity premium exists even when comparing foreign firms only with domestic MNEs.

Figure 4.10. Foreign firms are more productive than domestic firms in most sectors

Are foreign firms more productive than domestic firms? (yes if value >0; no if value <0)

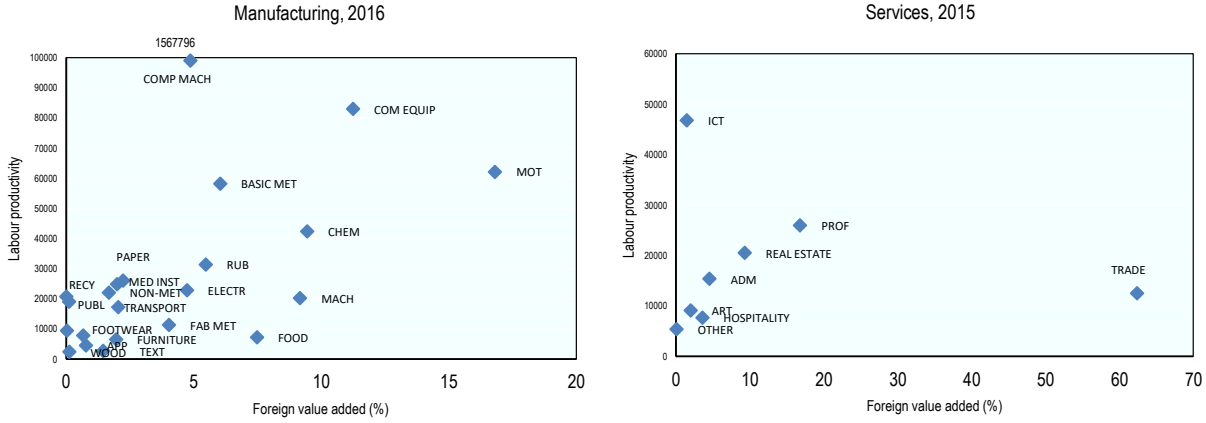


Note: The chart shows a type 1 indicator, see Box 4.2 for a description of the methodology. Labour productivity: value added per employee. Tobacco, wood, recycling, arts and other services are not shown as the sample of foreign firms contains less than 10 observations. Domestic MNEs are domestic companies with more than 200 employees. Services include trade, hospitality and professional services.
Source: OECD based Thailand's Industrial Census and Business Trade and Services Survey

Foreign firms' productivity premia across sectors confirm a direct and positive contribution of foreign firms to the Thai economy. At the same time, large productivity differences between foreign and domestic firms may show a lack of domestic capabilities. In the economic literature, the productivity gap between foreign and domestic firms is often used as a proxy for absorptive capacity, which is the ability of domestic firms to use and absorb technology and knowledge from foreign firms (OECD, 2019).

Plotting sectoral FDI data (measured by the share of total foreign firm value added) and labour productivity shows whether FDI is concentrated in more (or less) productive sectors. The results show that FDI is concentrated in relatively more productive sectors, namely motor vehicles, communication equipment, and chemicals (Figure 4.11). These sectors are more productive due to their higher technology intensity. A higher concentration of FDI in more productive sectors is found also in services, albeit with some exceptions. For instance, ICT services are significantly more productive relative to other sectors, nevertheless the amount of FDI going to this sector is modest. On the contrary, trade appears to be less productive than other services sectors, but it captures a large share of FDI.

Figure 4.11. FDI is concentrated in sectors that are more productive



Note: Labour productivity: value added per employee. Services include trade, hospitality and professional services
Source: OECD based on Thailand's Industrial Census and Business Trade and Services Survey.

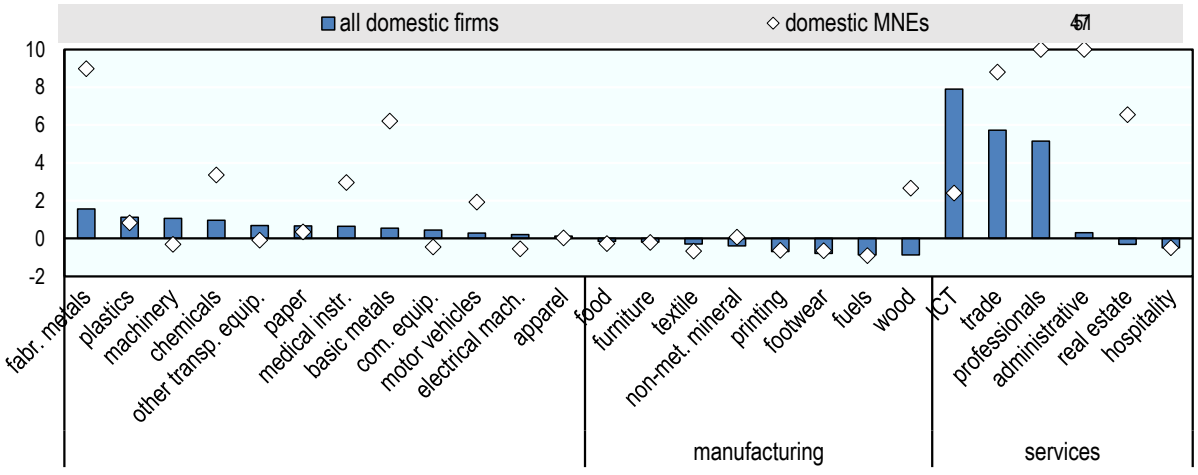
Foreign firms invest more in R&D, especially in high-tech sectors

Thailand 4.0 emphasises the importance of innovation and investment in research and development (R&D) for supporting productivity growth and shifts towards higher-value added activities. Existing studies provide mixed evidence on the contribution of FDI to innovation and R&D in host countries (OECD, 2019). Better access to capital and knowledge through the parent company may induce foreign subsidiaries to invest more in R&D compared to domestic firms. On the other hand, foreign subsidiaries may have access to technologies from the parent company, which may reduce the incentive to spend on R&D. Apart from spending on R&D, foreign firms may also support innovation in host countries by transferring technology and knowledge to domestic firms.

