# 5 Investment promotion policies to build a knowledge-based economy

This chapter analyses investment promotion and facilitation policies in Thailand, examines the institutional framework for investment promotion and facilitation, with a focus on the role and activities of the BOI, highlights key reforms and measures implemented by the government to attract investment and improve the business environment, identifies remaining challenges and proposes recommendations to address them. The chapter also describes the key characteristics of promoted firms and explores their impact on building a knowledge-based economy. It focuses on the four pillars of the 2015-21 investment promotion strategy: productivity enhancement, technology and innovation, human capital and foreign talent, and the development of specific regions.

## Summary

Investment promotion and facilitation policy in Thailand has an impressive record in attracting foreign and domestic investments. It has enabled Thailand to attract businesses that have deeply shaped the economic landscape, contributing to the emergence of new industries such as the automotive sector. Recently, the effectiveness of these policies in building a more resilient and knowledge-based economy, supporting technological progress, closing the skills gap and reducing income and territorial inequalities has become a growing priority of the government, and even more so following the COVID-19 outbreak. Overall, promoted companies' weight in the Thai economy is colossal and they are pivotal for enhancing strategic areas such as the Eastern Economic Corridor (EEC). Despite forming less than 3% of registered companies, they generate one-third of national value-added, employ one in ten skilled workers and constitute a quarter of all business expenditures on R&D and training.

The Board of Investment (BOI), the Thai agency mandated to develop and implement the 7-year investment promotion strategy, is one of the oldest IPAs in the world. The agency is a key pillar of Thailand's institutional ecosystem and is often considered as a source of good practice for peers around the world that aim to enhance their performance in attracting foreign investment. Under the Investment Promotion Act, the initial duty of the BOI five decades ago continues to be the agency's core mandate today, which is to issue promotion certificates and amend the list of activities that are eligible for tax incentives and non-tax concessions such as eased restrictions on foreign shareholding and expatriate workers. This *de facto* regulatory mandate of the BOI is consistent with the "dual track" approach (see Chapter 6).

As one of the most effective state agencies, the BOI has inherited new responsibilities over the years, such as attracting foreign talent, including entrepreneurs, and facilitating their entry. Thailand's reliance on the BOI could end up weighing on BOI's capacity to perform its various mandates effectively, and more particularly core investment promotion functions. Attracting investors and talented foreign workers on one hand and ensuring that they comply with legal requirements on the other are two different functions with different objectives. Mixing the mandates could affect the efficacy of the agency but also its credibility as it is supposed to represent investors' interests in policymaking while regulating them at the same time.

The 2015-21 investment promotion strategy is designed to respond to the country's broader development goals and its implementation is pivotal to enable the targeted industries to become Thailand's growth engines of the future. The strategy aims at promoting both inward and outward investment to enhance Thailand's competitiveness, overcome the "middle-income trap" and achieve sustainable growth, in line with greater ambitions related to Thailand 4.0 (Chapter 2 and Chapter 11 on promoting outward investment). The strategy is structured around four pillars: productivity enhancement (including through SME upgrading and outward FDI), technology and innovation (e.g. R&D activities and high value-added services), human capital and foreign talent, and the development of specific territories (i.e. the EEC, border SEZs and disadvantaged regions).

The strategy introduced a few novelties with regard to the pre-2015 incentives scheme but did not bring fundamental changes. The BOI's proclaimed shift from broad-based to more targeted incentives was a positive development. Nearly 50 activities were no longer promoted when the strategy entered in force in 2015, although it is not clear whether the eligible list has been further reduced since then. For instance, the government amended the Investment Promotion Act in 2017 to introduce technology-based incentives, although they are less sector-specific, thereby reducing their distortive impact on the economy.

The wider tax incentive scheme continues to be complex and its generosity can weigh on the ability of non-promoted firms, particularly SMEs, to compete on equal basis with promoted businesses. Activity-based incentives such as exemptions of corporate income tax (CIT) and import duties still dominate the basic incentives scheme. The main innovation was the introduction of merit-based incentives that provide an add-on to the basic scheme with additional CIT exemptions and tax deductions if a project undertakes

R&D or skills development activities or locates in specific regions or in an industrial area (cost-based incentives). The merit-based scheme is a positive development as it is preferable to activity-based incentives, which can generate important forgone revenues, but the scheme could be simplified and have less stringent criteria to attract foreign investment with higher impact.

On investment facilitation, the government's policies further improved an already highly favourable business climate. Additional progress could be made in the area of intellectual property rights as they are crucial for attracting investments in R&D. With regard to Thailand's challenge of attracting foreign skilled workers, the government has sent signals to address this issue with the creation of the BOI's Strategic Talent Centre (STC) to facilitate the entry of talented workers and the introduction of the SMART visa programme in 2018 to provide facilitation incentives to talented foreign workers, entrepreneurs and start-ups. While prospects are promising, it is early to assess the outcomes of these initiatives and, notwithstanding their relevance, streamlining the wider legal and institutional framework for the entry of foreign workers continues to be necessary.

The COVID-19 pandemic triggered immediate policy responses to support existing investors and pave the way for a sustained recovery. The risk of reduced FDI flows makes it even more relevant for the BOI to accelerate the transition toward promoting activities with a high developmental impact, supporting the recovery. During the first quarter of 2020, the number of applications submitted to the BOI slightly increased compared to the same period last year but the total invested amount declined by 44%, as projects were smaller. To respond to the crisis, the BOI rapidly adapted its activities and adopted new measures. The IPA has taken measures on the investment facilitation front, followed by other measures to mitigate the impact of the crisis on investment, including tax incentives to accelerate investment in the medical sector.

It is premature to draw definite conclusions on the outcomes of the 2015-21 strategy and its wider effects on R&D and skills, particularly with the COVID-19 outbreak, but interim analysis raises a few observations. First, the incentive scheme did not radically change the distribution of investment by sector, at least until 2019. Second, foreign shareholding is not higher the more generous incentives are while this is to be expected as the most generous incentives are granted to activities with no or very few existing investments in Thailand. The same is observed for foreign workers. Third, incentives to spend on R&D and skills have had modest impact although this may improve with time. Last but not least, the socio-economic benefits of promoted firms continue to be unequally distributed. Operations are confined to Bangkok and the EEC and border SEZs may not be able to reverse this pattern.

### *Policy recommendations*

*Short- and medium-term policy priorities:*

The following policy considerations to strengthen promotional efforts could be implemented without adjustments to BOI's broader mandate and legal obligations and would not require coordination with other government agencies involved in attracting investment into R&D and skills development, for example:

- Streamline the tax incentive framework and rethink the design of some schemes to limit forgone revenues and attract investment with higher development impacts:
    - In the short-term, and to pave the way for a post-COVID-19 recovery, maintain the level of granularity in the general list of activities eligible for investment promotion but continue lowering the number of promoted activities and progressively reduce the incentives of those in sectors with lower comparative advantage. The next strategy could focus, instead, on more horizontal activities that can continue building the foundations for a knowledge-based economy, such as promoting investment in advanced technology, R&D, skills development, and the medical sector.

  - In the medium-term, improve the design of the merit-based scheme to attract investment with higher development impacts and eventually expand the scheme to all firms to level the playing-field with non-promoted companies, particularly SMEs. The application process could be further streamlined and the decision criteria eased. Furthermore, gradually move from exemption of CIT and import duties to a scheme with tax credits and deductions as the main type of tax incentives. In parallel, Thailand could explore reducing import duties.
- Conduct a thorough and informed cost-benefit analysis of the overall effectiveness of the 2015-21 tax incentives scheme. The results should be made publicly available. Disclosing information on overall forgone revenue through tax incentives would greatly support the government in its efforts to move away from a profit-based investment promotion to a merit-based strategy to attract and retain more sustainable investments.
- Sharpen the quality of the investment generation activities to better target top foreign multinational firms, particularly foreign R&D performers, and continue the efforts to facilitate investment entry and retention and improve the broader business climate for R&D performers. After-care services could focus on enhancing reinvestments, particularly in R&D activities.
- Further involve the private sector and other relevant stakeholders in the decision-making process of the BOI to ensure that the views and interests of all businesses are taken on board in BOI's broad strategic directions. The Board of the BOI could also include public and private representatives from the innovation and education policy communities and wider civil society as well as being more gender balanced.

*Long-term policy priorities:*

The following policy considerations require coordination and alignment across multiple government agencies and broader policy and institutional reforms, beyond the scope of the BOI mandate. They could be initiated in the short-term but are likely to involve a medium-term planning horizon.

- Ensure that investment promotion and facilitation responsibilities are balanced across government agencies, sufficiently funded, explicit, and mutually understood and clear for all. To safeguard the BOI's efficiency over the longer-term, consider the option of liberating it from some of its functions (e.g. separating policymaking and regulatory mandates and promotion and facilitation tasks) if, and only if, the same quality of services can be provided. The success of such an option is conditional on undertaking other reforms:
  - Re-evaluating and reforming the FBA may be an opportunity to adjust the Investment Promotion Act and eventually liberate the BOI from its mandate to provide non-tax incentives to foreign investors (Chapter 6).
  - Clarifying the wider institutional framework for attracting and facilitating foreign workers' entry and how best to perform the mandate of foreign talent attraction across government agencies. The know-how of the BOI as an effective agency could be replicated for such reform.
  - Continue streamlining the wider legal framework for the entry of foreign workers, with the ultimate, long-term objective to make BOI's SMART visa and related programmes obsolete as they are not part of the agency's core competencies. Available and transparent data on the stringency of migration policies could raise awareness and help concerned agencies advocate for policy change.
- Provide better statistics to support evidence-based investment promotion policy making. The BOI could develop a nomenclature for promoted activities that can be matched with product-level trade statistics. In addition, the agency, in co-operation with the National Statistical Office, could match the project-level data collected by the BOI with the establishment-level data of the Industrial Census of Thailand to assess more accurately the outcomes of the merit-based incentives on productivity, exports, R&D, skills development, and other outcomes.

## The institutional framework for investment promotion and facilitation

Recognising the importance of private investment for economic and social development, most countries have established IPAs dedicated to promoting and facilitating investment, often with a particular emphasis on attracting multinational enterprises (MNEs) and capturing the benefits of FDI. Investment promotion agencies (IPAs) evolve in their own historical and institutional contexts: their establishment responds to specific policy objectives, and their governance is often dictated by their institutional contexts and broader political choices (OECD, 2018).

This section addresses how the BOI fits in the overall institutional framework for investment promotion and facilitation within the public administration and looks at: (1) BOI's establishment and recent reforms; (2) the scope and diversity of BOI's formal mandates; (3) the legal status, reporting lines (including the role of the governing board) and the co-ordination with the agencies in charge of R&D and skills development.

### *BOI's establishment and successive institutional reforms*

Thailand has a long history of promoting and attracting FDI, which played a key role in making it one of the world's fastest growing economies for several decades. Investment policies are implemented by the Board of (Industrial) Investment, which was established in 1954 to stimulate foreign and domestic investment, all behind a high level of protection (Thomsen, 1999).[1] The Office serves as the secretariat to the Board (hereafter the BOI) and was established in 1966, earlier than in many OECD countries which established their agencies only from the 1970s and mostly in the 1990s (OECD, 2018).

Since its creation, the BOI has had the mandate to issue promotion certificates and to modify the list of promoted activities or sectors as per the Industrial Promotion Act B.E. 2505 (1960). The initial duty of the BOI, five decades ago, continues to be the agency's core mandate today, which is to grant investors fiscal incentives, including corporate income tax and import duty exemption, and non-tax concessions such as eased restrictions on foreign investment and employment of foreigners based on various criteria (firm size, geographical location, etc.).

The BOI's organisational structures and strategies, just like that of other IPA's worldwide, have nonetheless evolved over time, with increased globalisation and technological change. As countries gradually dismantled their trade and investment barriers, agencies had the task to disseminate information about the host country and its business climate. The BOI revised its investment promotion strategy to reflect the government' shift from import-substitution (1960-1980) to an export-based growth model (1980-1996) as described in Chapter 2.

Until 1977, date of the enactment of the Investment Promotion Act B.E. 2520, Thailand restricted FDI in export-oriented industries and the BOI could impose tariff surcharges to provide additional protection to promoted firms (Thomsen, 1999). The revision of the Investment Promotion Act radically changed the strategy of the BOI. The criteria for foreign-ownership majority shareholding became conditional on export performance and the agency started granting large tax and tariff exemptions to export-oriented businesses. Export requirements have been abolished since 2000 after accession to the WTO in 1995.

Thailand and other emerging countries increasingly recognised the role of the IPA in fulfilling national development objectives, notably by targeting job creating and higher value-added activities. In the late 1980s, the BOI undertook institutional reforms to decentralise investment promotion and promote regional development. The agency established in 1988 the first sub-national office and in 1992 the unit for industrial linkages development (BUILD). With increased liberalisation and technological progress, in the 2000s, the BOI and other IPAs around the world shifted their priorities to engage in investment promotion activities that are more sophisticated and offer services more tailored to the needs of investors.

The generosity of tax incentives provided by the BOI declined with the 2001 and 2017 revisions of the Investment Promotion Act. Conversely, the number of restricted activities under List Two of the FBA, with full foreign ownership permitted only if promoted by the BOI, did not decrease (see Chapter 6). Granting promotion certificates in eligible activities that also allow full foreign ownership continues to be one of the agency's main non-tax incentives.

### *Objectives and wider mandates of the BOI*

IPAs have been created with the primary mandate to promote and attract inward foreign investment. There are substantial variations in the number and scope of mandates for IPAs in OECD and non-OECD countries, as revealed by a recent survey of IPAs that covers the OECD, the Middle East and North Africa (MENA), Latin America and Caribbean (LAC), and Southeast Asia (IDB-OECD survey of IPAs 2018). In Southeast Asia or in MENA, IPAs are often part of a larger agency that has many mandates in addition to core investment promotion functions (such as negotiating trade agreements, or managing privatisations or economic zones), and so tend to have a wider set of responsibilities than OECD and LAC agencies (OECD, 2018; 2019a; Volpe and Sztajerowska, 2019).

The core roles and responsibilities of the BOI are to promote both investment into Thailand and Thai investment abroad (Box 5.1). The Investment Promotion Act and fact-finding meetings indicate that the BOI has at least seven mandates according to the classification of the OECD mapping of IPAs: promoting foreign and domestic investment, promoting outward FDI (see Chapter 11), operating a one-stop-shop, delivering relevant business permits, and granting tax incentives, although incentives requests are processed by the Ministry of Finance (Table 5.1). Additionally, the BOI "studies and attends meetings on international business agreements or international investment cooperation" but the agency has only a supporting role in negotiating agreements, except the ASEAN Comprehensive Investment Agreement for which it is the main negotiator.

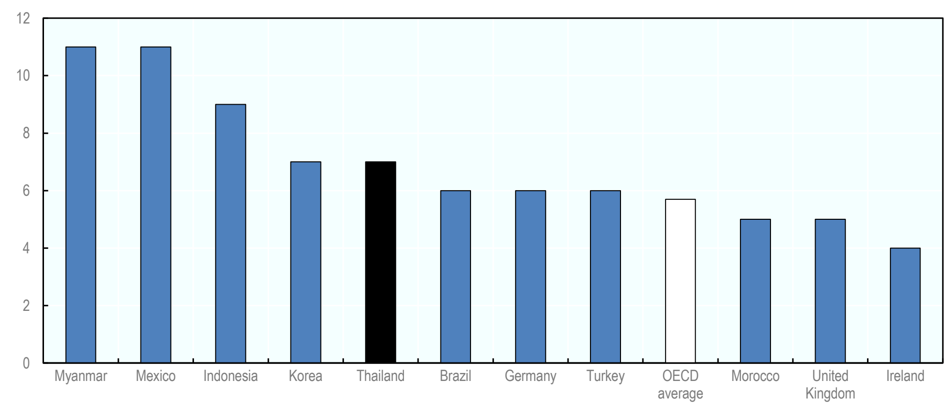
#### Box 5.1. The Investment Promotion Act: Powers and duties of the BOI

- Undertake works to publicise investment potentials and induce investments in those activities which are important and beneficial to economic and social development, and security of the country;
- Establish an Investment Services Centre to assist prospective investors and investors in obtaining permissions and services;
- Appraise projects requesting promotion, supervise, control, and evaluate promoted investment projects;
- Conduct studies and research in identifying investment opportunities, prepare feasibility reports, and formulate an investment promotion programme;
- Study and compile data relating to investment on the Kingdom;
- Perform other duties in the furtherance of the objectives of the Investment Promotion Act.

