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Vocational Education and Training in Thailand

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BETTER POLICIES FOR BETTER LIVES

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Foreword

Vocational education and training (VET) is an important part of education systems around the world. In an era of changing skill needs in the labour market, as a result of global megatrends such as automation and population ageing, VET is well-placed to equip students with the skills the labour market needs and provide education and training opportunities for adults. Likewise, VET can play an important role in the recovery from the COVID-19 crisis, by developing in-demand skills to avoid hiring difficulties among employers, providing youth at risk of being not in education, employment, or training (NEET) with opportunities to acquire work experience through apprenticeships and other forms of work-based learning, and creating avenues for up-skilling or re-skilling of workers who have been displaced, or in need of training to adapt to a changing work environment.

In Thailand, VET has the potential to provide relevant education and training opportunities to youth and adults, especially as the demand for technical skills is high. Building on the strengths of the system, including a strong postsecondary VET system and a small but dynamic dual system, more needs to be done to reach the full potential of VET. The report "Vocational Education and Training in Thailand" assesses the key strengths and weaknesses of the Thai VET system and provides recommendations for how to strengthen it so that students, employers and the society as a whole can benefit from VET as much as possible.

VET remains an unattractive option for many students in Thailand, because of a poor image among students and parents, quality issues, a hard-to-navigate system and limited progression pathways. Inequalities in access to high-quality VET exist, with very few adults participating in the system, female students participating less than male students and being concentrated in programmes with weaker labour market prospects, and regional differences in the quality of VET provision. Moreover, data on skills shortages and mismatches and on the labour market outcomes of VET graduates suggest that additional efforts are needed to align VET provision with the needs of the Thai labour market. The Thai VET system does not sufficiently rely on skill intelligence and on inputs from stakeholders to design VET policies and programmes. An important step has been taken with the expansion of dual vocational programmes, and efforts to strengthen work-based learning need to continue.

This report was drafted by Pauline Musset and Rodrigo Torres from the OECD Centre for Skills, under the supervision of Marieke Vandeweyer (manager of the VET team), and is one of the deliverables under the OECD-Thailand Country Programme. The report has benefited from helpful comments provided by Mark Pearson (Deputy Director for Employment, Labour and Social Affairs), colleagues in the OECD Centre for Skills and the Economics Department, as well as the Group of National Experts (GNE) on VET. Administrative and editorial assistance was provided by Jennifer Cannon from the OECD Centre for Skills. Napasorn Prasongsak and Manatchaya Chuyingsakultip provided research support. The OECD is grateful to the many stakeholders in Thailand who have provided insights into the VET system through interviews and email exchanges. Special thanks goes to the Office of the Vocational Education Commission, the Office of the National Economic and Social Development Council and the OECD Global Relations Secretariat for their continued support throughout this project.

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Abbreviations and acronyms

GDP	Gross domestic product
DSD	Department of Skill Development
ICT	Information and communication technology
MoE	Ministry of Education
MoL	Ministry of Labour
MHESI	Ministry of Higher Education, Science, Research and Innovation
NEET	Not in education, employment, or training
OBEC	Office of the Basic Education Commission
ONESQA	Office of National Education Standards and Quality Assessment
OPEC	Office of the Private Education Commission
OVEC	Office of the Vocational Education Commission
PISA	Programme for International Student Assessment
RPL	Recognition of prior learning
STEM	Science, technology, engineering, and mathematics
TPQI	Thailand Professional Qualification Institute
VET	Vocational education and training
WBL	Work-based learning

Executive summary

Key findings

Vocational education and training (VET) plays an important role in the Thai education system. Around one in three students in upper-secondary education are enrolled in the vocational track, and around one in five postsecondary students pursue a vocational diploma programme. While the share of students enrolled in upper-secondary VET has been relatively stable over the last decade, the share in postsecondary programmes is on the rise. The Thai government has set ambitious targets for increasing the share of students in VET, in recognition that VET can develop the skills that the economy needs.

Employment outcomes of VET graduates in Thailand are relatively strong, especially for those with a postsecondary vocational diploma. Vocational qualifications are also associated with higher wages and a lower probability of informality than general upper-secondary education. Nonetheless, the gap between VET and tertiary education remains large. The relatively strong labour market outcomes of VET graduates – at least in certain fields- suggest that there is strong demand for these skills in the Thai labour market. This is confirmed by employers, who state that they face shortages of workers with VET qualifications. However, at the same time employers often report that the skills of VET graduates do not correspond with their needs.

Several issues are relevant in attracting students to VET and providing them with relevant and high-quality training. VET is not an attractive option to many and continues to have a poor image. Quality issues, a fragmented VET system, and the limited progression of VET students into general or academic programmes contribute to the negative perceptions around VET in Thailand. Certain groups are underrepresented in VET, because of its unattractive offer, but also because of financial and non-financial barriers to access. Female students, for example, are less likely to enrol in VET programmes and are very strongly concentrated in the field of business and commerce. Very few prime-age adults participate in the Thai VET system.