An indicator compares R&D performance of foreign firms to that of domestic firms and shows that foreign firms tend to spend more on R&D than domestic firms, especially in high-tech sectors (Figure 4.12). A R&D premium of foreign firms is found in several services sectors including ICT, trade and professional services. Conversely, foreign firms are less R&D-intensive compared to domestic firms in low-tech sectors. Considerable foreign premia also exist relative to domestic MNEs in some high and medium-tech sectors (fabricated metals, chemicals, medical instruments, basic metals, motor vehicles) and most services sectors.

Figure 4.12. Foreign firms spend more on R&D in higher value added sectors and in services

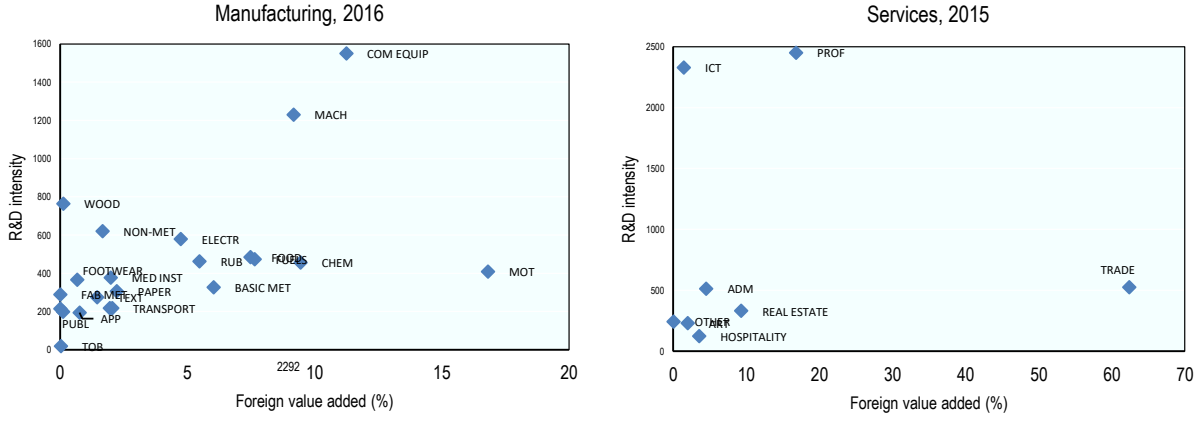
Do foreign firms spend more on R&D per employee relative to domestic firms? (yes if value >0, no if value <0)



Note: The chart shows a type 1 indicator, see Annex 4.A for a description of the methodology. In services, R&D expenditure includes training costs. Tobacco, computing machinery, recycling, arts and other services are not shown as the sample of foreign firms contains less than 10 observations. Domestic MNEs are domestic companies with more than 200 employees. Services include trade, hospitality and professional services.
Source: OECD based Thailand's Industrial Census and Business Trade and Services Survey.

FDI also plays an important role for boosting Thailand's innovation capacity as it is concentrated in sectors that spend more on R&D (Figure 4.13). The positive relationship between FDI and R&D intensity holds both for manufacturing and services. High-tech sectors such as communication equipment, machinery, chemicals receive higher shares of FDI and are also more R&D-intensive relative to low-tech sectors, for instance textile and footwear. Within services, ICT and trade are two exceptions. ICT has a high R&D intensity but attracts less FDI and the opposite holds for trade.

Figure 4.13. FDI is prevalent in sectors that spend more on R&D

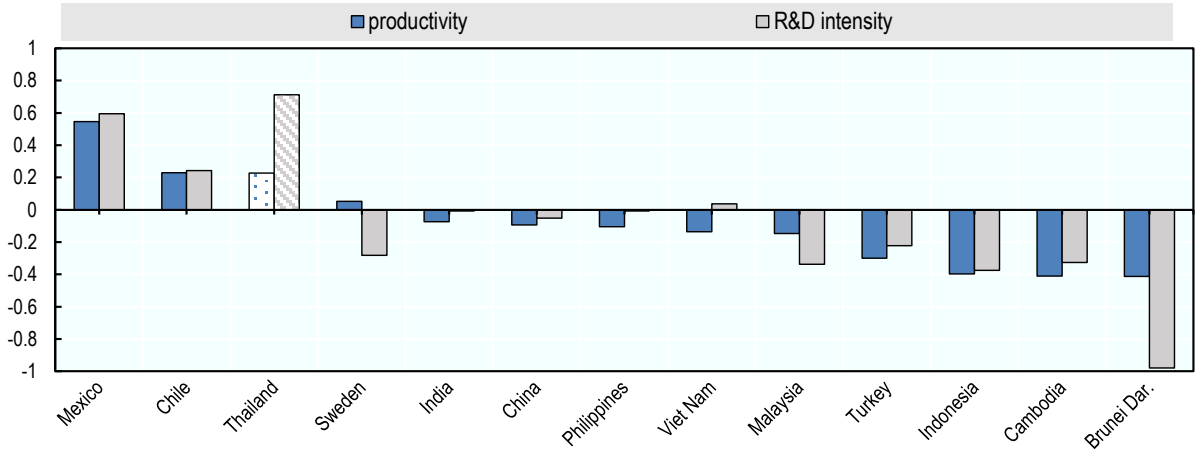


Note: R&D intensity: expenditure on R&D per employee. In services, R&D expenditure includes training costs. Services include trade, hospitality and professional services.
Source: OECD based on Thailand's Industrial Census and Business Trade and Services Survey.