Source: Investment Promotion Act 1977

Despite a larger number of mandates than in OECD IPAs (Figure 5.1), the BOI can nonetheless be categorised as a specialised type of agency, focusing only on investment and investment-related mandates, as is the case for the Chilean, Czech or Irish agencies, for example. Other IPAs around the world have included other responsibilities such as innovation or export promotion. For instance, more than half of OECD agencies combine the investment and export mandates into one single agency. While countries like Japan, Korea and the United Kingdom merged their investment and export promotion functions into a single agency in the 1990s, a growing number of other agencies have followed a similar path in the past ten years. This includes Australia (2008), Germany (2009) Spain (2012), France (2015), and Poland (2016-17) (OECD, 2018).

### Figure 5.1. The BOI has a higher number of mandates than OECD agencies




Source: Investment Promotion Act of Thailand; OECD (2018; 2019a; 2020d); Volpe and Sztajerowska (2019).

Another important difference between BOI's main functions and those of IPAs in OECD countries is on the facilitation front. The Thai agency has the mandate to operate the One-Start-One Stop Investment Centre (OSOS), which hosts representations from several government ministries and agencies. This is a key difference with OECD and LAC IPAs, only 13% and 12% of which operate one stop shops (OSSs) (OECD, 2018a; 2019a). The institutional framework of the BOI is closer to agencies in MENA and ASEAN, which often operate an OSS to facilitate business transactions and reduce the cost of doing business. BOI's OSOS provides a wide range of investment-related advice but does not deliver permits, unlike for some OSSs in other countries.

The responsibilities of the BOI have evolved recently and now include the facilitation of foreign talent admission to Thailand. For instance, the agency established a Strategic Talent Centre (STC) in 2017 to provide assistance to Thai and foreign firms, regardless of whether they are promoted or not, that are seeking to recruit highly skilled Thai and foreign specialists in the fields of science and technology to support their businesses in Thailand. The STC acts as the coordinator for facilitation of foreign talent entry, with support provided by other government agencies involved in science and technology, the immigration bureau and the ministry of labour.[2]

The function of facilitating the search for and the entry of foreign talent is rather an unusual mandate among IPAs, and even more so in the case of the BOI as the agency offers this service to both promoted and non-promoted companies. Providing such services to all firms without discrimination with regard to their promotion status is in itself an important and positive development. Nonetheless, it is an open question whether an IPA such as the BOI is best placed to provide such services, particularly in light of STC's growing role in the government's plan to transform Thailand into an innovation and technology-driven economy by providing recruitment services to seek out skilled Thai and foreign specialists.

#### *Thailand combines investment regulation and promotion under the same roof*

The BOI, in contrast to OECD agencies, combines regulatory and promotion and facilitation mandates, even if the line between these different functions is unclear in some cases. The BOI has regulatory powers on investment by reviewing every year the list of promoted activities, delivering applications for investment certificates or taking part in international investment agreement meetings. Other countries in Southeast Asia and in MENA (e.g. Egypt) have also established "super" IPAs, which are responsible for regulating and promoting investment (OECD, 2020a). Among OECD IPAs, it is a less common practice to combine regulation and promotion of investment under the same roof (OECD, 2018).

Mixing the two broad mandates of the BOI, i.e. regulation and promotion, is not without potential adverse consequences. Some studies show that those IPAs focusing exclusively on investment promotion achieve significantly higher results in attracting investors than those which carry out both regulatory/administrative and promotional activities (World Bank, 2011). Attracting private investors and ensuring that they comply with legal requirements can be two different functions with different objectives and requiring each specific skill sets.

The studies suggest that the confusion of roles within IPAs can create administrative slowness and blockages in terms of licence delivery, undermining agency effectiveness (World Bank, 2011). Businesses interacting with the IPA may wonder whether it is intended to solve their problems or to create new ones. The agency is often expected to represent private sector's interests within government and it may be less credible to do so and to influence policymaking if it is the same agency that regulates them. In the majority of OECD countries, the ministry in charge of investment is responsible for investment policymaking and, if appropriate, other regulatory aspects such as reviewing investment proposals and monitoring companies' projects (OECD, 2020). Meanwhile, the IPA is more autonomous from the ministry, searching for a balance between executing the government's strategic goals and representing the views of investors.

Some facts possibly hint to the challenge for the BOI to operate these different mandates. For instance, the agency's speed of services obtains the lowest satisfaction score from investors, according to one survey (Bolliger, 2015 and 2018). A long-term possibility could be to envisage dividing the BOI into two separate entities – one in charge of regulating investment, amending the list of promoted activities as well as reviewing applications for investment certificates and negotiating treaties, and the other responsible for investment promotion (i.e. image building and investment generation) and facilitation. If this option is envisaged, the promotion part could become more autonomous. The division of roles could increase efficiency, as the regulator could concentrate on strategic matters whereas the promoter can focus on performance and commercial outcomes (OECD, 2020).

### *The core investment functions of the BOI*

In the vast majority of countries, including Thailand, IPAs are major players in the implementation of four core investment functions (Table 5.1). While the first two functions relate to investment promotion (i.e. marketing a country or a region as an investment destination and attracting new investors), the latter two deal with investment facilitation and retention. Investment promotion is meant to attract potential investors that have not yet selected an investment destination, whereas facilitation starts at the pre-establishment phase, when an investor shows interest in a location. Policy advocacy includes identifying bottlenecks in the investment climate and providing recommendations to government in order to address them. As such, investment promotion and attraction is primarily the business of IPAs while facilitation and policy advocacy are not limited to IPAs and involve a whole-of-government approach (OECD, 2018).

In most IPAs, including in OECD countries, investment promotion includes image building and investment generation (Table 5.1). In Thailand, the term "promotion" or "promoted" carries a more specific, narrower meaning than in other countries. "Promoted" refers to the certificates that companies eligible for investment promotion obtain along with tax and non-tax incentives. The responsibility of analysing investment project proposals and assessing their entitlement to a certificate is carried out by the Investment Promotion Division (IPD). Notwithstanding the title of the Division, it does not conduct image building or investment generation activities. The IPD is organised by sectors that are the targets of the investment promotion strategy, namely bio-based and medical industries (IPD1), advanced manufacturing industries (IPD2), basic and supporting industries (IPD3), high value services (IPD4), and creative and digital industries (IPD5).

### Table 5.1. IPAs' most common core investment functions and related BOI department

| | Image building | Investment generation | Investment facilitation & retention | Policy advocacy |
|---|---|---|---|---|
| Objective | Create awareness and generate positive feelings about a country as investment destination | Reach out to foreign investors and convince them to locate their investment in the home country | Facilitate the implementation of projects, maximise their economic benefits and generate follow-up investments | Monitor investors' perception of the investment climate and propose policy changes to improve it |
| Responsibility within the BOI | - Investment Service Centre (Thai Image Enhancement Plan) | - Foreign Investment Marketing Division<br>- Investment Service Centre<br>- Overseas offices | - Investment Promotion Division 1-5*<br>- Investment Service Centre<br>- One Start One Stop investment centre (OSOS)<br>- Industrial Linkages Development Division (BUILD)<br>- Investment Ecosystem Division<br>- Visa and Work Permit Service Centre | - Investment Strategy and Policy Division<br>- International Affairs Division<br>- Legal Department |

* Investment Promotion Division 1-5 facilitate investors in the process of project approval by providing recommendations and analysing eligibility before submitting projects to decision-making body for approval.
Source: OECD (2018) and the 2019 Guide to the BOI.

### Box 5.2. IPAs' overseas offices: An effective but costly investment promotion tool

BOI's overseas offices are mandated with the promotion of foreign investors to invest in the targeted industries in accordance with the government policies. They also provide investment information, advice, suggestions and assistance to investors or potential investors who are interested in investing, as well as information about available joint venture partners. Overseas offices also conduct intelligence work by collecting information and monitoring the economic and investment situation in the responsible area and report to the BOI on a regular basis. They co-ordinate with the Foreign Investment Marketing Division.

The BOI has 16 bureaus overseas, mostly spread in Asia and the Pacific. Three out of four OECD IPAs have their own offices abroad, meaning that they have personnel abroad, dedicated to investment promotion, on their payroll. The average OECD IPA has 34 offices abroad, a little more than half of which conduct inward foreign investment promotion. There is an important dispersion across economies, however: the number of offices ranges from one (Israel) to 74 (Japan) while 40% of offices are defined as "regional hubs". The Korean, Irish, and Czech IPAs have respectively 36, 19 and 10 offices abroad. In the MENA and LAC regions, most IPAs do not operate overseas offices. In South East Asia, Indonesia's BKPM operates seven offices abroad.

IPAs' overseas offices can make a difference for the agencies' ability to attract FDI. Nonetheless, they can strongly weigh on agencies' finances. IPAs have different arrangements to operate their secondary offices overseas with reduced cost. As several OECD IPAs are part of broader agencies covering other mandates, their overseas offices perform different functions (e.g. trade, investment and tourism promotion). As such, OECD agencies with over 50 overseas offices abroad combine investment with other mandates. Some agencies hire local staff in foreign offices to lower costs. Other agencies do not have their own offices abroad, but place staff in the foreign diplomatic representations or cooperate closely with them. There is no consensus on how effective this last approach is; some IPAs with overseas offices report that in their experience staff at embassies are not equipped with the skills to best conduct investment promotion.

Source: OECD (2018; 2019a; 2020d) and Volpe, Martincus and Sztajerowska (2019).

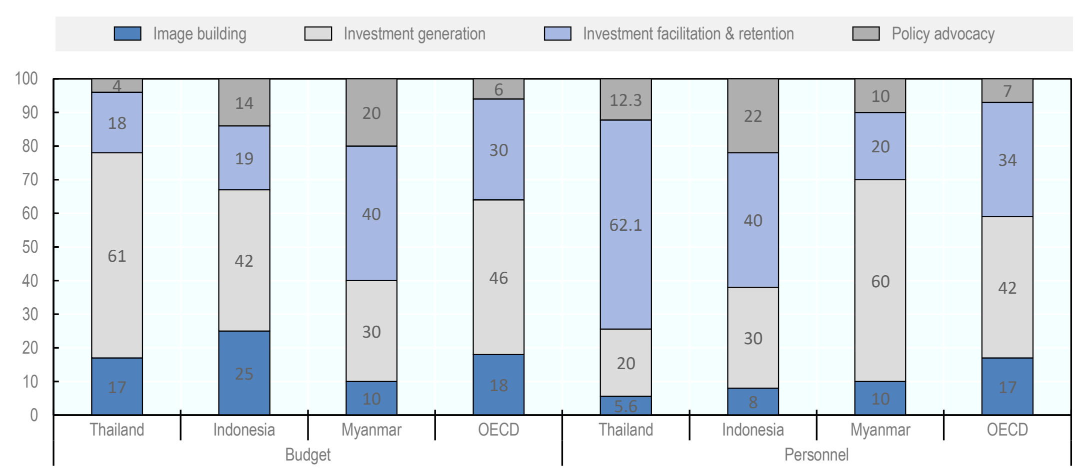
Some divisions of the BOI have wide functions that span both investment promotion and facilitation activities. For instance, the Investment Services Centre is responsible for creating a Thai Image Enhancement Plan (image building) and providing advice to prospective businesses for making investment decisions (investment generation) but also of providing services to investors and allowing the entry of foreign skilled workers (investment facilitation), in co-ordination with the Visa and Work Permit Service Centre.

Besides the IPD and the Investment Services Centre, other image building and investment generation activities are carried out by the Foreign Investment Marketing Division and overseas offices (Box 5.2) and other facilitation and retention functions are carried out by the One Start One Stop investment centre (OSOS) and the Industrial Linkages Development Division (BUILD), which was a unit until 2017. The Investment Strategy and Policy Division is responsible for improving the Thai business climate and has a policy advocacy function.

The allocation of budget and human resources across the four different functions reveals the BOI's main priorities relative to other agencies. Figure 5.2 shows the estimated use of the resources across the four functions, based on the IDB-OECD survey of IPAs that covered the OECD, MENA, LAC, and Southeast Asia. According to the estimates provided by the BOI, the agency allocates nearly 80% of the budget to investment promotion, mostly on investment generation and less on branding or improving the country's image. At the same time, most of the BOI's personnel is dedicated to the investment facilitation and retention function – and not to investment promotion.

## Figure 5.2. Estimated use of resources across the investment functions of the BOI, selected ASEAN countries and the average OECD IPA

Share of the function in total budget and personnel of the agency




Source: BOI statistics; OECD (2018); OECD (2020c); OECD (2020d).

BOI's dichotomous allocation of budget and personnel reflects the fact that the investment promotion function is more costly because it consists of advertisement campaigns (image building) and operating overseas offices with highly-skilled Thai expatriate staff (investment generation). The relatively high allocation of staff to investment facilitation is expected in light of the important labour-intensive facilitation work carried out by most of the BOI's divisions and, at the forefront of them, the IPDs. While differences in the allocation of budget and personnel to the four investment functions also exists in Indonesia, Myanmar and the average OECD agency they are less important than in Thailand. The BOI has much larger gaps between the budget and personnel allocated to investment generation and investment facilitation compared to the other IPAs, especially the average OECD IPA.

Policy advocacy is one function where BOI's dedicated resources are broadly similar to OECD agencies but less like Indonesia and Myanmar who allocate relatively more resources to this function. IPAs in OECD countries, for example, are often more focused on the implementing aspects of investment promotion and facilitation than on their policy and regulatory features, whereas their counterparts in the Middle-East and Southeast Asia, such as BKPM in Indonesia, tend to have broader policy mandates (Box 5.3).

### Box 5.3. The policy advocacy function of investment promotion agencies: Indonesia

Policy advocacy is conducted by a majority of IPAs around the world. IPAs involved in policy advocacy can decide to focus on specific activities over others, which are often grouped into three main categories: 1) performing actions to monitor the investment climate (e.g. tracking of rankings, meetings with the private sector, business surveys, consultation with embassies); 2) providing formal feedback to the government on how to improve the investment climate (e.g. meetings with government officials, production of position papers); and 3) providing informal feedback to the government on how to improve the investment climate (e.g. participation in periodic meetings, events, press articles).

An agency like BKPM in Indonesia performs a wider range of related activities than its peers from the OECD (OECD, 2020d). Policy advocacy is a natural function for a co-ordinating body involved in regulatory and facilitation activities like BKPM. The Indonesian agency noticeably dedicates a higher share of its resources (both staff and budget) to policy advocacy than its peers in other regions, which could be linked to its regulatory, co-ordinating and policy advisory functions. The agency's Deregulation Directorate, for example, is in charge of advising and consulting line ministries on policies and regulations that could affect FDI (e.g. business licences, restrictions to FDI, etc.).

Source: De Crombrugghe (2019) and OECD (2020d).

### *Governance policy of the BOI*

The governance of an IPA relates to the way it is supervised, guided, controlled and managed. IPA governance policies are often dictated by their institutional contexts and broader political choices (OECD, 2018). It affects their legal status, reporting lines and managerial structure, including the role of their board if it exists. IPAs can usually be created as part of a ministry, an autonomous public agency, a joint public-private body, or a fully privately-owned organisation. The BOI belongs to the second category, as it is an autonomous government agency under the authority of the office of the prime minister. Autonomous public agencies are the most common form of IPA legal status in both OECD and non-OECD countries (OECD, 2018 and 2019a).