Ensuring that VET provision corresponds with labour market needs is an important challenge in Thailand, especially when global megatrends and the COVID-19 crisis are changing skill needs. To ensure that VET systems are responsive, employers and other stakeholders need to be closely engaged. But SMEs - and especially those in the informal sector- are hardly involved in the Thai VET system, which means that VET provision does not sufficiently take their skills needs into account. The complexity of the Thai VET system and the absence of structures for stakeholder engagement at the national, regional, sectoral and local level contribute to this. The ongoing efforts to strengthen the dual VET system in Thailand are a step in the right direction, and student numbers in these programmes have been on the rise. However, in the absence of strong quality frameworks, work-based learning might not always equip students with relevant skills.

Key recommendations

Improving access to VET: To achieve the targets set by the Thai government for VET enrolment and to overcome shortages of VET graduates, efforts are needed to make the system more attractive. A more transparent and easier to navigate VET system will make it easier for students to make informed choices and use available pathways between VET and further education. Effective measures of co-ordination between the different VET stakeholders need to be put in place. To make existing pathways more effective, articulation frameworks and bridging programmes need to be established and recognition of coursework should be guaranteed. Quality is an important aspect of the attractiveness of VET programmes, and strong quality assurance mechanisms (especially for private providers) are therefore crucial. More and better monitoring of quality could also inform a possible consolidation of small programmes and institutions that suffer from quality issues.

Reducing inequalities in access to and quality of VET: Expansion of the VET system should be inclusive, creating opportunities for all. Disadvantaged students should have access to adequate financial support when needed, and career guidance should promote VET among underrepresented groups, including female students. VET programmes need be made more accessible to adults, through part-time and modular provision and more effective use of recognition of prior learning. VET students in rural areas should have access to VET programmes of the same quality as those in urban areas, and efforts are needed to encourage qualified VET teachers to work in rural schools. In regions with small or under-resourced schools, more work-based learning opportunities or employer-led joint training centres can expand the availability of relevant training.

Using skills intelligence to inform VET policies: Using high-quality information on skills demand and supply can help better align VET policies and provision with the needs of the labour market. Robust tools should regularly assess skill needs at different levels. A knowledge-sharing platform could help bring together the assessment exercises carried out by different actors, and foster the use of these results to inform VET.

Engaging stakeholders in the design and delivery of VET: Inputs from stakeholders are crucial complements to quantitative information on skills demand and supply to build a more responsive VET system. Governance structures can engage stakeholders at the national, regional, sectoral and local level. Sufficient flexibility in VET is needed at those lower levels to make VET more responsive. Reducing the complexities in the Thai VET system will make it easier for employers and other stakeholders to be engaged. Particular efforts are needed to involve SMEs and the informal sector. The quality of work-based learning needs to be strengthened, by setting quality frameworks that detail the skills that need to be developed at the workplace and by training in-company trainers. To make the most of the expanding dual VET system, the type of students and employers who participate in it need to be closely monitored, so that gaps in provision can be filled and barriers to participation overcome. Additional support for SMEs might be needed, possibly in the form of external bodies to support employers in taking on VET students or incentives for SMEs to jointly provide dual VET.

1 The importance of vocational education and training in the Thai education system and labour market

This chapter provides an overview of the main features, performance and recent trends of the Thai education system and labour market. It pays particular attention to the role of vocational education and training (VET) in the Thai education system and the way it is organised. This chapter sets the scene for the rest of the report by bringing some of the main challenges and opportunities in the areas of education and employment to light.