A positive relationship between FDI, productivity and R&D intensity is also found in several OECD economies, particularly Mexico and Chile (Figure 4.14). By contrast, FDI is prevalent in less productive and innovative sectors in regional peers including China, the Philippines, Malaysia, Indonesia, Cambodia and Brunei Darussalam.

Figure 4.14. FDI is concentrated in less productive and less R&D-intensive sectors in other countries in the region

Is FDI concentrated in more productive/R&D intensive sectors?



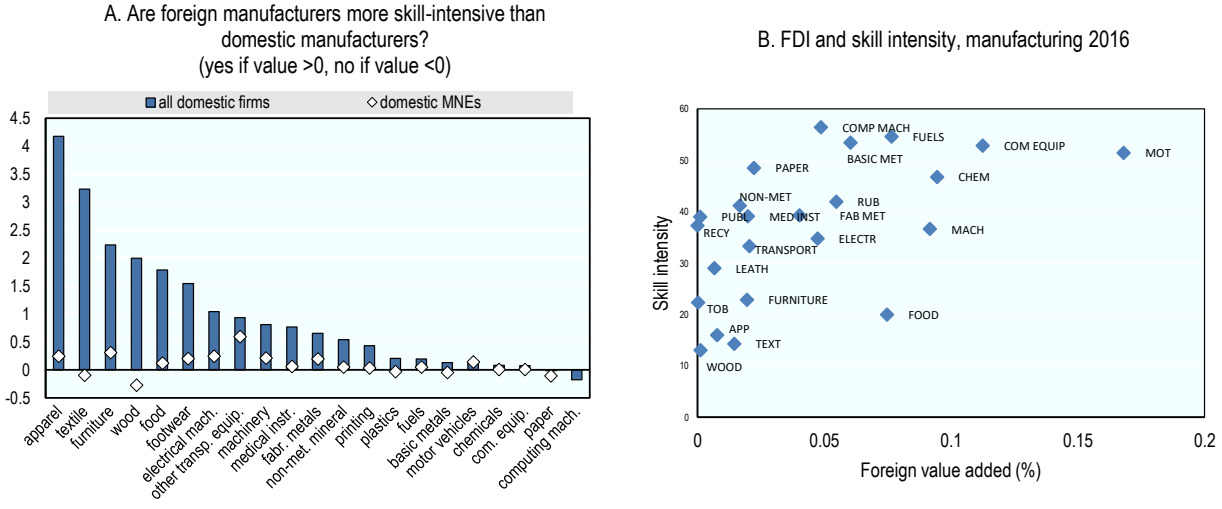
Note: The chart shows a type 2 indicator, see Box 4.2 for a description about the methodology. Labour productivity: value added per employee; R&D intensity: share of firms that invest in R&D.
Source: OECD based on World Bank Enterprise Survey.

FDI contributes to skill development in Thailand

Enhancing skills is high on Thailand's policy agenda. Skills are key for an economy which seeks to grow based on innovation and to compete in higher value added activities (Chapter 3 and 5). They are also important to reduce social disparities and provide equal opportunities to all members of society. A vast body of research shows that foreign firms tend to be more skill-intensive relative to local firms, due to their higher technology intensity, and that they often bring technology which are complementary to skills (i.e. skill-biased technical change). Case studies also show that foreign firms often contribute to skill development in host countries by providing training to their employees or to the employees of domestic partner companies, for instance to ensure the quality and reliability of inputs (OECD, 2019).

The indicators confirm the presence of skill premia of foreign firms in most manufacturing sectors (Figure 4.15, Panel A). They are, however, much smaller or even negative when comparing foreign firms with domestic MNEs. This finding is consistent with the evidence that foreign ownership has no significant effect on the share of skilled labour, once differences in firm size are accounted for (Figure 4.9). Furthermore, foreign skill premia are larger in low-tech industries namely apparel, textile, wood. Sectors with higher foreign skill premia are also those with larger foreign productivity premia (Figure 4.10). Additionally, FDI is more prevalent in manufacturing sectors that employ higher shares of skilled workers (Figure 4.15, Panel B). As expected, these are sectors with higher technology intensity, which are also more productive and innovative.

Figure 4.15. Foreign manufacturers have a skill premium and operate in more skill-intensive sectors

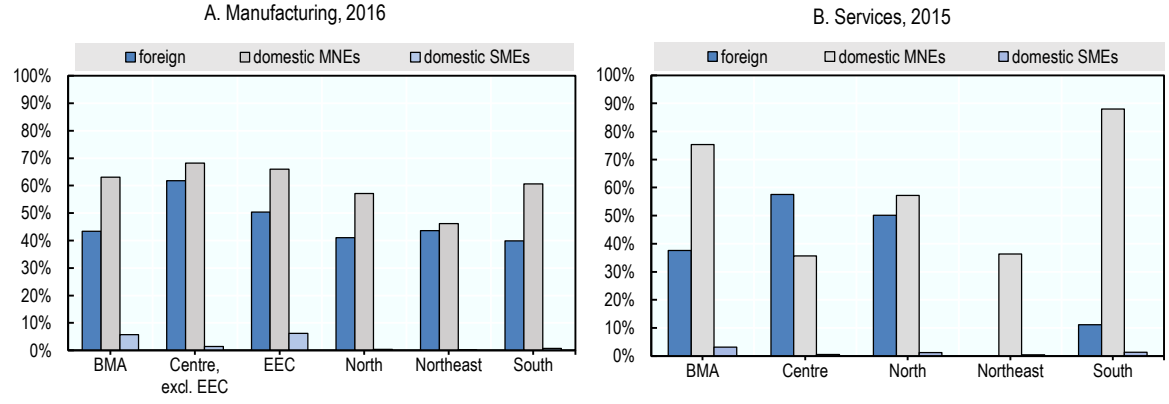


Note: The chart in Panel A shows a type 1 indicator; the chart in Panel B shows a type 2 indicator, see Annex 4.A for a description of the methodology. Domestic MNEs are domestic companies with more than 200 employees. Tobacco and recycling are not shown as the sample of foreign firms contains less than 10 observations. Panel B: Skill intensity: share of skilled workers over total workers.
Source: OECD based on Thailand's Industrial Census.