By reporting directly to the prime minster, the BOI plays an influential role in Thailand's policy landscape. This reporting line has nevertheless changed over time, as between 2003 and 2014, the BOI reported to the Ministry of Industry. IPAs can have different reporting lines, depending on their legal status and the broader institutional environment. In OECD and LAC countries, the majority of IPAs report to the ministry of economy and, in some cases, the ministry of foreign affairs. Only a few agencies report to the head of government (e.g. Turkey). The case of Thailand is similar to some MENA countries, where the prime minister or the president heads the board of the IPA (OECD, 2019a).

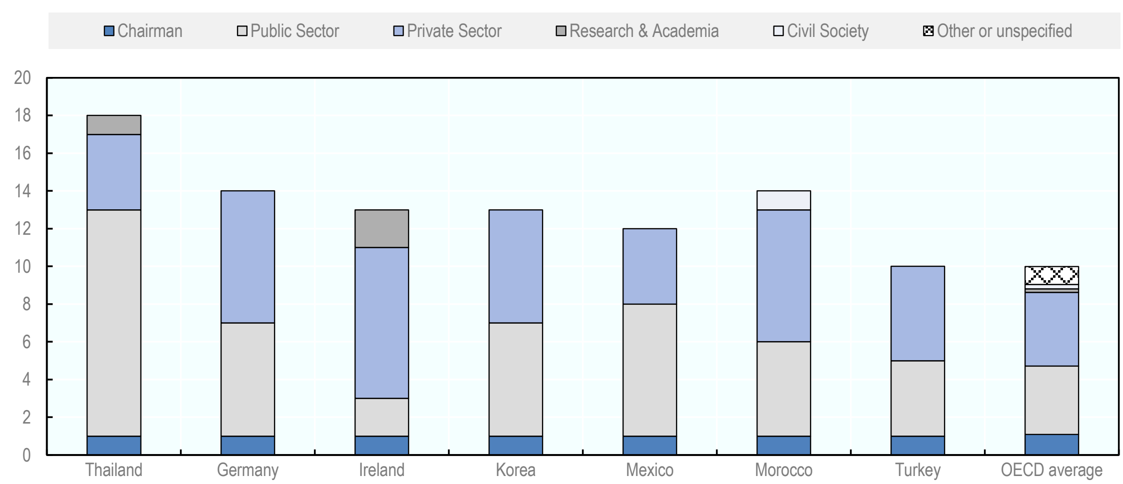
A key component of an IPA's governance policy is the existence and role of a board. The board supervises or advises the work of the agency, or both, with an independent perspective. Boards vary greatly from one

IPA to another; they can be of advisory nature or with a high degree of decision-making power. In Thailand, the board of the BOI also approves investment projects of more than THB 2 billion (USD 66250).

The board of the BOI can be composed of no more than 13 members and up to five advisors but only members can vote. As per the law, members should include the prime minister, who is the chairman, the minister of industry, the deputy chairman, and the secretary-general of the BOI, the secretary to the board. The remaining members are mostly government representatives, except the heads of the Thai Chamber of Commerce, Thai Bankers' Association and the Federation of Thai Industries. Three advisors also currently sit on the board of the BOI. The prime minister appoints all members and advisors.

Board members of OECD IPAs include over 40% of private sector representatives on average – the remaining being representatives of the public sector, research and academia, civil society or other areas. This share is lower in Thailand (Figure 5.3). Having a sound and diversified private sector representation on the board is essential to ensure that the views and interests of businesses are taken on board in BOI's broad strategic directions. More importantly, having a private sector representative on the board should not substitute for wide and systematic private sector consultation platforms and mechanisms. Beyond the private sector, the Board of the BOI could include public and private representatives from the innovation and education policy communities and wider civil society.

## Figure 5.3. Board members in BOI and selected other IPAs




Source: Investment Promotion Act of Thailand, OECD (2018 and 2019a).

Similarly, in most other IPAs, public sector members of the board come from other ministries and government agencies, not only to provide complementary skillsets to the strategic decision-making but also to allow for smoother inter-institutional co-ordination. The BOI could consider diversifying its board to integrate more private sector representatives and more women. With the exception of the secretary-general, current members and advisors are all men. Having women on boards may improve performance, including in Thailand as shown in a study exploring this relationship for board of directors of top public firms listed on the Thai Stock Exchange (Chotiyaputta and Yoon, 2018).

### *The functions of the regional investment and economic centres*

Globalisation and technological progress have deeply affected MNEs' rationale in choosing locations for their operations and transformed the way destinations compete over investment. With the international fragmentation of production and services, investors are increasingly attracted to what they get from a specific city or region and less to what a country offers them (Crescenzi, 2018). Locations within the same borders can strongly differ in their attractiveness due to varying productivity levels, skills attributes and other local ecosystem characteristics.

Thailand is no exception as territorial disparities are very important. To address this long-standing challenge, the BOI created in the 2000s seven regional investment and economic centres. Their duties are to promote investment within a particular region; to provide advice and guidance for investors; to administrate the rights and benefits, as well as monitor and supervise the operation of promoted projects; build investment networks and industrial linkages in Thailand and abroad; and cooperate with or support the performance of other relevant agencies or others as assigned.

There is no a one-size-fits-all approach to IPA networks of sub-national offices. As in Thailand, the Japanese, Irish and Czech respectively operate 43, 7, and 13 sub-national offices. Another approach is to decentralise investment promotion and facilitation by relying on local governments and institutions. Almost half of OECD IPAs have no other offices within the country. This is also the case of Indonesia, where the IPA co-ordinates with independent local agencies. A greater presence of the BOI at the sub-national level may be driven by the agency's mandate to run OSSs at the local level.

### *Co-ordination of the BOI with innovation and skills development agencies*

BOI's promotion activities are complemented and, to some extent, co-ordinated with a large number of government institutions. Promotion activities are also undertaken by several actors at the national and sub-national levels, including the Industrial Estate Authorities, the EEC, and the Office of Small and Medium Enterprises Promotion (OSMEP), and the SEZ Authority, which is managed through the SEZ committee under the NESDC.

Promoting investment in the knowledge-based economy creates a strong co-ordination imperative because of the inter-linked mandates. The focus group meetings organised in the context of this Review showed that there is a significant level of co-ordination between the BOI and government ministries and agencies, including those responsible for science, technology and skills development.

The BOI regularly interacts with the Ministries of Industry and Education as well as state agencies such as the national innovation agency, which operates under the umbrella of the Ministry of Higher Education, Science, Research and Innovation and the Vocational Education Commission (OVEC). The BOI also participates to the focus groups organised by the NESDC for the national development strategy. In light of the importance of R&D and skills upgrading for Thailand' national development strategy and the investment promotion strategy, this co-ordination could be further reinforced. For instance, the National Science Technology Innovation Policy Committee could have a more inclusive board comprising a representative from the BOI.

## Investment promotion and facilitation efforts

This section describes the main features of the 2015-2021 investment promotion strategy and provides a critical assessment of the plethora of tax and non-tax incentives granted by the BOI. It also sheds light on the outcomes of the strategy (i.e. number of projects attracted, in which sectors and for which incentive group) for the interim period between 2015 and 2019. The section also describes Thailand's recent business climate improvements and investment facilitation reforms, notably the creation of the One Start One Stop investment centre and the efforts to facilitate the entry of skilled foreign workers.

### *Overview of the 2015-2021 investment promotion strategy*

The investment promotion strategy in 2015 responded to several challenges faced by the Thai economy. First, upgrading local capabilities is pressing as the economic structure relies heavily on exports and is therefore prone to exogenous shocks. Second, Thailand's competitiveness in science and technology, and more broadly in R&D, is lower than in regional peers like Singapore and Malaysia (Chapter 3). Third, the country faces strong socio-economic challenges related to income and spatial inequalities and severe shortages of skilled labour. Fourth, the generous investment incentives were not as justified after that Thailand reduced CIT from 30% to 20% in 2013, bringing the country on a par with other ASEAN economies, and lowered import tariffs as a result of several free trade agreements.

To address these challenges, the 2015-2021 investment promotion strategy aims to promote both inward and outward investment to enhance Thailand's competitiveness, overcome the middle-income trap and achieve sustainable growth, in accordance with the sufficient economy philosophy and in line with Thailand 4.0 and the 20-year strategy (Chapter 2). The strategy was structured around productivity enhancement (including through SME upgrading and outbound FDI), technology and innovation (e.g. R&D activities and high value-added services), human capital and foreign talent, and the development of specific territories (i.e. the EEC, border SEZs and disadvantaged regions).

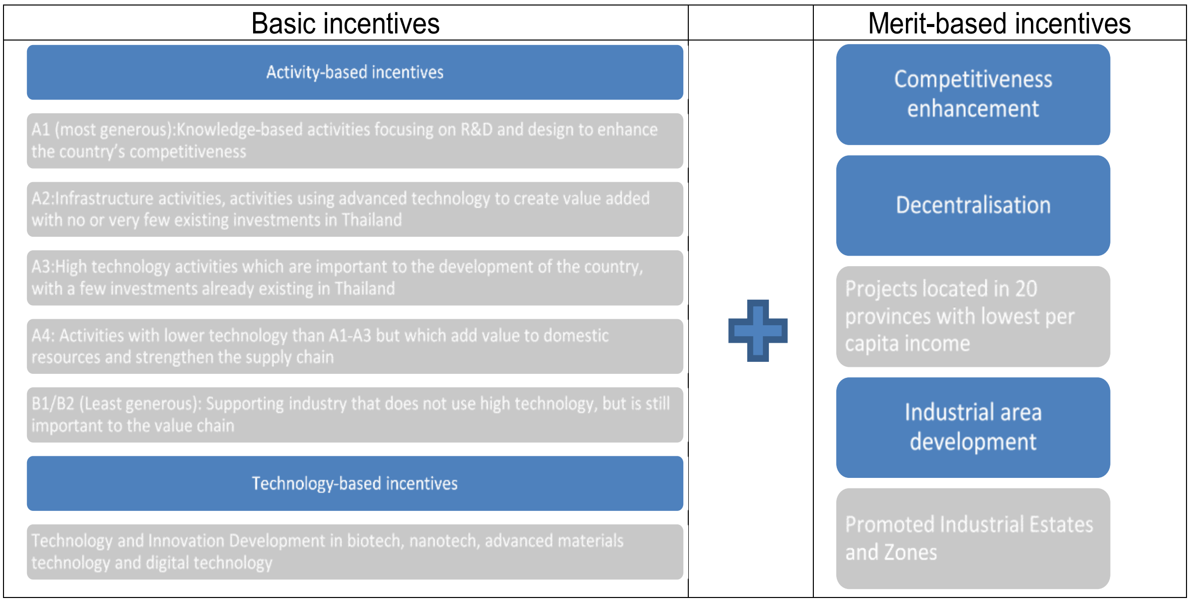
Investment incentives continue to be at the core of the strategy but the nature and targets of these incentives have changed over time.[3] When the BOI was created in the 1960s, investment incentives often co-existed with FDI restrictions. Foreign companies could invest only if they complied with national government objectives of import substitution and, later, export promotion. Thailand, as other ASEAN countries, eased to some extent investment and trade restrictions and tax incentives became one of the few remaining tools governments had to influence domestic and foreign investment (OECD, 2019b).

With gradual liberalisation, industrial policy in Thailand (and in ASEAN more broadly) shifted from protecting infant industries to supporting targeted industries and specific activities (e.g. R&D, skills development or SME linkages). Incentives also gradually became place-based, targeting less developed regions. The most recent strategy evolved to adapt to the new five S-curve sectors. The government amended the Investment Promotion Act B.E. 2520 (1977) in 2017 in order to attract high-valued investments in S-curve industries by granting tax holidays for knowledge-based projects using advanced technology and innovation.

The structure of the incentives scheme granted by the strategy included some innovations but did not bring radical changes to the investment regime. The scheme grants:

- **Non-tax incentives** to own land and bring in foreign skilled workers and, for foreign investors, to be exempted from foreign shareholding restrictions in List Two and Three of the FBA (see also Chapter 6).
- **Tax incentives, which consist of a basic scheme and a merit-based scheme**. The basic incentives include exemptions of CIT in the form of tax holidays (profit-based incentives) and, the novelty of this strategy, merit-based incentives that provide an add-on with additional CIT exemptions and holidays but also tax deductions (cost-based incentives) based on the merits of the projects (Figure 5.4). Projects can also be granted exemptions of import duties on machinery and raw materials used in R&D and in production for export.

**Figure 5.4. Structure of the tax incentives scheme in Thailand since 2015**




Source: OECD based on TDRI (2015) and the 2019 Guide to the BOI.

Some countries have adopted tax incentives conditional on locally generated value added. Thailand includes among the criteria to grant fiscal advantages to private investors a minimum threshold for the creation of domestic value added (20% or 10% of sales revenues depending on the sector). Furthermore, projects approved by the BOI (giving access to several tax and non-tax incentives) must obtain a certification, such as ISO 9000, ISO 14000, or similar international standard certification within two years from the start of full operation, otherwise the CIT exemption is reduced by one year.

The system of tax incentives in Thailand has grown in complexity over time in light of the plethora of concessions granted at different levels (i.e. sectors, activities, regions, SEZs, etc.) and by different government authorities (e.g. the BOI or the Revenue Department). Nonetheless, some efforts have been made to increase transparency and communicate more clearly on these incentives. The "Guide to the BOI", published every year in Thai, Chinese, English, and Japanese is one example. It describes well what are the sectors, activities, regions and special regimes that are eligible for general and special promotion schemes and the corresponding criteria and procedures to obtain the licences.

### *Incentives easing restrictions on foreign ownership are attractive but they deviate the BOI's attention to core investment promotion activities*

Thailand's investment promotion policy largely shapes the universe of firms with foreign shareholding and orients their strategic decisions with respect to ownership and nationality. According to the industrial census of Thailand, 68% of the foreign-controlled companies (i.e. those with at least 51% foreign shareholding) held a promotion certificate in 2016 and in 2011. The remaining third are likely to operate either under the FBA, favourable provisions in treaties or international agreements or sector-specific regulations (Chapter 6).

Most of the foreign investors apply to the investment promotion scheme as it circumvents some of the foreign equity restrictions included in the FBA, provides additional protection to investors (Chapter 7) and offers a wide range of tax and non-tax incentives. With regard to incentives easing the restrictions on foreign shareholding, the BOI stipulates that:

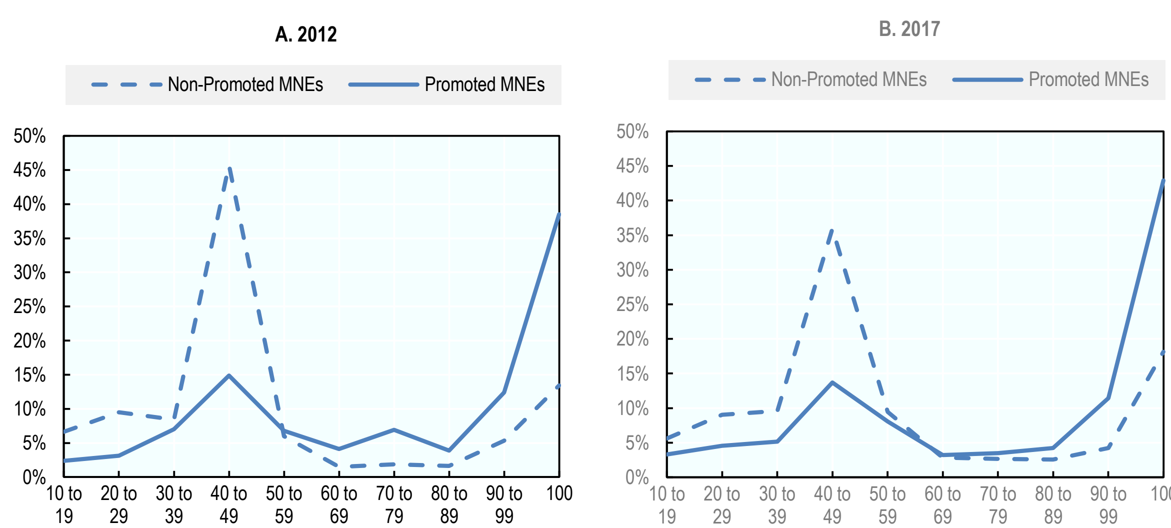
1. For projects in activities under List One annexed to the FBA, B.E. 2542, Thai nationals must hold shares totalling not less than 51% of the registered capital.
2. For projects in activities under List Two and List Three annexed to the FBA, B.E. 2542, there are no equity restrictions on foreigners except if specified in other laws.
3. The BOI may set foreign shareholding limits for certain activities eligible for investment promotion, as deemed appropriate.