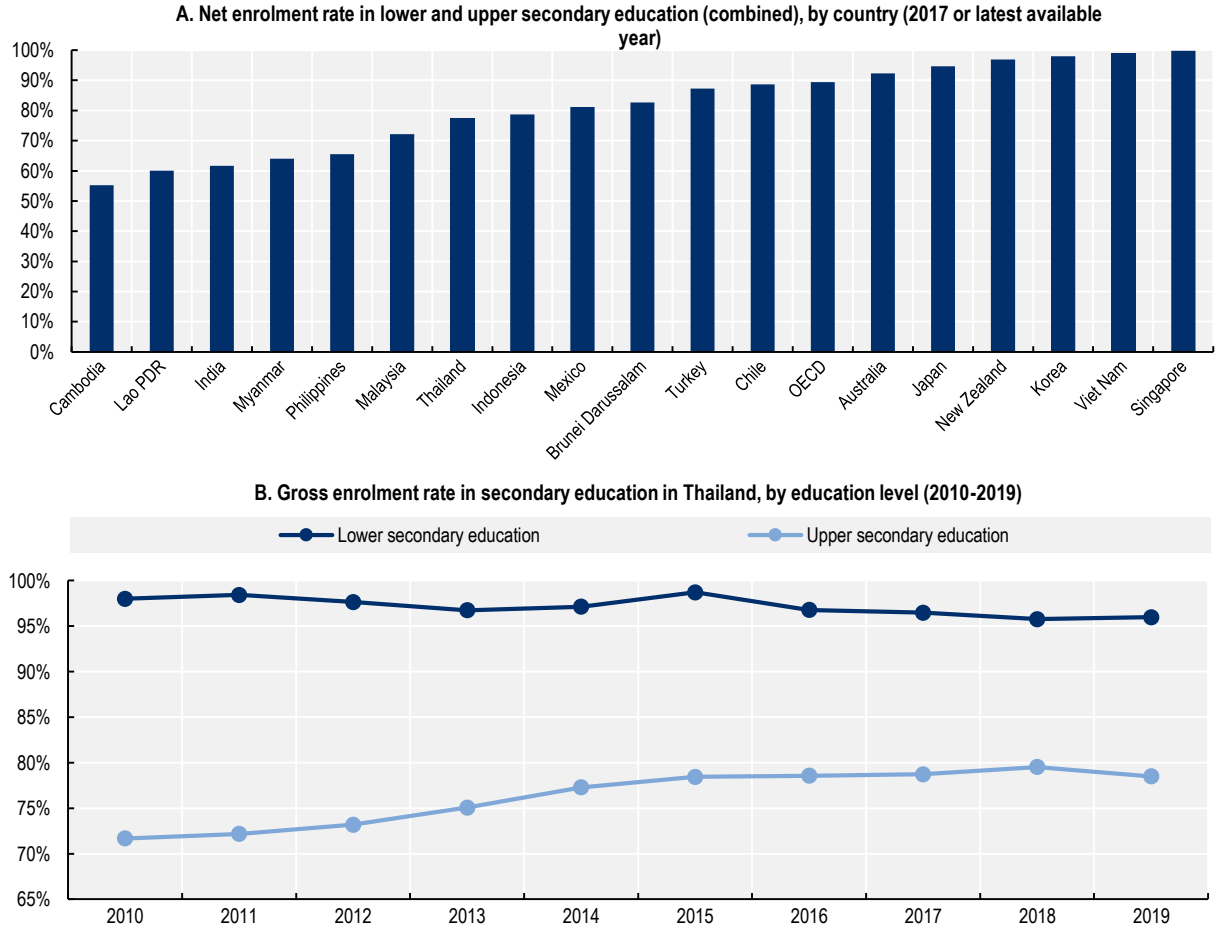
The position and role of VET in the Thai education system

The educational attainment of the Thai working population is on the rise

Thailand has recently shown important progress in facilitating access to secondary education for all children. Enrolment in the basic education system begins at the age of six, and all students are required to complete the compulsory nine years up to lower-secondary level (see Box 1.1 for more information on the Thai education system). According to UNESCO, by 2019 the net enrolment rate in primary education in Thailand was close to 95% (UNESCO Institute for Statistics, 2021[1]). In secondary education, the net enrolment rate was 77% (in 2015, see Figure 1.1, Panel A). In comparative terms, Thailand's net enrolment rate is close to other higher middle-income countries and higher than many of its neighbouring countries. For instance, net enrolment rates for secondary education in Myanmar, Lao People's Democratic Republic (Lao PDR) and India are around 60%, whereas Indonesia and Malaysia show similar levels to Thailand. In recent years, access to upper secondary education increased considerably in Thailand from a gross enrolment ratio of 72% in 2010 to 78% in 2019 (Figure 1.1, Panel B). A significant effort has been put into integrating both girls and boys into the formal education system, and they now have very similar enrolment rates in secondary education.

Thanks to the progress made in increasing enrolment rates in primary and secondary education, Thailand today has a much more educated adult population than in previous decades. In 2018, according to the Thai Labour Force Survey, 39% of adults had attained upper secondary education or more (see Figure 1.2). When compared to previous generations, young adults today enjoy higher levels of education, including tertiary education and vocational diplomas. The share of adults with at least upper secondary educational attainment goes up to 47% for adults aged 35 to 44 and to 58% for adults aged 25 to 34. As discussed later, individuals achieving upper secondary education, and particularly VET qualifications, have access to a more diverse set of job opportunities and comparatively better wages than adults who have not completed upper secondary education.