The indicators also show that foreign firms contribute significantly to skill development in Thailand. Over 40% of foreign firms in manufacturing report investing on staff training across all Thai regions (Figure 4.16, Panel A). This share is considerably higher than that reported by domestic small and medium enterprises (SMEs), although smaller than that of domestic MNEs. Such differences are not surprising, as foreign firms tend to be larger and, therefore, may have more resources to budget training activities than smaller firms. In the case of Thailand, the legal requirement introduced by the Skill Development Promotion Act B.E. 2002 according to which establishments with at least 100 employees must provide in-house training, also explains the observed differences between SMEs and large firms.[6] The share of foreign services providers with expenditure on training is also above 40% in most regions (Panel B).

Figure 4.16. Across most regions, over 40% of foreign companies report investing on staff training

Firms with expenditure on training (% total)



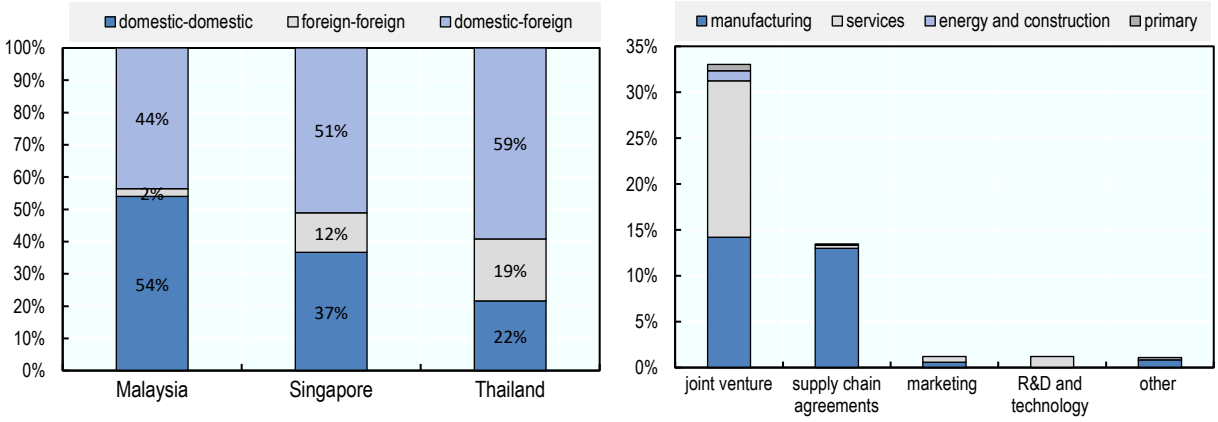
Note: In services, R&D expenditure includes training costs. Services include trade, hospitality and professional services
Source: OECD based on Thailand's Industrial Census and Business Trade and Services Survey.

Thai firms with foreign business linkages are more productive

Business linkages between foreign firms and domestic firms can be an important channel for the transfer of technology, knowledge and skills. Business linkages can take many forms. They may involve partnerships formalised with contracts such as joint ventures, contract manufacturing, marketing agreements, R&D collaborations as well as less formal agreements like technical support or training offered as part of supply-chain arrangements. Business linkages can benefit local firms in multiple ways: they enable them to acquire new technology, develop new skills including managerial skills, create new products, improve the quality of existing products, and reduce costs through better allocation of resources (OECD-UNIDO, 2019).

Close to 60% of the reported partnerships in Thailand over 2010-16 were between foreign and domestic companies (Figure 4.17, Panel A). This share is larger than in Singapore (51%) and Malaysia (44%). Joint ventures are the most frequent form of partnerships between foreign and domestic firms (Panel B), which could be partly driven by foreign equity restrictions required by the Foreign Business Act (Chapter 6). Supply-chain agreements are also observed relatively often, while other forms of partnerships (including marketing and R&D and technology collaborations) are reported less frequently. Joint ventures are chosen by both manufacturing and services companies but R&D and technology agreements are used exclusively by services providers.

Figure 4.17. The share of partnerships between domestic and foreign firms is higher in Thailand than in Malaysia and Singapore



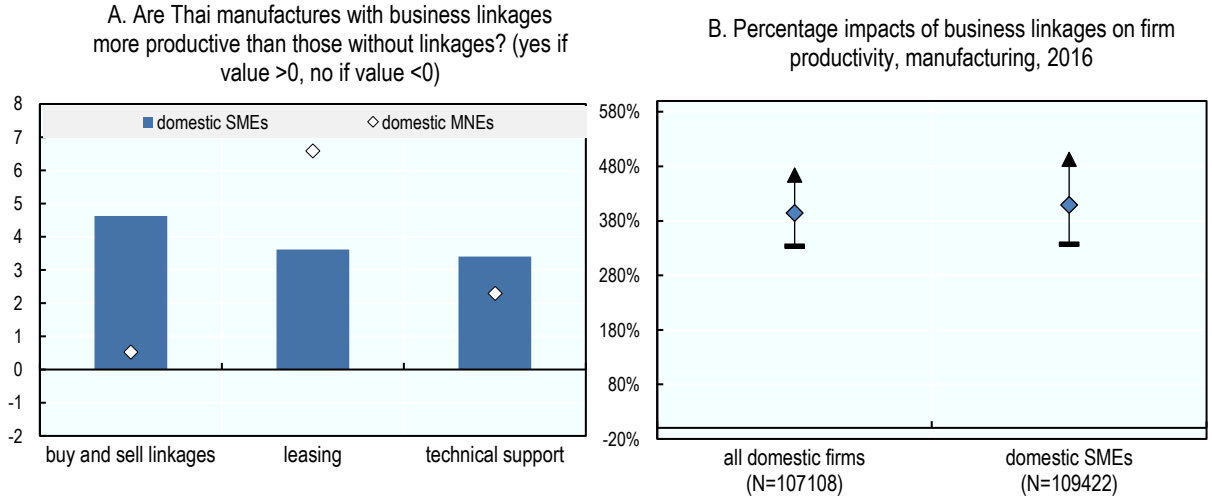
Note: The sample for Thailand includes 240 alliances between companies developed during the period 2010-2016. For Singapore the sample includes 180 alliances, while for Malaysia 211 Joint venture: an entity created by two or more companies to undertake a specific investment project, generally characterized by shared ownership. Supply chain agreements: contracts between two or more companies to agree on supply and buy commitments. Marketing: contracts between two or more companies to collaborate on marketing, branding and advertising activities. R&D and technology: contracts between two or more companies to carry out research and development, generally for new product development.
Source: OECD based Thomson Reuters's strategic alliances database.