Some projects eligible for investment promotion can thus enjoy majority (51% or more) or full foreign shareholding (100%), even when they are under List Two and List Three of the FBA (Chapter 6). One consequence of Thailand's dichotomous investment policy (i.e. promoted versus non-promoted) is that different levels of foreign shareholding prevail among the groups of promoted and non-promoted businesses.

The industrial census of Thailand confirms that firms' foreign ownership status, and the extent of foreign equity, intrinsically depend on whether the activity is eligible for investment promotion or not. It shows that three quarters of promoted manufacturers with foreign equity are majority or wholly foreign-controlled (respectively 30% and 40% of promoted firms with foreign equity) (Figure 5.5). Their behaviour contrasts with non-promoted businesses. The latter cluster at the 50% foreign shareholding, a threshold above of which they would be foreign, as per the FBA. This large concentration below the 51% threshold could signal a preference for foreign ownership that is obstructed by regulatory restrictions, although the FBA contains only few restrictions on the manufacturing sector. Chapter 6 provides more analysis with regard to this challenge.

### Figure 5.5. The distribution of foreign equity among promoted and non-promoted firms

Share of firms according to their level of foreign equity (out of all firms with 10% foreign equity or more)




Note: Observations only include the industrial sector.
Source: OECD based on the Industrial Census of Thailand 2012 and 2017.

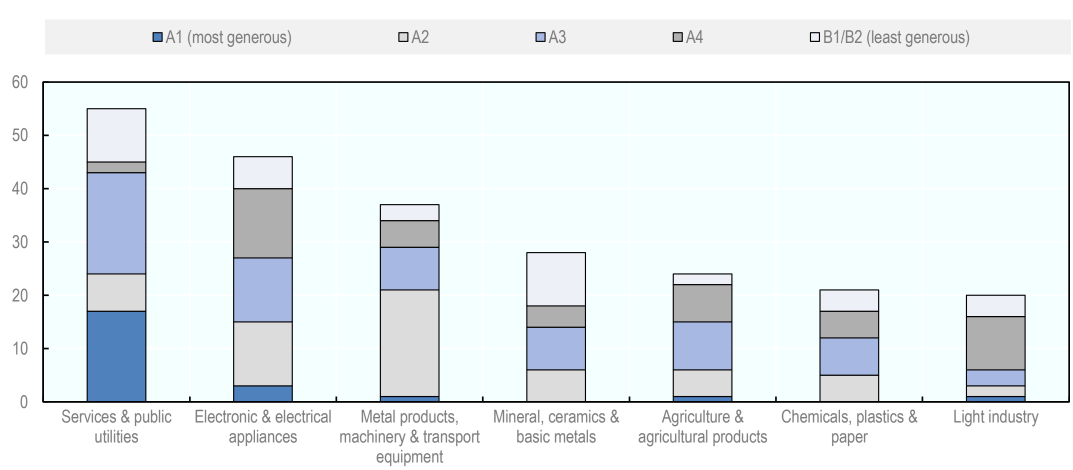
The figures above suggest that BOI's concessions on foreign shareholding are particularly attractive to investors seeking majority or full foreign control. This dualistic investment policy potentially comes with implicit costs from the perspective of investment promotion. It may distract the BOI from focussing on more relevant promotion and facilitation duties as the agency dedicates additional administrative resources to providing exemptions to foreigners. Furthermore, it limits the interaction with non-promoted foreign companies as these fall outside of the radar of the BOI while they could be interested in benefiting from the agency's after-care services, such as the BUILD programme. One positive signal is that differences in the distribution of foreign shareholding among promoted and non-promoted manufacturers narrowed between 2011 and 2016.

### *Tax incentives are targeted but tax holidays continue to dominate the scheme*

The gradual shift in the BOI's strategy from broader sector-based to more targeted, activity-based incentives is a positive development. The 2015-2021 strategy aimed at moving from a broad-based to a focussed and prioritised promotion scheme, reducing the number of promoted activities (or sub-sectors) by eliminating 51 activities ("exit group") from the list, out of a total of 246 eligible activities (TDRI, 2015). Activities in the "exit group" were mostly in agriculture and agricultural products and in chemicals. The "Guide to the BOI 2019" lists 276 eligible activities, which suggests that the number of activities increased again in the last few years, partly prompted by the introduction of technology-based incentives in 2017.

Tax holidays continue to dominate the incentives scheme. Basic incentives are divided between activity-based and, since 2017, technology-based incentives. Promoted projects are entitled to the basic set of profit-based incentives (i.e. exemption of CIT) that varies depending on the activity of the business (activity-based) and the potential advanced technologies it supports (technology-based). The main difference between the different activities is the number of years of tax holidays. Activities under the A1 group are of special importance to building a knowledge-based economy. They benefit from eight years of CIT exemption without being subject to an exemption cap. B1 and B2 activities (least generous) are supporting industries that do not use high technology, but are still important to the value chain. They do not receive tax holidays. Eligible activities belong to seven sectors defined by the BOI (Figure 5.6). The services sector concentrates the largest number of promoted activities, and particularly of knowledge-based activities focusing on R&D (A1 group).

#### Figure 5.6. Number of promoted activities, by sector and incentives' generosity




Source: OECD based on TDRI (2015) and the BOI.

Technology-based incentives were introduced by the BOI to support targeted industries under Thailand 4.0. They grant CIT exemption for up to 10 years to projects with targeted core technology development such as biotechnology, nanotechnology, advanced materials technology and digital technology. These tax incentives are associated with activities that are more horizontal as they do not fall under one of the seven sectors, which plausibly reduce their distortive impacts on the economy.

Chapter 3 examined whether the investment promotion strategy is coherent with the stated objective of enhancing competitiveness. The goal was to identify whether the most generous incentives are granted in sub-sectors where Thailand is having (or expected to have) a revealed comparative advantage. The analysis showed that sub-sectors with generous incentives that had never witnessed a revealed comparative advantage are in their majority in the automotive and chemicals sectors. The comparative advantage of some light industries promoted by the BOI is on a declining path, such as the manufacture of watches and clocks, the manufacture of optical instruments, the manufacture of bicycles, and the preparation and spinning of textile.

The BOI should maintain the level of granularity in the list of activities eligible for investment promotion but could consider progressively phasing-out incentives, or lowering them, in sub-sectors with lower comparative advantage (also see assessment of Thailand's comparative advantage in Chapter 3). The post-2021 investment promotion strategy could further reduce the number of promoted activities by sector and focus, instead, on more horizontal activities that can lead the foundations for building a knowledge-based economy, such as activities using advanced technology, R&D and skills development. The next sections support these recommendations with further analysis.

### *Basic tax incentives did not radically change the distribution of projects by sector*

The outcomes of the 2015-2021 investment promotion strategy started to be visible only a few years after its introduction, as businesses had already rushed to apply for investment promotion certificates in 2014. The applications surge in 2014, both in terms of volume and of value was triggered by the uncertainty around the revised scheme (Figure 5.7). Activities in the "exit groups", e.g. mostly in agriculture and agricultural products and in chemicals were partly behind the surge in the application in order to secure a certificate (TDRI, 2015). In 2015, the number of applications dropped dramatically while the BOI accelerated to approve accumulated applications. Since then applications have recovered their pre-2014 submission levels.

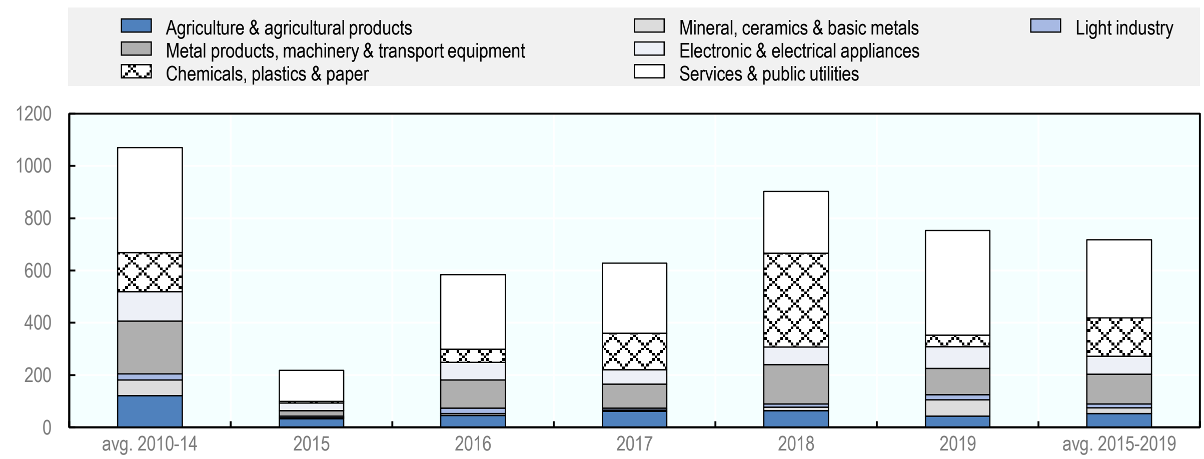
The change in 2015 in the general list of the activities eligible for investment promotion did not significantly affect the distribution of applications by economic activity (Figure 5.7). The chemicals sector continues to account for a significant amount of applications since 2015 (in terms of volume) despite counting the second largest number of activities in the "exit groups" (nine activities). Sectors with the most generous incentives and with no activities in the "exit groups", i.e. in electronics and electrical appliances, did not receive larger applications than before 2015, five years after the start of the 2015-2021 strategy.

The top 20 activities eligible for investment promotion, in terms of investment size, show that oil refining, which is included in the chemicals sector, received the largest submissions in terms of investment amounts between 2015 and 2019 (annex 5.A). In services and public utilities, infrastructure-related activities such as electricity production, transport of goods and logistics services accounted for most of the submitted investments. The value of promoted projects may not be the best indicator, however, since the nature of each business is different. For instance, the increase of investment value in the chemical sector in 2018 was due to one large investment project. Also, as the chemical sector is capital intensive by nature, it contributes more in terms of investment value, compared to labour or knowledge-based sectors, such as in services.

Figure 5.8 shows the number of applications submitted to the BOI between 2015 and end-2019 by incentive group, the corresponding amount of investment, foreign equity and employment. The A2 and A3 groups received the largest number of applications and the highest investment values. The A2 group is relatively more capital-intensive because it includes a number of infrastructure activities while the A3 group generates the largest number of jobs. The low number of applications and investment values in the A1 and technology-based groups is not necessarily alarming, as knowledge-based activities can require less capital and are less ubiquitous (the next section provides detailed analysis on the A1 group). The reduction of incentives for the B1 group in 2015 did not affect much the applications, however, since the group continues to receive large amounts of investment and many activities continue to rank in the top 20 (Annex 5.A).

## Figure 5.7. Applications to the BOI before and after 2015, by sector

Applications submitted by promoted sector, in billions of baht




Source: OECD based on TDRI EIS and BOI Statistics.

## Figure 5.8. Applications submitted to the BOI between 2015 and 2019, by incentive group


Note: Figures based on 276 activities eligible for investment promotion between January 2015 and December 2019. Some activities expired over this period or were withheld from the promotion list. A1: most generous activity-based incentive (Eight years of CIT exemption); B2: least generous activity-based incentive (No CIT exemption). Technology-based incentives were introduced in 2017 and grant projects 10 years of CIT exemption.

Source: OECD based on BOI Statistics and the 2019 Guide to the BOI.

Foreign resource intensity, either in terms of capital or labour, is not the same across the different incentives groups (Figure 5.8, Panel C and D). Some observations raise questions about the efficacy of the strategy. For instance, foreign shareholding intensity does not necessarily increase with the generosity of the incentive group while this could have been expected in light of the government's strategy to attract FDI in activities with no or very few existing investments in Thailand – the A1 and B1/B2 groups have the highest foreign capital intensities. The same line of argument holds for foreign workers intensity. Foreign workers are not necessarily more present in activities requiring higher skills but rather in the A3 (13%) and B2 (17%) groups. Beyond incentives, the structure of each industry also affects the number of submitted applications. For instance, hired workers across activities are not strictly comparable as those in more advanced industries have a higher set of skills.

### *Merit-based incentives are a positive development but their design could be refined*

Merit-based incentives are the main innovation of the 2015-2021 investment promotion strategy. They are additional tax incentives (i.e. on top of basic incentives) which are granted to stimulate investment or spending on activities that benefit the country or industry at large (Figure 5.4). The BOI specifies additional incentives based on the merits of the project. Merit-based incentives include both profit-based incentives (tax holidays) and cost-based instruments (tax deductions) granted if the project contributes to R&D and skills development, decentralisation of investment or is located in an industrial estate.

Projects receive additional CIT incentives if they invest in in-house or joint R&D with overseas institutes, donate to technology or human capital development funds, pay IP acquisition/licensing fees, or provide advanced training. These incentives are cost-based instruments: businesses investing in technology and workforce development are eligible to include the investment value for CIT exemption for up to 200%, while projects investing in R&D are eligible to a maximum of 300%. To promote business linkages, projects are granted the additional incentives of 200% expenditure deduction from taxable income incurred for spending on the development of local, Thai majority-owned, suppliers in advanced technology through training and technical assistance.

Other merit-based incentives are granted with the objective of attracting investment in less developed regions of the country. Projects located in one of the 20 provinces with lowest per capita income receive additional CIT exemptions and reductions. They also receive deductions from the costs of transport, electricity and water supply for 10 years and additional 25% deduction of the investment cost of installation or construction of facilities. Projects in industrial estates or promoted industrial zones obtain an additional CIT exemption. Merit-based incentives related to "decentralisation" exclude border provinces in Southern Thailand and SEZs which have separate special incentive packages.

The reliance of merit-based incentives on cost-based tax instruments (and less on profit-based CIT incentives) is a positive development. International investment and tax policy communities broadly agree that tax holidays are the most distortive incentives (IMF-OECD-UN-World Bank, 2015; OECD, 2019b). They apply to profits or income that are already secured and may therefore directly involve forgone government revenues – making profitable investment projects even more profitable. Cost-based instruments like tax deductions and credits are preferable to profit-based tax holidays and reductions. The downside of cost-based tax incentives is that they require higher tax administration capacities (Andersen et al., 2017; James, 2014).

The design of merit-based incentives could be improved to increase their attractiveness and limit forgone revenues because of the scheme's high generosity. Data on the number of investors that applied for merit-based incentives are not available but consultations with stakeholders indicated that the application process could be further clarified and the decision criteria eased. Incentives on business linkages could be expanded to include the expenditures incurred by promoted firms in assisting and auditing their suppliers to adhere with the company's quality, environmental, health and safety standards (Galli, 2017). More broadly, merit-based incentives are not open to all firms and co-exist with other tax incentives granted by other government agencies. Expanding the scheme to all firms could level the playing-field with non-promoted companies, particularly SMEs. The multiplicity of tax incentive schemes can also make it complex for investors to identify the most appropriate scheme. The next sections on R&D and skills provide further analysis.