Furthermore, Thai firms that develop business linkages with foreign firms have, on average, a productivity premium relative to Thai firms that do not (Panel A, Figure 4.18). Thai firms that are able to establish linkages with foreign firms are most likely those that have higher capacities and are thus more productive even before engaging in linkages. Linkages may further enhance their performance through knowledge transfers. Thai SMEs that develop buy and sell linkages are 6 times as productive as Thai SMEs without linkages. Similarly, Thai SMEs that engage in leasing contracts with foreign firms are 5 times as productive, whereas those that received technical support from foreign firms are 4 times as productive. With the exception of leasing, smaller productivity premiums are found for Thai MNEs that develop foreign linkages,

possibly suggesting that productivity gains related to business linkages with foreign firms are smaller for large firms.

Empirical analysis confirms the positive correlation between foreign business linkages and Thai firms' productivity (Panel B). In particular, foreign business linkages are found to increase productivity of Thai firms by almost 390%. The magnitude of the impact is even higher for domestic SMEs, 410%, consistent with the above finding that domestic SMEs with linkages experience higher productivity gains than large domestic companies.

Figure 4.18. Business linkages with foreign firms have a positive effect on Thai firms' productivity



Note: Panel A: The chart shows a type 1 indicator, see Annex 4.A for a description of the methodology. Buy and sell linkages: agreements to buy or sell intermediate inputs and services. Leasing: contracts by which an owner of a specific asset (e.g. land) grants a second party the right to its exclusive possession under agreed terms. Technical support: forms of assistance such as staff training or quality support assistance. Panel B: The figure shows percentage impacts estimated from regression models and their respective 95% confidence interval. Dependent variables are in logarithms. Business linkages is a dummy variable that takes value 1 if the company has a linkage with a foreign company and 0 otherwise. All regressions control for sector fixed effects. Domestic SMEs are domestic companies with less than 200 employees.
Source: OECD based on Thailand's Industrial Census.

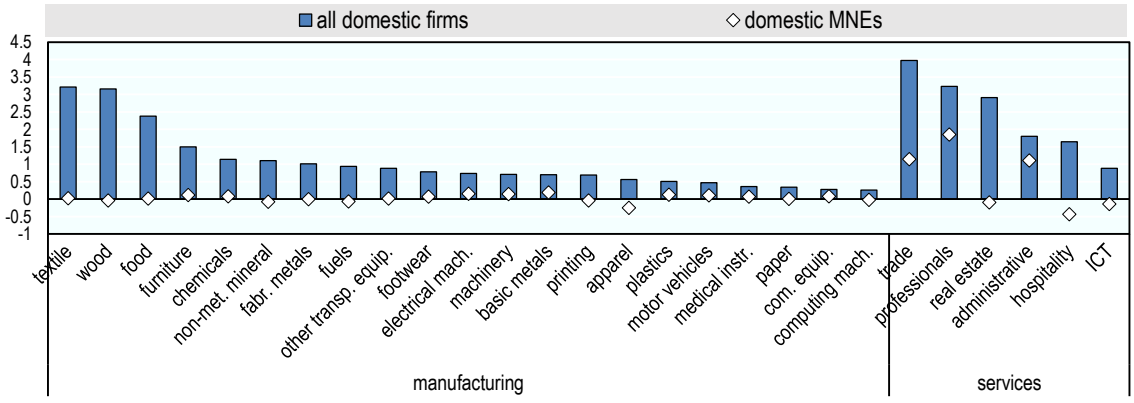
Foreign firms pay higher wages and employ more women

The importance of decent work, including adequate wages and gender equality, is embedded in the SDGs and well reflected in the objectives of social well-being and raising human capital under the Thailand 4.0 concept. A large body of empirical evidence shows that foreign companies may affect labour market outcomes in host countries, including workers' earnings and gender outcomes (OECD, 2019).

With respect to workers' earnings, the indicators show that foreign firms pay higher wages than Thai firms across all manufacturing sectors (Figure 4.19). Foreign wage premia are higher in low-tech sectors. For instance in food, foreign firms pay 4 times higher wages relative to domestic firms (foreign firms have a wage premium of 3), while in motor vehicles foreign firms pay 50% higher wages than domestic firms. The wage premia of foreign firms are smaller or even negative compared to domestic MNEs. Foreign firms are also paying higher wages in selected services. They are higher in trade, professional services and real estate and in most services sectors they exist also relative to domestic MNEs. As expected, foreign wage premia tend to mirror foreign productivity premia: sectors where foreign firms are more productive are also those where they pay higher wages relative to domestic firms.

Figure 4.19. Foreign firms have a wage premium in all sectors

Do foreign firms pay higher wages relative to domestic firms? (yes if value >0, no if value <0)

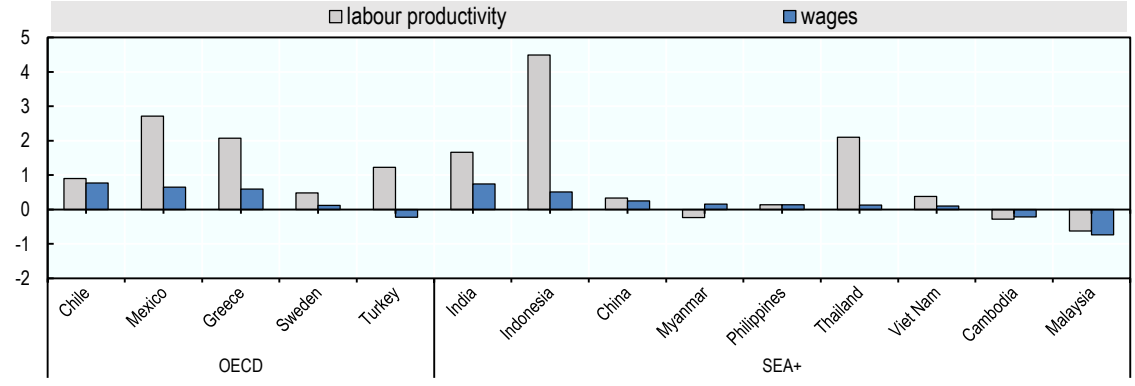


Note: The chart shows a type 1 indicator, see Annex 4.A for a description of the methodology. Wages: average wage per employee. Domestic MNEs are domestic companies with more than 200 employees. Apparel, recycling, arts and other services are not shown as the sample of foreign firms contains less than 10 observations.
Source: OECD based Thailand's Industrial Census and Business Trade and Services Survey.

Foreign firms also enjoy a wage premium in other Asian and OECD countries (Figure 4.20). For instance in India and Indonesia, foreign firms pay on average 50% higher wages than their domestic peers. The premium is smaller in other Asian countries, including Thailand where foreign firms pay on average 20% higher wages. Overall, the wage differences between foreign and domestic firms mirrors important productivity gaps observed in these countries: the larger the productivity gap between foreign and domestic firms, the higher the wage premium of foreign firms. In some countries, including Thailand, the productivity premium is considerably higher than the observed wage premium, showing that a foreign productivity premium may not automatically translate into higher wages for workers – although other factors such as capital intensity may also explain this discrepancy.

Figure 4.20. In most regional peers foreign firms enjoy a wage premium

Do foreign firms are more productive/ pay higher wages relative to domestic firms? (yes if value >0, no if value <0)

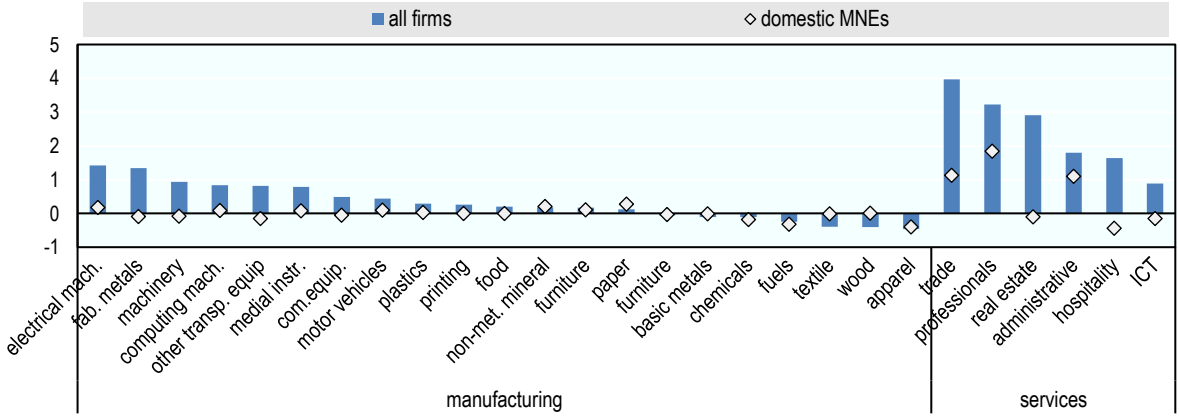


Note: The chart shows a type 2 indicator, see Annex 4.A for a description of the methodology. Labour productivity: sales per employee; Wage: average labour cost per employee. SEA +: South East Asia countries including India and China.
Source: OECD based on the World Bank Enterprise Survey.

With respect to gender equality, foreign firms tend to employ higher shares of women relative to Thai firms, except in several low-tech sectors (footwear, textile, wood and apparel) and chemicals (Figure 4.21). Differences in female employment shares between foreign and domestic firms are higher in high-tech sectors. For instance in electrical machinery, the share of female workers in foreign firms was twice as high as in Thai firms, compared to a 50% premium in food. Foreign firms have considerably higher shares of women in services. As expected, differences in female employment shares are smaller between foreign companies and domestic MNEs.

Figure 4.21. Foreign firms employ larger shares of women in high-tech sectors and in services

Do foreign firms employ larger shares of women relative to domestic firms? (yes if value >0, no if value <0)



Note: The chart shows a type 1 indicator, see Annex 4.A for a description of the methodology. Domestic MNEs are domestic companies with more than 200 employees. Recycling, arts and other services are not shown as the sample of foreign firms contains less than 10 observations.
Source: OECD based Thailand's Industrial Census and Business Trade and Services Survey.