#### *A cost-benefit analysis of the overall effectiveness of incentives would be beneficial*

A thorough and informed cost-benefit analysis of the overall effectiveness of incentives would be beneficial and the results should be made publicly available. Disclosing information on overall forgone revenue through tax incentives would greatly support the government in its efforts to move away from incentives-based investment promotion to a competitiveness-based strategy to attract and retain investment.

The availability of data is a perquisite to conduct cost-benefit analysis of tax incentives and monitor more broadly the use and impact of activity-based and merit-based incentives. The BOI project-level database on submissions and approvals by activity could be complemented with a nomenclature that can be matched with product-level trade statistics at the 4 or 6 digits levels. In addition, the agency, in co-operation with the National Statistical Office and the Revenue Department, could match BOI's project-level data with establishment-level data of the industrial census. The census could be enriched with further information on the use of activity and merit-based incentives (and which ones) to assess their impact on productivity, exports, R&D, skills, and other outcomes.

### *Business climate and investment facilitation reforms*

The 2015-2021 investment promotion strategy did not include major changes with respect to investment facilitation incentives. Nonetheless, the BOI undertook other important initiatives to improve the wider framework for investment facilitation and retention. These new initiatives include, but are not limited to, the introduction of the SMART visa programme to attract foreign talents and start-ups, probably the main innovation of the last few years, easing restrictions on the entry of unskilled workers and improvements in the administration of the OSOS and the services it provides.

#### *The World Bank rates the Thai business climate as one the region's most favourable for investment*

Thailand has registered notable improvements in the Doing Business ranking since 2016. Over the past 12-months, it surpassed 6 other countries and now ranks 21 out of 190 countries worldwide according to World Bank's Doing Business 2020. This progress was driven by improvements in the indicators dealing with construction permits, starting a business, getting electricity and resolving insolvency. The country attained its highest rankings for protecting minority investors (3rd place).

Thailand's business climate ranking is outstanding but less remarkable than a decade ago: in 2009, it ranked 12th in the Doing Business ranking. Further improvements can be made to cope with fiercer global competition and generalised improvements in neighbouring countries' business environments. In particular, some policy areas that are crucial for attracting higher value-added investments in R&D and advanced technologies could also be further improved. In comparison with Malaysia and Singapore, Thailand ranks lower in the Doing Business ranking with respect to facilitating trade, protecting and enforcing intellectual property (IP) rights, registering property, and dealing with construction permits.

IP rights are of special relevance for attracting and retaining knowledge-based FDI. A number of international indicators confirm that further improvements of the IP legal and institutional framework need to happen to further align Thailand with international standards. Effective intellectual property rights, and more particularly law enforcement, are still a challenge despite improvements. According to OECD team interviews with selected foreign investors in Thailand, there may be a need to address the perception of discretionary application of the current IP legal and regulatory framework. Chapter 7 provides concrete policy options on how to reform IP rights and their effective implementation.

### *Investment facilitation: the One Start One Stop Investment Centre*

The BOI established the OSOS in 2009 to offer investors greater convenience in dealing with multiple agencies located throughout Bangkok. The OSOS brings together staff from 38 investment-related agencies at a permanent location in Bangkok's business district, together with the One Stop Service Centre for Visa and Work Permit, the Smart Visa Unit, and the STC. One strength of the OSOS is that services are provided to all prospective investors whether Thai or foreign, large or small and promoted or not.

The OSOS provides information and consultancy related to doing business in Thailand on topics such as obtaining investment promotion privileges, company registration, obtaining a foreign business licence, factory licence application and related procedures, customs clearance, and import and export. The centre also facilitates site visits to industrial zones. Contrary to some OSS in other countries, the OSOS is a services platform and has no mandate to deliver business permits, apart from on-site company registration service.

The OSOS could further support foreign investors by putting business registration documents in English at their disposal. For instance, one legal requirement of the MOC's Department of Business Development (DBD), which is generally responsible for business registration, is that the documentation must be submitted in Thai language. Consultations with foreign investors indicate that this can cause delays in submitting applications as they typically have to hire a law or consulting firm to handle their applications in Thai language.

### *Recent efforts to attract and facilitate the entry of foreign workers*

The mobility of human resources, particularly in science and technology, has become a central aspect of globalisation, alongside sustained growth in FDI, trade and R&D internationalisation (OECD, 2008). Already a decade ago, migration of talent was playing an important role in shaping skilled labour forces throughout the OECD area. In this growing context of a global race for talent, attracting foreign talent and facilitating workers' entry and establishment has become one of the main objectives of Thailand. This objective is even more important in light of the generous incentives to attract skill-intensive investment. This scheme may not generate the expected outcome as long as it is a challenge for prospective foreign workers with required skills to obtain a visa or residence permit.

The government has sent strong signals with regard to its interest in attracting foreign talent. On the international policy front, since 2015, skilled labour within seven branches of professions can move freely in ASEAN under the ASEAN Economic Community agreement. At the national level, the recent creation of the BOI's STC to facilitate the entry of talented workers and the introduction of the SMART visa should help in overcoming some of the labour shortage challenges. The agency introduced in 2018 the SMART Visa Programme to enhance Thailand's attractiveness in drawing science and technology experts, senior executives, investors and start-ups. The SMART Visa is a new type of visa offered to foreign experts, executives, entrepreneurs and investors who wish to enter into Thailand to work or to invest in the country's targeted industries. It offers significant benefits for the applicant, such as no necessity for a work permit, 90 days report replaced by one year report and no requirement for a re-entry permit.

When launched, the number of applicants to the SMART Visa programme was low according to consultations with the BOI, as its conditions were not easy to fulfil. To raise attractiveness and practical relevance of the programme, the BOI significantly relaxed the requirements nine months after it was launched. Concretely, it added three more sectors and lowered or abolished the minimum income and savings requirements for highly-skilled experts and start-up investors. Administrative steps were also further streamlined. While the prospects are promising, it is early to assess the outcomes of this programme.  Information on the number of visas that are granted, and on the ease of doing so, would help monitoring the impact of the programme and adjust the process and criteria if needed.

Besides the SMART visa programme, the government has taken other steps to facilitate foreign talent entry to support the development of targeted industries. In co-ordination with other agencies, the BOI established the STC in 2017 to facilitate the search for and entry of foreign specialists in the science and technology sector both for promoted and non-promoted firms. The centre provides a mechanism which recognises the qualifications of foreign experts interested to work in Thailand. Once their qualifications are recognised, these experts will then be assisted regarding their visas and work permits. The process for non-promoted companies to request letters of support for foreign specialists' visa applications, and submit applications to bring foreign specialists to Thailand is managed by the BOI's Foreign Expert Services Unit, enabling online applications and notifications.

Notwithstanding the relevance of recent initiatives to attract foreign talent, streamlining the wider legal and institutional framework for the entry of skilled foreign workers continues to be necessary. Immigration policy could be streamlined and the benefits and costs of stringent regulations such as TM30 (landlords must register non-Thai nationals living in their properties) and 90 days report must be assessed against the wider objective of attracting foreign talent. If there are any identified benefits, other tools must be considered to remedy any specific situation. Such reforms could be envisaged by the Guillotine Unit (Simple and Smart License project). In the medium to long term, structural reforms easing foreign talent entry would make obsolete initiatives such as the STC or the SMART Visa programme, which affect the capacity of the BOI to focus on its core investment promotion and facilitation mission.

Admission conditions for the highly qualified have been eased in most OECD countries over the past decades but policies and practices for admission of talented workers continue to make a difference for determining workers' optimal location choice (Box 5.4). These could include family reunification practices or the ease of status change from temporary to permanent. OECD work has shown that for a majority of countries, adopting more favourable policy packages would enable them jump to the top of the list and become a leading destination notably for talented foreign workers. Aside from easing legal barriers on foreign workers' admissions, OECD countries promote talent mobility by improving the wider framework for talent attractiveness, which includes several dimensions such as the quality of opportunities, income and tax policies, and future prospects.

The entry and admissions of foreign unskilled workers is another challenge that promoted investors can face. The government is aware of Thailand's constraint with respect to unskilled labour. The BOI has been trying to facilitate the entry of foreign workers by allowing them to work in labour-intensive activities. Since 2016 the employment of unskilled workers in promoted projects is possible, conditional on the existence of an agreement with the home country of foreign workers, or the location of foreign unskilled workers in certain areas (i.e. SEZs in the southern border provinces). In December 2018, the BOI revoked the 2016 announcement to allow all promoted projects to employ foreign unskilled labour. Employment of unskilled foreign workers in promoted projects must conform to related laws and regulations of relevant government agencies.[4]

Immigration law in Thailand is complex and involves several government agencies i.e. the BOI, the Ministry of Foreign Affairs, the Ministry of Labour, the Immigration Bureau, and the Ministry of Interior. This structure, including the roles of each agency or ministry, could be clarified as it contributes to Thailand's investment facilitation challenges. Available and transparent data on the stringency of Thai migration policies could raise awareness and help concerned agencies advocate for policy change. One relevant indicator is processing time, measured in calendar days from when a prospective migrant initiates an immigration case to the date on which the individual is allowed to start working in the destination country. For OECD countries, this ranges from 39 days to 185 days (OECD, 2019c).

### Box 5.4. The global race for talent: The OECD indicators of talent attractiveness

The OECD indicators of talent attractiveness are the first comprehensive tool to capture the strengths and weaknesses of OECD countries regarding their capacity to attract and retain three specific categories of talented migrants: highly educated workers (those with master and doctoral degrees), foreign entrepreneurs and university students. The indicators show policy makers how much leeway OECD countries have to make their country the chosen destination for potential talented foreign workers.

The indicators score seven dimensions: quality of opportunities; income and tax; future prospects; family environment; skills environment; inclusiveness; and quality of life. They also take into account how difficult it is for prospective foreign workers with required skills to obtain a visa or residence permit. Admission conditions for the highly qualified have been eased in most OECD countries over the past decades. Yet some countries are more attractive than others, due to a variety of factors, which may be related to overall economic, labour market and living conditions or to specific practices regarding the conditions for entry and stay of foreign talents. The most attractive OECD countries for highly qualified foreign workers are Australia, Sweden, Switzerland, New Zealand and Canada, which offer favourable labour market conditions and an excellent skills environment for highly skilled workers in general. More challenging admission conditions negatively affect the attractiveness of several OECD countries, including Israel, Japan and Turkey.

Source*:* OECD (2019c), How do OECD countries compare in their attractiveness for talented migrants?, Migration Policy Debates, N.19, May 2019.

### *Investment promotion and facilitation in the time of COVID-19*

The COVID-19 outbreak, and the risk of reduced FDI flows as a consequence, makes it even more relevant for the BOI to accelerate the earlier trend of narrowing investment promotion to activities with a high developmental impact, and likely to support a sustainable recovery. During the first quarter of 2020, the number of applications submitted to the BOI slightly increased compared to the same period last year but the total invested amount declined by 44%, as projects were smaller. To respond to the crisis, the BOI and other IPAs around the world are rapidly shifting their activities and adopting new strategies (Box 5.5).

The BOI has taken rapid measures on the investment facilitation front, followed by other measures to mitigate the impact of the COVID-19 outbreak on investment, including steps to encourage investment in the medical sector. On investment facilitation, the agency launched an online document submission service (e-submission) on top of the existing e-services (e.g. e-investment for applications). This new service, in line with the government policies to encourage people to work from home, ensures that companies can still receive services from the BOI as in normal times. Furthermore, the agency made advisory services possible through online meetings and extended the application deadline for CIT exemption.

The BOI granted new tax incentives in the medical sector, with the objective of addressing the increased demand for medical equipment and supplies but also of developing the sector in the longer-term. Moreover, support has been given to the modification or transformation of existing production lines to increase the domestic availability of medical supplies. It also approved incentives to promote management of water resources, technology-based “smart farming” solutions and R&D in a broader range of activities than before the crisis.

### Box 5.5. OECD IPAs' strategic responses to the COVID-19 outbreak

IPAs' capacity to adapt to new situations makes them key actors in governments' responses to the COVID-19 crisis. OECD IPAs' strategic responses to the COVID-19 outbreak included:

- *Re-organisation and innovation*. OECD IPAs have seen an immediate impact of the crisis on the way of doing business. Most of them re-organised rapidly to dedicate a COVID-19 section on their website with information on government support and applicable restrictions. Close to two-thirds of the agencies have a dedicated webpage in English.
- *Focus on existing clients and information provision*. The nature of services provided by IPAs has changed radically by shifting away from marketing to intense aftercare. As new regulations are adopted to mitigate the impact of the crisis, IPAs provide support to investors to navigate the rapidly evolving legal framework. They also play a key facilitating role to support firms with their ongoing operations and supply chain relationships.
- *Activating business networks*. IPAs have activated their business networks, particularly in the health sector and hardest hit activities, to help the government fight the crisis. For instance, Germany Trade and Invest narrowed down its services to only five industries, which are both the most hit by the crisis and for which the IPA can maximise its impact.
- *Going digital*. Digital means will allow IPAs to continue servicing and identifying future clients, which requires access to different digital tools. For example, digital client prospecting, capable of correctly identifying potential leads, and virtual-reality solutions for site visits can gain in importance. Some IPAs are already going digital. CINDE Costa Rica has accelerated its digital plans, including artificial intelligence-based marketing, providing services and products online. Business Sweden provides investors with access to online interactive maps of different industrial clusters, and plans to expand them.
- *New focus and prioritisation*. The COVID-19 crisis may propel agencies to reconsider their prioritisation strategies. For example, Business Sweden has used for years a qualitative evaluation system to identify high-quality projects and the UK Department for International Trade will continue using economic analysis and intelligence driven prioritisation to ensure that FDI plays an effective role in economic recovery.
- *Rethinking strategies and reforms*. In light of their evolving roles, OECD IPAs are rethinking their strategic orientations to better respond to both public and private sector needs. Investment climate reforms, supported by IPA policy advocacy, will become ever more important in a context of uncertainty and possible protectionist tendencies.

Source*:* OECD (2020b)

## The landscape of promoted firms and their role in the knowledge-based economy

Investment promotion policies successfully enabled Thailand to attract new businesses that shaped the Thai economic landscape and contributed to the emergence of industries such as the automotive sector. Since the early 2010s, the effectiveness of these policies in modernising the economy, supporting technological progress, closing the skills gap and reducing inequality increasingly became an open question. A better grasp of Thailand's investment promotion policy impacts on building a knowledge-based economy is crucial in a context where policymakers relentlessly adjust strategies and tools to a world with fast-changing technological pace, increased global competition and tighter fiscal constraints.

Promoted companies are typically middle-sized or large export-oriented businesses, often with foreign shareholding, and in their majority located in one of the 57 industrial zones or in the economically advanced area forming the Eastern Economic Corridor (EEC). Their weight in the Thai economy is colossal, despite forming a small group of registered establishments in the industrial census of 2012 and 2016. They generate one-third of national value-added creation, employ one in ten skilled worker and spend a quarter of all business expenditures on R&D and training (Table 5.2). Their net positive impact in all aspects is, however, not a given. For instance, the socio-economic benefits of promoted firms could be geographically more widespread as operations are largely confined to BMA and EEC (also see Chapter 3 and 4).

## Table 5.2 The weight of promoted industrial establishments in the Thai economy

Promoted firms in % of all establishments (unless otherwise specified)

| | 2011 | 2016 |
|---|---|---|
| Promotion certificate status | 2.5% | 2.4% |
| Promoted foreign-owned (% of all foreign-owned firms)* | 68% | 68% |
| Promoted exporter (% of all exporters) | 32% | 35.5% |
| Value-added | 34.4% | 29.7% |
| Employment, among which: | 20.3% | 20.9% |
| *Skilled* | *10.4%* | *10.9%* |
| *Unskilled* | *7.5%* | *7.4%* |
| *Other* | *2.4%* | *2.5%* |
| Spending on R&D | 52% | 23% |
| Spending on training of employees | 32% | 20% |

Note: * foreign-owned: 51% or more foreign shareholding.
Source: OECD based on the Industrial Census of Thailand 2012 and 2017.