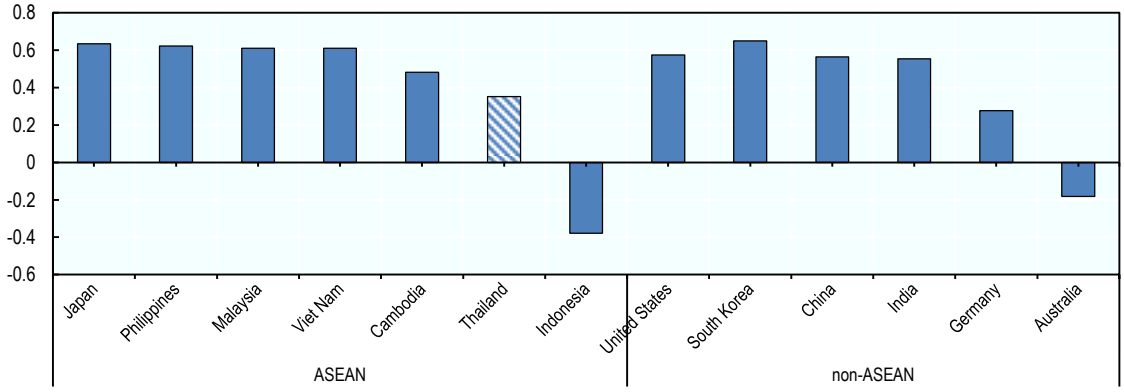
FDI is prevalent in cleaner and less CO_2-emitting sectors

Rapid industrialisation and urbanisation have increased environmental pressures in Thailand (Chapter 2 and 10). Despite some progress in terms of environmental performance, several challenges remain, including curbing CO_2 emissions, mitigating floods, and managing land and water resources (OECD, 2018), and promoting renewable energy to keep up with rising energy demand. The protection of the environment is a key objective of Thailand 4.0. The strategy envisages the development of an economy that is capable of adjusting to climate change and supports a low carbon society.

An indicator examines whether greenfield FDI is found in sectors that generate higher (or lower) CO_2 emissions per unit of output, relative to the overall economy (Figure 4.22). It shows that in most ASEAN countries, including Thailand, FDI is prevalent in cleaner sectors in terms of CO_2 emissions. Exceptions include resource-rich countries like Indonesia and Australia. For instance, in Indonesia a large share of FDI goes to iron and steel manufacturing (22%).

Figure 4.22. In Thailand, FDI is concentrated in less emitting sectors

Is greenfield FDI concentrated in sectors that generate less CO2 emissions? (yes if value >0, no if value <0)

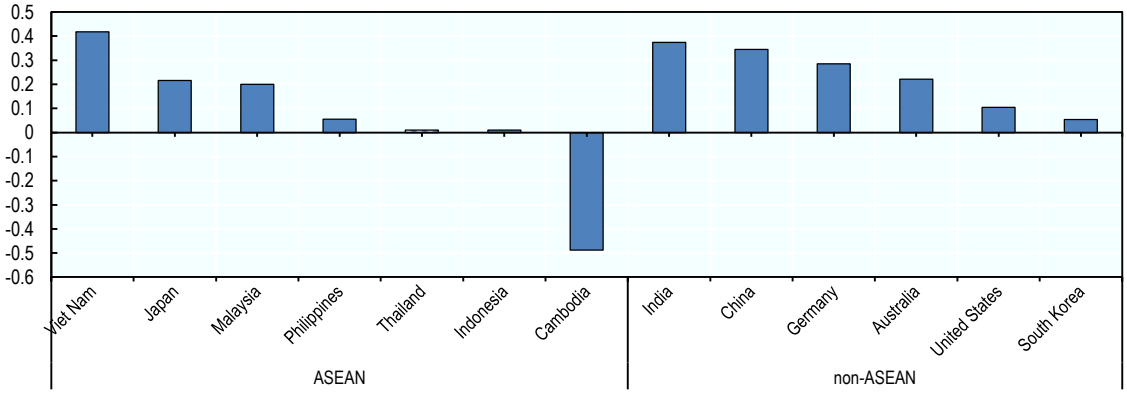


Note: The chart shows a type 2 indicator, see Annex 4.A for a description of the methodology.
Source: OECD based on Financial Times' fDi Markets database; OECD Input-Output Tables; International Energy Agency's World Energy Statistics and CO2 Emissions database.

Increasing energy efficiency is essential to mitigate climate change in the long run, especially with rising global energy demand. Another indicator shows the extent to which FDI is concentrated in more (or less) energy-efficient sectors (i.e. sectors with lower sales per energy cost) (Figure 4.23). In most ASEAN countries, FDI is prevalent in more energy efficient sectors. In Thailand and Indonesia, however, the correlation between sectoral FDI and energy efficiency is broadly absent. In Cambodia, the relationship is even negative, that is, FDI is concentrated in relatively less energy efficient sectors, relative to the rest of the economy.

Figure 4.23. In most ASEAN countries FDI is prevalent in more energy-efficient sectors

Is FDI concentrated in activities which are more energy efficient? (yes if value>0, no if value<0)