This section examines further what are the characteristics of promoted firms and explores their impact on building a knowledge-based economy. The section pays particular attention to the four pillars of the 2015-2021 investment promotion strategy, namely productivity enhancement (including SMEs upgrading), technology and innovation, people (human capital and foreign talents), and the development of specific territories (i.e. EEC, border SEZs and disadvantaged regions).

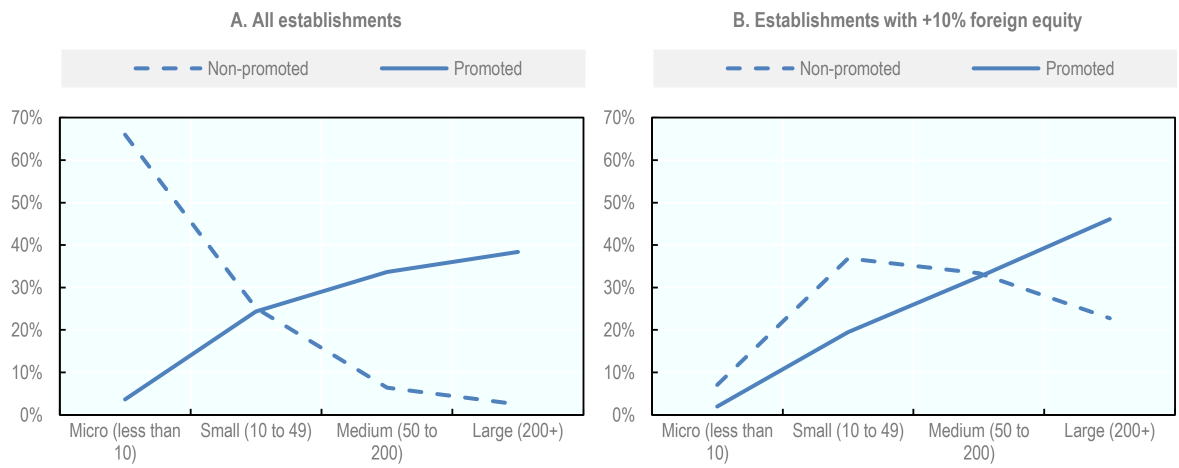
### *The majority of promoted businesses are medium and large establishments*

One of the objectives of the 2015-21 investment promotion strategy is to encourage value-added creation by SMEs.[5] Investment promotion policy in Thailand is hence not fully size-neutral, i.e. some regulations or incentives are contingent on firms' size. Analysis based on the 2016 industrial census of Thailand reveals that six out of ten firms holding a promotion certificate are SMEs. The distribution is skewed towards medium-sized companies – one third of the certificates are held by firms with 50 to 200 employees (Figure 5.9). This ratio is even larger among the group of foreign enterprises with a promotion certificate. The group of large firms (More than 200 employees) represents a non-negligible portion of all promoted firms while it covers less than 1% of establishments in Thailand.

Micro and large businesses, i.e. firms at both ends of the size distribution, hold fewer promotion certifications. Size-contingent investment promotion policies may be at work, either by proactively targeting the group of larger SMEs or by minimising requests from other types of establishments. For instance, the minimum capital requirement to submit a project to the BOI is THB 1 million (USD 33100) excluding the cost of land and working capital. Exceptions exist for activities like electronics design and software development, for which the requirement is the minimum expenses for design personnel or IT personnel of at least THB 1.5 million per year.

**Figure 5.9. The size of promoted and non-promoted industrial establishments in 2016**

The distribution of establishments by their number of employees, in percent of all establishments




*Source*: OECD based on the Industrial Census of Thailand 2017.

Size-contingent requirements may obstruct potential requests by start-ups, although this could change with the introduction of the SMART visa programme for entrepreneurs and start-ups. The census is unable to assess whether current policies affect the number of applications or approvals (or both). It is possible that medium-sized firms are more prone to apply for promotion than, for instance, start-ups.

### *The BOI attracts productive firms but targeting could be further improved*

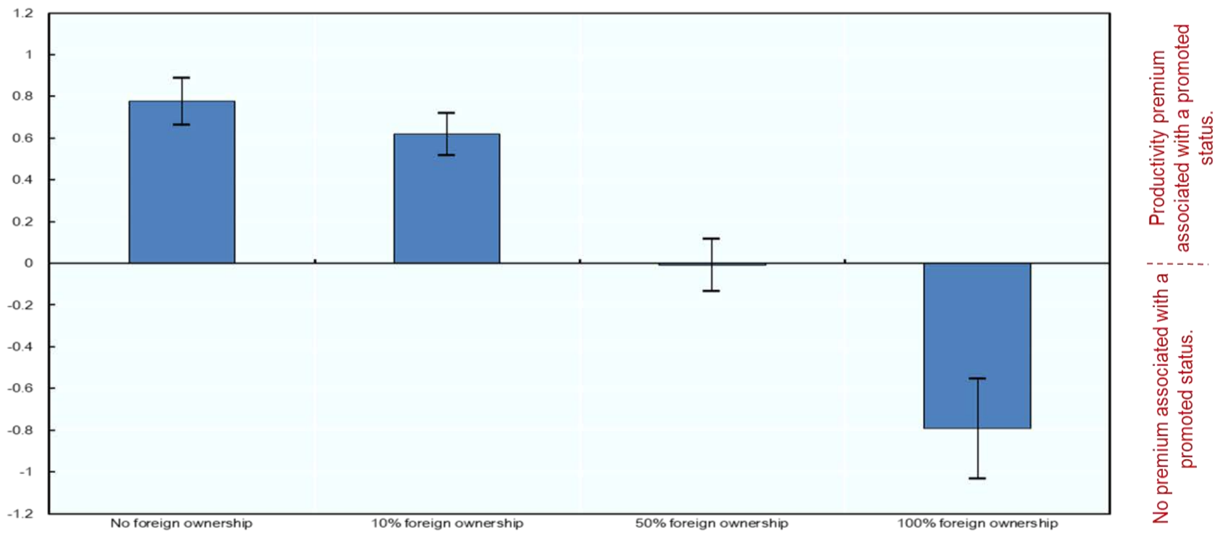
Investment promotion policies in Thailand, and the corresponding incentives they grant, aim at attracting top multinational and domestic firms that are at the productivity and innovation frontiers. The success of these policies in attracting such firms (e.g. basic incentives), but also in enhancing their performance and impact on the Thai economy (e.g. merit-based incentives), appear to be positive, although some adjustments could improve their efficacy, particularly with respect to the productivity of promoted foreign companies.

Manufacturing firms holding promotion certificates are about 60% more productive than their non-promoted peers, including within the same sector of operation and irrespective of their size.6 Investment promotion certificates are not necessarily associated with such performance premia for all types of firms, however. Analysis in Chapter 4 shows that firms with 10% or more foreign ownership perform better than their domestic peers. Since half of the promoted businesses have at least 10% foreign equity, the distinct effects of a promotion certificate and of foreign ownership on productivity cannot be entirely isolated from each other. This distinction is even more crucial as Thailand's investment promotion strategy focuses on FDI attraction.

Investment promotion certificates' positive association with labour productivity vanishes the larger is the share of foreign shareholding (Figure 5.10). In particular, attracted Thai-owned firms with a promotion certificate are significantly more productive than their non-promoted peers. This is not the case for partially or fully foreign-held promoted businesses (at least 50% of foreign equity), however, as they do not perform any better than the non-promoted foreign companies.[7]

## Figure 5.10. Effect of investment promotion on labour productivity in Thailand

Marginal effect of a promotion certificate on labour productivity - conditional on foreign equity levels




Note: Result based on firm-level regression with sector fixed-effects and 95% confidence intervals. Dependent variable: labour productivity (value-added by number of employees in logarithms). Independent variables: share of foreign equity, promotion certificate, interaction between the two variables, and firm size. Promotion certificate is a dummy variable that takes value 1 if the company has a certificate and 0 otherwise.
Source: OECD based on the Industrial Census of Thailand 2017.

For the group of promoted foreign companies, which is plausibly composed of already large and productive MNEs that are typically active in highly concentrated markets, existing promotion strategies and incentives may not be as successful in attracting top global performers nor in further improving the performance of the ones operating. This is not necessarily problematic if these promoted MNEs operate in sectors of strategic relevance for the Thai economy. Nonetheless, the BOI could better target promoted activities attracting majority or fully foreign-owned firms, as also discussed in Chapter 6.

Another stated objective of Thai investment promotion policies is to foster business linkages between promoted firms and local suppliers to modernise the economy and upgrade SME performance. The BUILD programme on linkage development could concentrate its efforts on the support of SMEs in sectors where productivity gaps between promoted and non-promoted firms are the strongest – and beyond the automotive industry. Chapter 4 shows there is a productivity premium in favour of Thai firms that forge business linkages with foreign firms relative to those that do not. It is plausible that a similar premium exists when Thai firms forge linkages with promoted firms. Nonetheless, if the productivity gap between promoted firms and local suppliers is too large then technology spillovers may not occur, reducing the potential for wider productivity gains.

According to the 2017 industrial census, the size of the productivity premium associated with a promotion certificate depends significantly on firms' sector of operation. The largest gaps are observed in medium-tech industries such as recycling, chemicals, food, machinery and equipment and the smallest in low-tech manufacturing such as plastic products and in the apparel industry. BUILD could tailor the services it provides to the specificities of each sector and the performance gaps the sector reports between promoted and non-promoted companies, with the broader objective to narrow the gap across the two groups of firms.

### *Policies to attract knowledge-based and R&D activities have had modest impact*

Thailand grants a plethora of incentives to boost investment in the knowledge economy, and more specifically in R&D. These incentives include both profit-based and cost-based instruments. As described in the previous section, the BOI basic incentives scheme include CIT holidays for technology-based projects and knowledge-based activities focussing on R&D (profit-based). The BOI's merit-based scheme, which is cost-based, grants promoted companies additional CIT exemption if they spend on R&D activities (Table 5.3).

## Table 5.3 Description of cost-based R&D tax incentive schemes in Thailand

| R&D scheme | General description of the scheme | Scheme offered in Thailand* |
|---|---|---|
| Tax credit/ tax credit account (R&D expenditure) | A tax credit decreases the corporate income tax amount a firm has to pay.<br><br>A tax credit account provides each qualifying investor a specific amount of tax relief in the form of a cap (credit account). A tax credit account may be regarded as a sort of hybrid between a tax holiday and a tax credit (Zolt, 2015).<br><br>Example: an investor receives USD 500 000 of corporate income tax liability in the form of a tax credit account. If the investor determines it has USD 60 000 of tax liability in year one, it would pay no tax, but the cap (credit account) would be reduced to USD 440 000 for future tax years.<br><br>Credit can be applied to either corporate tax, payroll tax paid for R&D workers or personal income in case the incentive is targeted to self-employed. | **The BOI's merit-based incentive scheme** grants promoted companies 300 % additional cap (credit account) of corporate income tax exemption for one unit of investment or expense on R&D and 200% on IP acquisition/licensing fees for commercialising technology developed in Thailand.**<br><br>Example: a project (without R&D) has THB100 million for the cap of corporate income tax exemption, corresponding to 100% of the investment made – excluding cost of land and working capital. If the project invests THB1 million in R&D, it will be granted additional cap for THB3 million. Thus, the project will have a total of THB103 million of cap (credit account) on corporate income tax exemption. If the investor determines it has THB2 million of tax liability in year one, it would pay no tax but the cap (credit account) would be reduced to THB101 million for future tax years. |
| Enhanced allowances (R&D expenditure) | An enhanced allowance effectively decreases the base amount that is taxed by allowing to 'inflate' the R&D expenditure base. | **The Revenue Department and the NSTDA** grant 200% tax deduction for R&D expenses. The maximum tax reduction allowed depend on the firm's income. Lower income gives right to higher levels of maximum tax reduction. |
| Accelerated depreciation (R&D expenditure) | Accelerated depreciation scheme permits to depreciate the purchased fixed assets at higher rates in the first years of the asset's life. This allows, therefore, to decrease the overall taxable income in the specific periods. | **The Revenue department** grants R&D equipment depreciation rate incentive. The depreciation rate will be set at 40% of the asset cost for the first year (against 20% for 5 years in general). |

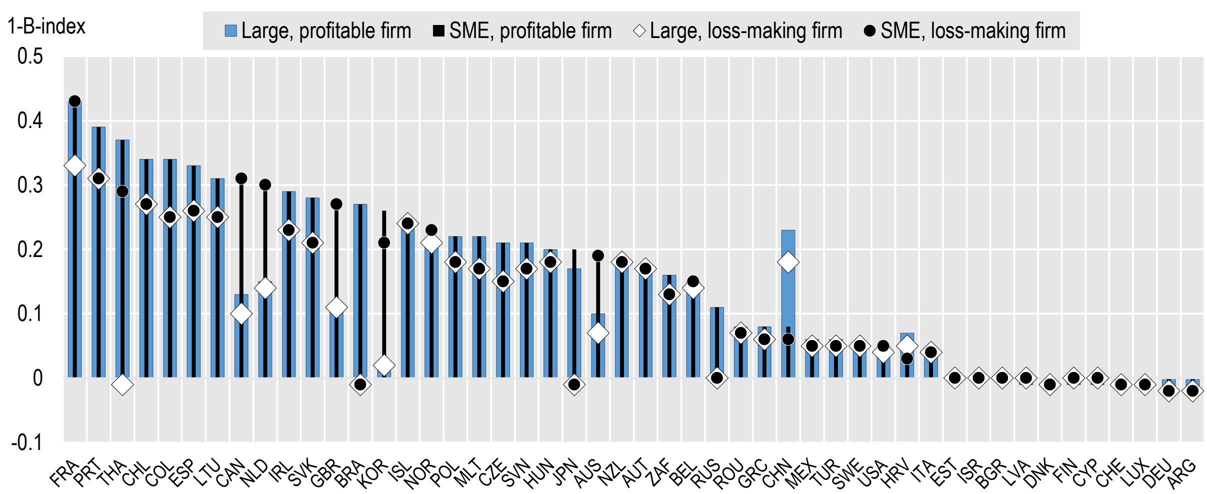
Note: * A promoted company cannot cumulate a merit-based incentive on R&D with an R&D incentives from the Revenue Department and the NSTDA. ** Promoted firms can also benefit from additional CIT holiday of up to three years conditional on R&D expenditures.
Source: OECD based on LHDNM-OECD: Effective and efficient use of tax incentives| 4-8 December 2017, Kuala Lumpur; The 2019 Guide to the BOI; and Zolt (2015).

In addition to the BOI scheme, the Revenue Department and the National Science and Technology Development Agency (NSTDA) grant a 200% tax deduction for R&D expenses.[8] The rate was raised from 100% to compensate for the reduction in the CIT rate from 30% to 20% in 2015. The multiplicity of R&D tax incentive schemes can make it complex for investors to identify the most appropriate scheme. Promoted companies can choose between BOI's merit-based R&D tax incentives or the scheme of the Revenue Department and the NSTDA but they cannot cumulate both. Non-promoted businesses have only access to the latter scheme.

The R&D tax incentives of the Revenue Department and the NSTDA reduce the cost of R&D through enhanced tax deductions. Tax credits or enhanced tax allowances (i.e. tax deductions) represent the most frequent form of R&D tax incentive support in OECD member countries and partner economies (Box 4.6). The merit-based incentive scheme operated by the BOI is more complex and is closer in nature to a tax credit account (Table 5.4). Overall, Thailand's tax subsidy rate on R&D expenditure, capturing the effect of the R&D tax allowance and accelerated depreciation provision, is generous in comparison with both OECD and non-OECD countries (Figure 5.11), especially for profitable firms. The tax subsidy rate provides a synthetic representation of the generosity of the tax system in a country for a marginal unit of R&D expenditure (Appelt et al., 2019).

## Figure 5.11. Tax subsidy rates on R&D expenditures in Thailand and other countries

1-B-Index, by firm size and profit scenario




Note: For general and country-specific notes on the time-series estimates of implied marginal tax subsidy rates on R&D expenditures (based on the B-index), see http://www.oecd.org/sti/rd-tax-stats-bindex-ts-notes.pdf.
Source: OECD R&D Tax Incentive Database, http://oe.cd/rdtax, June 2020.

Despite their generosity, tax incentives to boost the knowledge economy have not yet had their expected impacts, although this could be related to a lack of carry-over or more advantageous refund provisions, or the overall administration burden in applying for tax support. Annex 5.B shows the applications for basic incentives to technology-based and knowledge-based activities focussing on R&D received by the BOI between 2015 and 2019. These activities represented 4% of all submitted applications in terms of investment value and 5% in terms of project number. The ratios are modest in light of the current policy focus on attracting knowledge-based investment. It is possible that applications in less ubiquitous and riskier activities such as R&D would not have taken place at all, or at a lower level, without the generous incentives in place.[9] In that case, incentives are effective and can be justified, aside from their wider justification with respect to R&D's spillover benefits for the Thai economy.

High quality foreign resources, either capital or human, have been instrumental in supporting advanced countries' transition towards a knowledge-based economy, and Thailand will be no exception. The investment promotion strategy acknowledges this fact by providing investment facilitation incentives to foreign investors or skilled workers. As described in the previous section, the outcomes of this strategy have been mixed. Foreign shareholding in knowledge-based activities (51% of registered capital) is slightly lower than in the average eligible activity (53%) as is also the case for foreign talent (4.6% workers versus an average of 7.3%).

The use of foreign resources varies across eligible knowledge-based activities, possibly revealing barriers specific to the eligible activity or to the skills it needs. For instance, projects producing electricity from garbage, data centres and forestry plantations operate with no foreign equity while those in biotechnology are fully foreign-owned (Annex 5.B). This could be because the BOI is not entitled to circumvent foreign ownership restrictions in activities under List One of the FBA, which includes forestry, for instance (Chapter 6). With respect to human capital, more foreigners could reflect more severe shortages in high-skilled workers among the Thai active population, as for instance in R&D activities.

Investment value or the number of projects may not be the most adequate indicators to assess investment promotion capacity in attracting knowledge-based projects since these do not necessarily require large capital and are less ubiquitous. To examine whether BOI schemes generate impact, another approach is to compare promoted and non-promoted firms' spending on R&D by using information from the industrial census. This approach does not determine whether incentives helped an investment to be realised or not but, once a promoted business is operating, whether spending on R&D are higher than for a non-promoted project, as should be expected. One advantage of this approach is that potential effects are not confined to activity-based incentives but can reflect merit-based incentives on R&D, even if these were introduced only in 2015 and have evolved since 2017.

The industrial census of Thailand reports businesses' spending on R&D, as it also does for training (see next section) and for other administrative and operational costs.[10] Three main observations can be drawn from the census (Table 5.4). Firstly, it shows that promoted manufacturers engaged more than their non-promoted peers in R&D activities. Secondly, promoted and non-promoted manufacturers allocated similar fractions of their budgets to R&D, although the promoted group spent larger amounts in Baht value. Thirdly, the percentage of promoted manufacturers that engaged in R&D and, even more so, the budget they dispensed to this activity were lower in 2016 than in 2011.

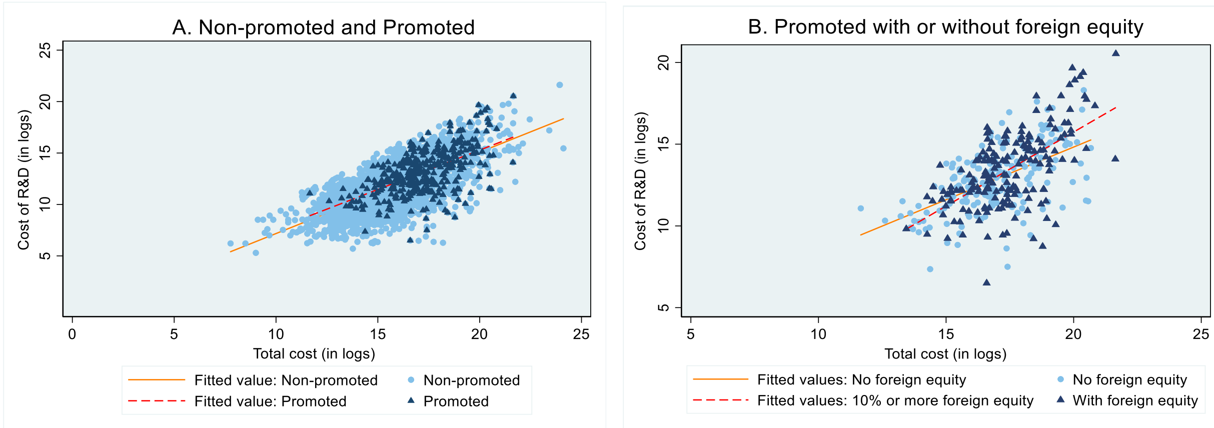
## Table 5.4 Spending on R&D by promoted and non-promoted industrial establishments

| | Establishments with R&D spending (% of all establishments) | | | Avg. spending on R&D (in millions of Baht) | | | Avg. spending on R&D (% of total spending) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Non-promoted | Promoted | All | Non-promoted | Promoted | All | Non-promoted | Promoted | All |
| 2011 | 2.1% | 15.9% | 2.4% | 2.34 | 15.8 | 4.25 | 6.8% | 9.5% | 7.2% |
| 2016 | 2.7% | 15.2% | 3.0% | 3.12 | 8.83 | 3.66 | 5.2% | 5.6% | 5.3% |

Source: OECD based on the Industrial Census of Thailand 2012 and 2017.

Being promoted did not significantly affect manufacturers' likelihood to spend on R&D nor R&D-performers' budget allocation for this activity. Instead, establishments' size, and the associated costs they face as they are larger, drove most, if not all, of the operational costs on R&D (Figure 5.12, Panel A).[11] Foreign ownership also plays a role in driving R&D spending (see also Chapter 4). Within the group of promoted manufacturers, those with 10% foreign shareholding or more dedicated greater fractions of their budget to R&D relative to those with no foreign equity the larger they were (Panel B). Overall, promoted firms' higher spending on R&D is driven by their larger size and greater foreign shareholding but not necessarily their intrinsic status as promoted companies.

**Figure 5.12. The relationship between firms' total expenditure and spending on R&D in 2016**




Note: Observations include only establishments that reported their administrative and operational cost on R&D. Fitted values are point estimates based on simple linear regressions
Source: OECD based on the Industrial Census of Thailand 2017.

The analysis above has caveats, not least the absence of the services sector. Despite the limitations, the results are sufficiently reliable to challenge the assumption that existing incentives successfully support the knowledge economy and, more specifically, make a difference in boosting R&D investment in the manufacturing sector. The results suggest that investment promotion incentives, at least those in force until 2016, did not significantly push promoted manufacturers to dedicate larger fractions of their budget to R&D whether compared to non-promoted firms or compared to their previous R&D expenses in 2011. It is also plausible that measuring the impact of the new activity- and merit-based incentives in 2016 is too early given that they were only introduced in 2015.

The seemingly non-existent R&D premium for promoted businesses could also be for the reason that both promoted and non-promoted relied on other R&D incentive schemes than those granted by the BOI. Consultations with the government and stakeholders indicated that investors may favour the R&D tax incentive granted by the Revenue Department and the NSTDA over the BOI's merit-based R&D incentives as the latter has more complex criteria, thereby creating uncertainty for potential investors. In addition, as BOI's CIT exemptions are granted for 8-10 years for projects that are likely to invest in R&D, investors may not see the additional benefits of BOI's merit-based incentives on R&D expenditures (additional CIT exemptions), potentially reducing the attractiveness of this scheme.

In light of their complexity and relative generosity, the expected effects of the multiple R&D tax incentive schemes should be closely monitored by the Thai government. Ultimately, the government could envisage operating only one cost-based R&D tax incentive scheme that is open to both promoted and non-promoted firms. Meanwhile, international experience could help Thailand further refine the design of R&D tax incentives and bring them closer to good practices (Box 5.6).

### Box 5.6. Maximising impacts of R&D tax incentives: International experiences

There is no clear-cut evidence (for OECD countries) as to which tax incentive instrument (credit, allowance, volume vs. incremental, etc.) is more effective in stimulating R&D. Tax credits or enhanced tax allowances (i.e. tax deductions) are often perceived as the least distortive type of tax incentive. Tax credits or tax deductions do not necessarily need to be applied on CIT. They can be applied to payroll taxes paid for R&D workers, as done in the Netherlands for instance. R&D tax incentives based on the wage bill paid to researchers is considered as a relatively successful Dutch measure (Hemels, 2019). Such an incentive is likely to generate higher knowledge spillovers than other types of R&D expenditures. Researchers move from one employer to another and take their former's employers knowledge with them. In addition, the measure could be attractive even if businesses benefit from CIT holidays.

Some good practices on R&D tax incentives suggest to target young firms but not by regions nor by firm size (a neutral approach would be to target SMEs), among other good practices. Some of the OECD practices in terms of R&D investment incentives do not necessarily imply that Thailand may need to adjust its policies, at least in the short-run. Since the state of economic and social development and context of various countries are different, it may still be relevant for Thailand to target, temporarily, specific regions or firms. Good practices of no over-subsidising and regular evaluation could be nonetheless applicable for all countries.

Some issues can arise with certain types of R&D incentives, such as patent-related incentives, in particular if the incentives help countries to attract patents, but not the research activity associated with the patent. This does not only reduce the beneficial impact of the incentive (e.g. in increasing research activity, employment, outcome etc. in the specific sector), but may also give rise to Base Erosion and Profit Shifting (BEPS). For example, multinationals may adjust the location of patents for BEPS reasons, but not create additional research activity in the country.

Tax incentives are not the only policy tool to boost R&D investment, putting aside the question of their effectiveness and the forgone revenues they can generate. The government can provide support to potential and existing R&D-performers with other tools. According to the industrial census of 2017, promoted firms are more vocal than their non-promoted peers on their need for government support to improve their knowledge and skills capabilities (also see Chapter 3). They need stronger support from the government with regard to advanced technology and machinery, providing R&D to meet market demand and training and skills development. As 70% of researchers in Thailand work in the public sector, the BOI could identify more specifically businesses' needs and play a more pro-active policy advocacy role to further align public research and academic programmes with the needs of both promoted and non-promoted firms.

After-care services are another tool IPAs can use to generate R&D investment. The expansion of existing investors seems to be the most common entry mode of R&D-intensive FDI (Guímon, 2009). Thus, the BOI could increase efforts to convince already established promoted firms to invest in R&D, particularly those reaching the end of their tax holidays and who would therefore benefit from the newly introduced R&D tax deductions. The BOI could also introduce new after-care services and further develop existing ones, with the objective of assisting the existing stock of foreign-owned companies in their efforts to attract new R&D mandates and retain existing ones. After-care services could target foreign manufacturers which are under a restructuring process, with the aim of transforming a potential risk of a divestment into the opportunity of an investment in R&D.

### *Policies to attract skill-intensive projects that spend on training start to pay off*

Chapter 3 discussed the pressing need to address the skills gap in Thailand. The quality of basic education is low and deteriorating and the country has been suffering from a lack of adequate worker skills for decades. Government efforts and adaptation of firms to labour shortages may be starting to pay off in Thailand's manufacturing sector. For instance, manufacturing firms, particularly foreign-owned, increasingly engage in in-house training to address labour shortages (Chapter 4). More is needed, however, to reduce the skills gap and attract highly-skilled workers and investment promotion policies have a crucial role to play in attracting skill-intensive investment and foreign talents.

There are multiple ways through which Thai investment promotion policies support skills development. Most importantly, BOI's policies to attract higher-end foreign and domestic investments should mechanically result in attracting highly skilled foreigners to work in the promoted projects. As described in the previous section, foreign workers account for 7.5% of all workers in promoted projects while foreigners working in knowledge-based activities (A1 category) represent only 5% of all workers, which is rather unexpected in light of the plausibly higher needs for foreign talent in these less ubiquitous activities. The previous section also presented some of BOI's policies explicitly targeting foreign talent mobility and attractiveness such as the SMART visa programme. While the prospects are promising, it is early to assess the outcomes of this programme.

In addition to attracting skill-intensive investment projects and foreign talent, BOI's investment promotion policies support skills development by incentivising established businesses to undertake training activities for their own employees or for their local suppliers (e.g. merit-based incentives). Similar to R&D (see section above), the industrial census of Thailand allows to examine whether these policies helped skills development, as it reports establishments' spending on training in 2011 and 2016.

Several messages on the relationship between investment promotion and skills emerge from the census. Firstly, one out of two promoted manufacturers financed training activities, much more than the group of non-promoted manufacturers (Table 5.5). Secondly, promoted manufacturers allocated lower fractions of their administrative and operational budget to training, although the promoted group spent, on average, twice as much (in Baht value) on this activity. Thirdly, the ratio of promoted manufacturers that undertook training activities and the budget they dispensed to this activity were broadly similar in 2016 and 2011.

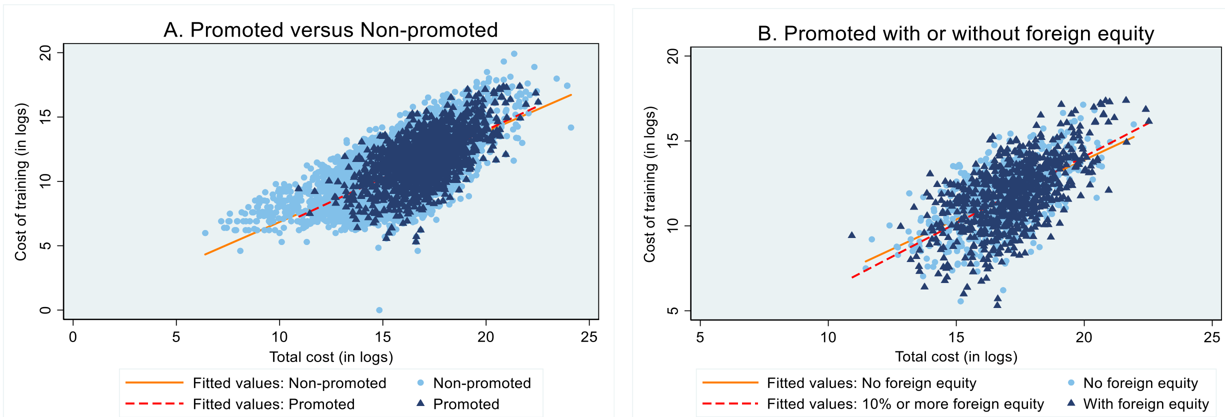
#### Table 5.5 Spending on skills by promoted and non-promoted industrial establishments

| | Establishments spending on skills (% of all establishments) | | | Avg. spending on skills (in thousands of Baht) | | | Avg. spending on skills (% of total spending) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Non-promoted | Promoted | All | Non-promoted | Promoted | All | Non-promoted | Promoted | All |
| 2011 | 5.6% | 53.7% | 6.6% | 413 | 954 | 506 | 4% | 1.40% | 3.6% |
| 2016 | 5.7% | 56.6% | 6.8% | 648 | 790 | 672 | 2.80% | 1.60% | 2.6% |

Source: OECD based on the Industrial Census of Thailand 2012 and 2017.

Further analysis confirms that being promoted raised manufacturers' likelihood to spend on training and increased their budget allocation to this activity, irrespective of their size, operating sector and foreign shareholding level. Notwithstanding the positive effects associated with an investment promotion certificate, the size of the establishment, and its administrative and operational budget, were behind most of the variations in the amount dedicate to training (Figure 5.13, Panel A).[12] In addition, within the group of promoted manufacturers, those with foreign shareholding dedicated greater fractions of their budget to training – relative to those with no foreign equity the larger they were (Panel B). Hence, promoted firms' higher spending on training is driven by their larger size, level of foreign shareholding and, unlike for R&D, also their promoted status.