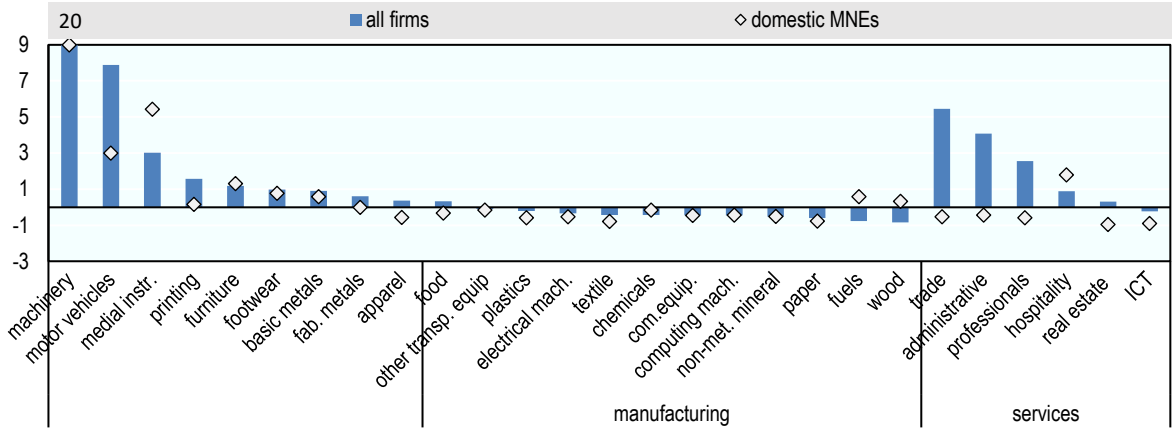


Note: The chart shows a type 2 indicator, see Annex 4.A for a description of the methodology. Energy efficiency: sales over electricity and heat costs.
Source: OECD based on Financial Times' fDi Markets database; OECD Input-Output Tables; International Energy Agency's World Energy Statistics and CO2 Emissions database.

An indicator based on firm-level information allows to see whether foreign investors raise energy efficiency in Thailand, for example by bringing cleaner or energy-saving technologies. The indicator compares energy efficiency of foreign firms with Thai companies across both manufacturing and services. The results show that foreign firms are more energy efficient than Thai firms, especially in higher value added sectors, namely machinery, transport equipment and medical instruments, but they tend to underperform Thai firms in low-tech sectors, notably wood, paper, textile (Figure 4.24). Foreign firms are more energy efficient than Thai firms in all services sectors. When taking into account differences in firm size, such foreign environmental premia decrease in most sectors with several exceptions, including machinery, motor vehicles a medical instruments.

Figure 4.24. Foreign investors are more energy efficient in high-tech sectors and services

Are foreign firms more energy-efficient than Thai firms? (yes if value >0, no if value<0)



Note: The chart shows a type 1 indicator, Annex 4.A for a description of the methodology. Domestic MNEs are domestic companies with more than 200 employees. Tobacco, recycling, arts and other services are not shown as the sample of foreign firms contains less than 10 observations.
Source: OECD based Thailand's Industrial Census and Business Trade and Services Survey.

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Annex 4.A. FDI Qualities Indicators: Methodology

Three types of indicators relating FDI to sustainable development have been developed. The full description of the indicators, including caveats and limitation are discussed in OECD (2019). Two types of indicators, which are described below, are used in this chapter.

Indicator Type 1

Type 1 indicators measure how foreign firms perform relative to domestic firms for a given outcome (e.g. labour productivity). It takes positive value if foreign firms have higher outcomes than domestic firms and negative value if foreign firms have lower outcomes, on average. The indicator is constructed as the proportional difference between average outcomes of foreign firms and average outcome of domestic firms:

$$Type\ 1 = (\bar{Y}_F - \bar{Y}_D)/\bar{Y}_D$$

where $\bar{YF}$ is the average outcome of foreign firms and $\bar{YD}$ is the average outcome of domestic firms, and population averages are calculated using survey weights.

Indicator Type 2

Type 2 indicators show whether FDI is concentrated in sectors with higher or lower sustainable development outcomes, while controlling for the economic size of each sector.

This indicator type requires sector-level information on FDI, GDP, and the development outcome considered (e.g. average wages), and compares two sector-weighted averages. The first weighted average (the "FDI-weighted" outcome) is a function of sector-level GDP and FDI. The second weighted average (the "baseline" outcome) only uses sector-level GDP shares as weights. The indicator is constructed as the proportional difference between the FDI-weighted and baseline outcomes:

$$Type\ 2 = \frac{\sum_s \omega_s Y_s - \sum_s \delta_s Y_s}{\sum_s \delta_s Y_s},$$

$$\omega_s = \frac{1}{\sum_s \frac{FDI_s}{FDI_{TOT}} \frac{GDP_s}{GDP_{TOT}}} \left(\frac{FDI_s}{FDI_{TOT}} \frac{GDP_s}{GDP_{TOT}} \right),$$

$$\delta_s = \left(\frac{GDP_s}{GDP_{TOT}} \right)$$

where Y_s is the average outcome of sector *s*; ω_s is the weight corresponding to sector *s* constructed using the product of the GDP share and the FDI share of sector *s*; δ_s is the GDP share of sector *s*. By controlling for sector-level GDP, the indicator provides information on the extent to which the relative distribution of FDI across sectors relates to economy-wide outcomes. The indicator takes positive value if the FDI-weighted outcome is higher than the baseline; and vice versa.

Notes

[1] Thailand's share of ASEAN FDI excluding Singapore declined slightly over the same period.

[2] Greenfield investment involves the creation of a new asset coming under the control of the foreign firms, while M&A deals consist of a transfer of existing assets from local companies.

[3] Services include trade, hospitality and professional services, but exclude other important services such as logistics, storage, and financial services.

[4] Around the globe MNEs, including many Thai companies, are increasingly integrating sustainable development considerations and targets in their business practices. For example, the Thai Corporate Governance Code for Listed Companies 2017 includes principles of social and environmental responsibility for business, inspired by the G20/OECD Principles of Corporate Governance. These principles reiterate the importance for listed companies to embrace environmental, social and governance issues to enhance their sustainability impact and ultimately contribute to the implementation of the SDGs.

[5] Domestic MNEs are domestic companies with more than 200 employees.

[6] The Skill Development Promotion Act B.E. 2002 requires establishments with at least 100 employees to provide in-house training at the rate of 50% of the total number of employees. Failure to comply entails the payment to the Skill Development Fund of approximately THB 1,178.80 per head per year for the number of untrained employees.