### Figure 5.13. The relationship between firms' total expenditure and cost of training in 2016




Note: Observations include only establishments that provided administrative and operational cost on training. Fitted values are point estimates based on simple linear regressions.
Source: OECD based on the Industrial Census of Thailand 2017.

The analysis above indicates that promoted companies make a difference in contributing to skills development and, more specifically, to training activities. Activity and merit-based tax incentives, at least those introduced in 2015 and in force until 2016, did significantly push promoted manufacturers to dedicate larger fractions of their budget to skills development compared to non-promoted firms. It is possible that the effects of the incentives that were introduced in 2015 are underestimated as they did not have enough time to materialise by 2016. The absence of the services sector from the industrial census could be one reason why the effects of investment promotion policies on training are more straightforward than for R&D. It is conceivable that tax incentives and R&D schemes are more effective in the services sector than in manufacturing.

### *Policies supporting the development of the EEC hide large territorial disparities*

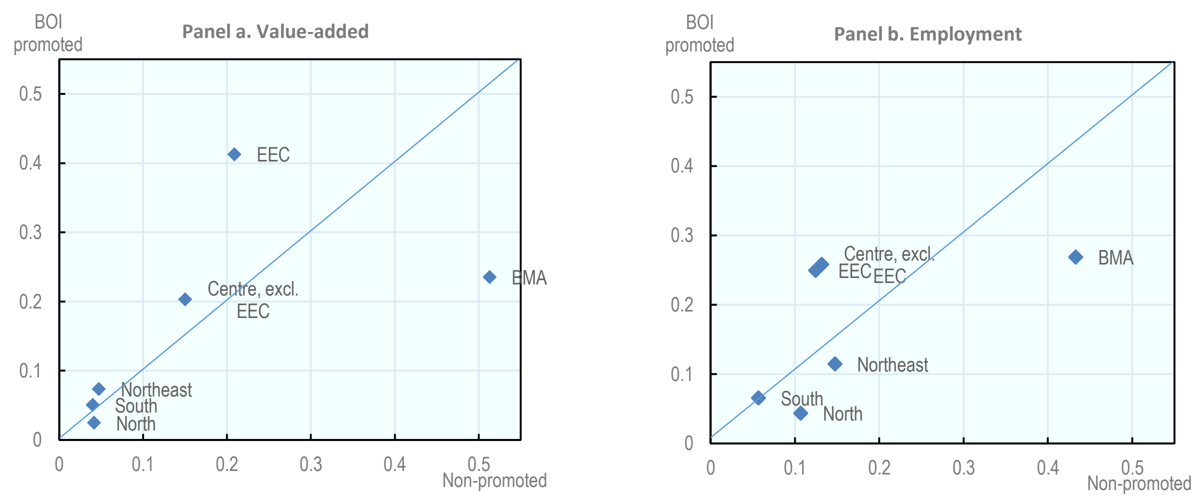
Foreign investment can help countries to join global production networks, regardless of their market size or location. Thailand has been trying hard to upgrade its participation in global value chains or to forge deeper connections between multinationals located in its territories and Thai companies. These attempts have consisted mostly of national investment policies, disregarding that each city or region in Thailand may be unique in the way it competes in national, regional and global trade and investment networks, as FDI networks analysis reveals.

The geography of promoted businesses in Thailand is shaped by the attractiveness of regions and cities but also by various location-based investment policies in place. One of the pillars of the 2015-2021 investment promotion strategy is dedicated to the development of specific regions, namely the EEC, border Special Economic Zones (South and Northern regions) and disadvantaged areas (mostly Northeast regions). While the objective behind the EEC is to support the development of high value-added S-curve sectors, the goal of the other targeted areas is to create jobs and reduce spatial income inequalities.

Analysis in Chapters 2 and 3 shows that Bangkok Metropolitan Area (BMA) and EEC have the potential to steer the Thai economy towards high-priority activities. The industrial census reveals that economic activity (i.e. value-added and employment) generated by promoted firms is disproportionally concentrated in EEC (Figure 5.14). In contrast, BMA is home to a quarter of promoted firms' value-added while non-promoted firms create half of their value-added and employment around the capital. As the statistics refer to the year 2016, EEC's remarkable outcomes reflect the geographical location and the not policy, which was introduced in 2017. Specific tax incentives to businesses in the EEC may be unwarranted in light of the strong attractiveness of the region.

### Figure 5.14. Promoted firms disproportionally contribute to value-added in the EEC

Share of the region in value added and employment of promoted and non-promoted firms (total: 100%), 2016




Source: OECD based on the industrial census of Thailand 2017.

The contribution of promoted and non-promoted firms to economic activity of the northern and southern regions is much lower than in BMA and EEC but the behaviour of the two groups is similar (Figure 5.14). This may suggest that policies (e.g. SEZs) directed to less advanced areas are not necessarily bearing fruit. Consultations with stakeholders and the Foreign Investor Confidence Survey also suggested that the incentive for investing in SEZs may not outweigh the cost of setting up a factory in such zones (Belliger & co, 2015).

Industrial Zones (IEs) are one of the tools enabling the clustering of high value-added manufacturing firms, particularly those with a promotion certificate, around BMA and EEC. The vast majority of the 57 IEs are located in these two areas while only a handful are in the northern and southern regions. Manufacturers based in IEs obtain fiscal and non-fiscal privileges (e.g. the right to own land) as well as additional incentives if they apply for an investment promotion certificate. The industrial census shows that promoted firms are more likely than non-promoted firms to be located in an IE, and even more so if they are foreign-controlled. Promoted firms within IEs strongly contribute to the Thai economy – they make around half of their value-added and employment in IEs (Table 5.6).

### Table 5.6 The contribution of promoted businesses to economic activity in Industrial Estates

In percent of all establishments, 2016

| | Value-added | | | Employment | | |
|---|---|---|---|---|---|---|
| | Industrial Estates | Rest of country | National | Industrial Estates | Rest of country | National |
| Promoted | 16% | 14% | 30% | 8% | 13% | 21% |
| Non-Promoted | 15% | 55% | 70% | 9% | 70% | 79% |
| All firms | 31% | 69% | 100% | 17% | 83% | 100% |

Source: OECD based on the Industrial Census of Thailand 2017.

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# Annex 5.A. Promoted activities between 2015 and 2019

## Annex Table 5.A.1. Top 20 promoted activities

Based on data of submitted activities eligible for promotion, as released by the BOI between January 2015 and December 2019

| code | name | # projects | % of total investment | Ratio of foreign capital | Ratio of foreign workers | Incentive group |
|---|---|---|---|---|---|---|
| | Top 20 activities | 2221 | 54.6% | 42.2% | 12.2% | -- |
| 6.3 | Oil refinery | 4 | 5.5% | - | 0.5% | B1 |
| 6.4 | Manufacture of petrochemicals | 23 | 5.0% | 32.9% | 1.1% | A3 |
| 7.3.2 | Pipeline transportation (except for water pipeline) | 7 | 5.0% | 0.0% | 0.0% | B1 |
| 7.1.1.2 | Production of electricity or electricity and steam from renewable energy | 796 | 4.6% | 16.9% | 1.6% | A2 |
| 4.8.4 | Manufacture of rubber tire for vehicle | 40 | 4.5% | 92.9% | 7.6% | A2 |
| 7.3.1 | Rail transport | 3 | 3.8% | - | 0.3% | A2 |
| 7.3.4 | Air transport services | 52 | 3.3% | 41.6% | 9.7% | A3 |
| 7.23.1 | Hotels | 78 | 3.0% | 57.8% | 2.3% | A4/B2 |
| 4.16 | Manufacture of Hybrid Electric Vehicle and parts | 8 | 2.5% | - | 0.7% | Expired |
| 1.17 | Manufacture or preservation of food and beverages using modern technology | 339 | 2.4% | 37.4% | 29.5% | A3 |
| 6.5 | Manufacture of specialty polymers or speciality chemicals | 33 | 2.3% | 78.6% | 7.0% | A2 |
| 4.1.3 | Manufacture of other metal products including other metal parts | 236 | 2.0% | 86.1% | 5.2% | A4 |
| 7.1.4 | Facilities for cargo ship using modern technology | 20 | 1.9% | 3.4% | 0.6% | A3 |
| 4.8.17 | Manufacture of other vehicles parts | 180 | 1.9% | 93.4% | 1.5% | B1 |
| 5.4.2 | Manufacture of solar cells and/or raw materials for solar cells | 11 | 1.5% | 100.0% | 5.0% | A2 |
| 5.2.5 | Manufacture of parts and/or equipment for other electrical products | 50 | 1.4% | 95.7% | 2.7% | B1 |
| 7.3.3 | Maritime transportation services | 188 | 1.2% | 4.4% | 2.6% | A2 |
| 6.1 | Manufacturing of chemical products for industry | 112 | 1.0% | 83.0% | 8.4% | A4 |
| 1.16.1 | Manufacture of fuel from agricultural products | 16 | 0.9% | 14.4% | 2.0% | A2 |
| 7.1.1.1 | Production of electricity or electricity and steam from garbage or refuse derived fuel | 25 | 0.9% | 0.0% | 0.2% | A1 |

Note: Data based on 276 promoted activities; *Activity investment size in % of total investment size; **mean foreign capital and worker by top 20 activities; ***A1: most generous incentives; B2: least generous incentives.
Source: OECD based on BOI Statistics and the Guides to the BOI between 2015 and 2019.

# Annex 5.B. Applications for knowledge and technology-based incentives

### Annex Table 5.B.1. Applications eligible for investment promotion: January 2015 - December 2019

| code | name | # projects | Investment (billion Baht) | % foreign capital | % foreign workers |
|---|---|---|---|---|---|
| | | 443 | 105895.5 | 51.3% | 4.6% |
| 1.3 | Economic forest plantation | 1 | 21 | - | 0.0% |
| 3.9 | Creative product design and development centre | 6 | 221.2 | 94.6% | 7.0% |
| 5.6 | Electronics design | 7 | 678.12 | - | 1.3% |
| 7.10 | Cloud service | 13 | 2356.95 | 62.2% | 6.6% |
| 7.11 | R&D | 85 | 9633.42 | 40.3% | 8.6% |
| 7.12 | Biotechnology | 6 | 2526.5 | 100.0% | 3.7% |
| 7.13 | Engineering design | 33 | 367.192 | 70.2% | 17.0% |
| 7.14 | Scientific laboratories | 57 | 4192.1 | 19.8% | 2.2% |
| 7.15 | Calibration services | 13 | 173.43 | 0.0% | 1.2% |
| 7.8 | Energy Service Company (ESCO) | 1 | 357 | - | 0.0% |
| 4.11.1 | Manufacture of Aircraft or Aircraft Parts | 13 | 7226.53 | 46.8% | 2.2% |
| 4.11.5 | Manufacture of Aerospace Devices and Equipment | 1 | 61.2 | 100.0% | 0.0% |
| 4.5.1.1 | Automation machinery and/or automation equipment with engineering design | 23 | 1912.9 | 53.6% | 6.2% |
| 5.6.1 | Microelectronics design | 2 | 4 | 40.0% | 15.0% |
| 5.6.2 | Embedded system design | 16 | 148.37 | 5.8% | 5.5% |
| 5.7.1 | Embedded software | 39 | 1110.5 | 23.8% | 9.3% |
| 5.7.3 | High Value-Added Software | 47 | 646.43 | 55.6% | 6.7% |
| 7.1.1.1 | Production of electricity or electricity and steam from garbage or refuse derived fuel | 25 | 26534.3 | 0.0% | 0.2% |
| 7.12.1 | R&D or manufacturing of seed industry, etc. (biotech) | 6 | 2166.2 | 73.1% | 3.9% |
| 7.12.2 | R&D or manufacturing of biopharmaceutical agent (biotech) | 3 | 1797 | - | 3.3% |
| 7.12.3 | R&D or manufacturing of diagnostic kits (biotech) | 3 | 162 | 49.0% | 1.2% |
| 7.12.4 | R&D or manufacturing of bio-molecule and bioactive substance (biotech | 10 | 15898.9 | 99.7% | 2.1% |
| 7.12.5 | Manufacture of raw materials or essential materials for molecular biological R&D | 1 | 35 | 50.0% | 2.9% |
| 7.19.1 | Vocational training centers | 7 | 501.4 | 97.5% | 13.8% |
| 7.9.2.1 | Science and technology park | 1 | 2600 | - | 0.0% |
| 7.9.2.2 | Digital park | 1 | 1580.98 | 0.0% | 3.6% |
| 7.9.2.3 | Data center | 4 | 6480.5 | 38.3% | 1.4% |
| 7.9.2.4 | Innovation incubation center | 11 | 187.96 | 27.6% | 11.5% |
| 8.1.1 | Biotech development | 6 | 15176.8 | 37.4% | 4.7% |
| 8.1.4 | Digital technology development | 2 | 1137.6 | 3.6% | 2.8% |

Note: based on 276 activities eligible for investment promotion. Technology-based incentive belong to Section 8 of the Guide to the BOI. Knowledge-based activities focussing on R&D belong to the group of A1 incentives.
Source: OECD based on BOI Statistics and the 2019 Guide to the BOI.

## Notes

[1] The name of the agency changed from “Board of Industrial Investment” to “Board of Investment”.

[2] The other government agencies include the Ministry of Digital Economy and Society, the National Research Council of Thailand, the National Science and Technology Development Agency, the Office of National Higher Education, Science, Research and Innovation Policy Council, and the Thailand Research Fund.

[3] According to the BOI’s Foreign Investor’s Confidence Survey 2018, 45% of respondents indicate that incentives are main factor for their decision to invest or maintain their investment in Thailand.

[4] Announcement of the Office of the Board of Investment No. Por. 11/2561 on the “Permission to Employ Unskilled Foreign Workers in Promoted Projects”.

[5] In Thailand small enterprises in the industry or services sector are defined as firms with less than 50 employees and 50 million Baht fixed asset excluding land cost capital (1.6 USD million). Medium enterprises are defined as firms with 50 to 200 employees and a capital of 50 to 200 million Baht (1.6 to 6.6 USD million).

[6] The estimated effect is based on a firm-level regression with sector fixed effects. Dependent variable: labour productivity (in logarithms). Independent variables: share of foreign equity, promotion certificate and firm size. Promotion certificate is a dummy variable that takes value 1 if the company has a certificate and 0 otherwise. As the dependent variable is in log and investment promotion certificate is a dummy variable (0 or 1), the percentage impact of holding a certificate on productivity is given by 100*(exponential*(*point estimate*)-1).

[7] This analysis is incomplete as it only measures the impact on labour productivity. Using the same data - the Industrial Census of Thailand, World Bank (2020) shows that holding an investment promotion certificate has no significant positive impact on total factor productivity.

[8] The secretary general of the BOI sits on the governing board of the NSTDA, which must allow for co-ordination and more effective policy advocacy to foster private investment in R&D.

[9] Adequate micro-level data and empirical tools are needed to explore this question in a counterfactual setting and in account of the heterogeneity of effects across different types of firms.

[10] The Industrial Census of Thailand excludes expenditures on production and sales (e.g. the purchase of materials and components or the cost of fuels and electricity used in the production process) from the administrative and operational expenses.

[11] Econometric analysis shows that, in the preferred specification, a promotion certificate was not significantly associated with spending on R&D in 2016 both at the extensive margin (whether a firm spends on R&D or not) and intensive margin (the intensity of R&D spending).

[12] Econometric analysis shows that, in the preferred specification, a promotion certificate was significantly associated with spending on training in 2016 both at the extensive margin (whether a firm spends on training or not) and intensive margin (the intensity of training spending).