Figure 1.1. Student enrolment rates in secondary education have increased substantially

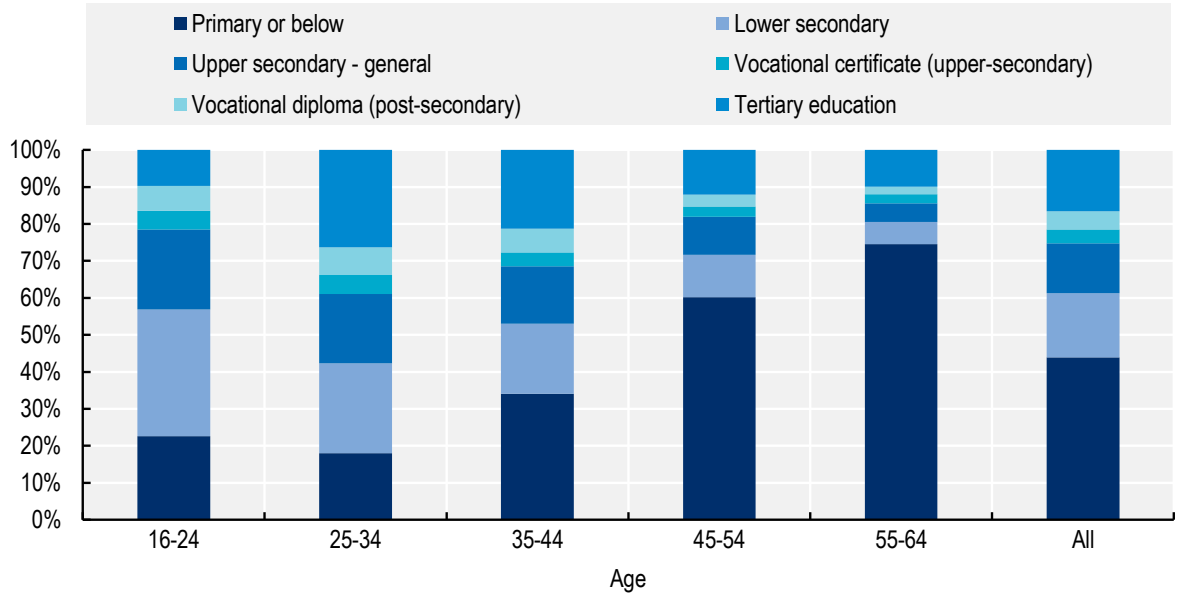


Note: The Net Enrolment Rate (Panel A) aims to measure the actual school participation of official school age population for a given level of education. It corresponds to the number of students of the official age group for a given level of education who are enrolled in any level of education, expressed as a percentage of the corresponding population. The Gross Enrolment Ratio (Panel B) aims to show the general level of participation in a given level of education. It indicates the capacity of the education system to enrol students of a particular age group. It corresponds to the number of students enrolled in a given level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education (UNESCO-UIS, 2021[2]).

Source: UNESCO Institute for Statistics (2021[1]), National Monitoring Database, http://data.uis.unesco.org/Index.aspx?DataSetCode=NATMON_DS (Panel A); Office of Permanent Secretary for the Ministry of Education (2021[3]), Education Statistics, http://www.mis.moe.go.th/index.php?option=com_content&view=category&id=173&Itemid=114 (Panel B).

Figure 1.2. The educational attainment of Thai adults is rising steadily

Educational attainment of adults who are not studying, by age (2018)



Note: "All" refers to adults aged 16 to 64. "Upper secondary general" also includes upper secondary programmes that are neither general nor vocational diploma programmes (representing a negligible share of educational attainment). "Tertiary" also includes short-cycle general programmes (representing a negligible share of educational attainment).
Source: Authors' calculations using 2018 Thai Labour Force Survey data, National Statistics Office (2021[4]), Thai Labour Force Survey, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Box 1.1. The Thai education system

The Thai initial education system

The formal Thai education system consists of 12 years of basic education: six years of primary schooling, followed by three years of lower secondary, and then three years of upper secondary. Enrolment in the basic education system begins at the age of six, and all students are required to complete the compulsory nine years up to the end of the lower-secondary level (International Labour Organization, 2016[5]).

VET starts at upper secondary level; students who complete lower secondary education can choose to enter the vocational stream, or stay on and complete the general education stream. A vocational certificate is provided upon completion of the three-year programme. Regardless of choice, graduates from both the general and vocational streams are considered equally qualified to sit for national university entrance examinations after completing upper secondary education (International Labour Organization, 2016[5]).

The organisation of VET in the Thai education system

According to the 2008 Vocational Education Act, three types of vocational education and training are provided, namely formal technical and vocational education and training; non-formal technical and vocational education and training; and dual vocational training programmes.

As for formal technical and vocational education and training, it is conducted in educational institutions at three levels:

- Upper secondary, leading to the lower certificate of vocational education (ISCED level 3)
- Postsecondary, leading to a diploma or associate's degree in vocational education (ISCED level 5)
- Higher education level, leading to a bachelor degree of technology (ISCED level 6).

Dual training programmes, that alternate education in school and training at work, are offered at both upper secondary and postsecondary levels.

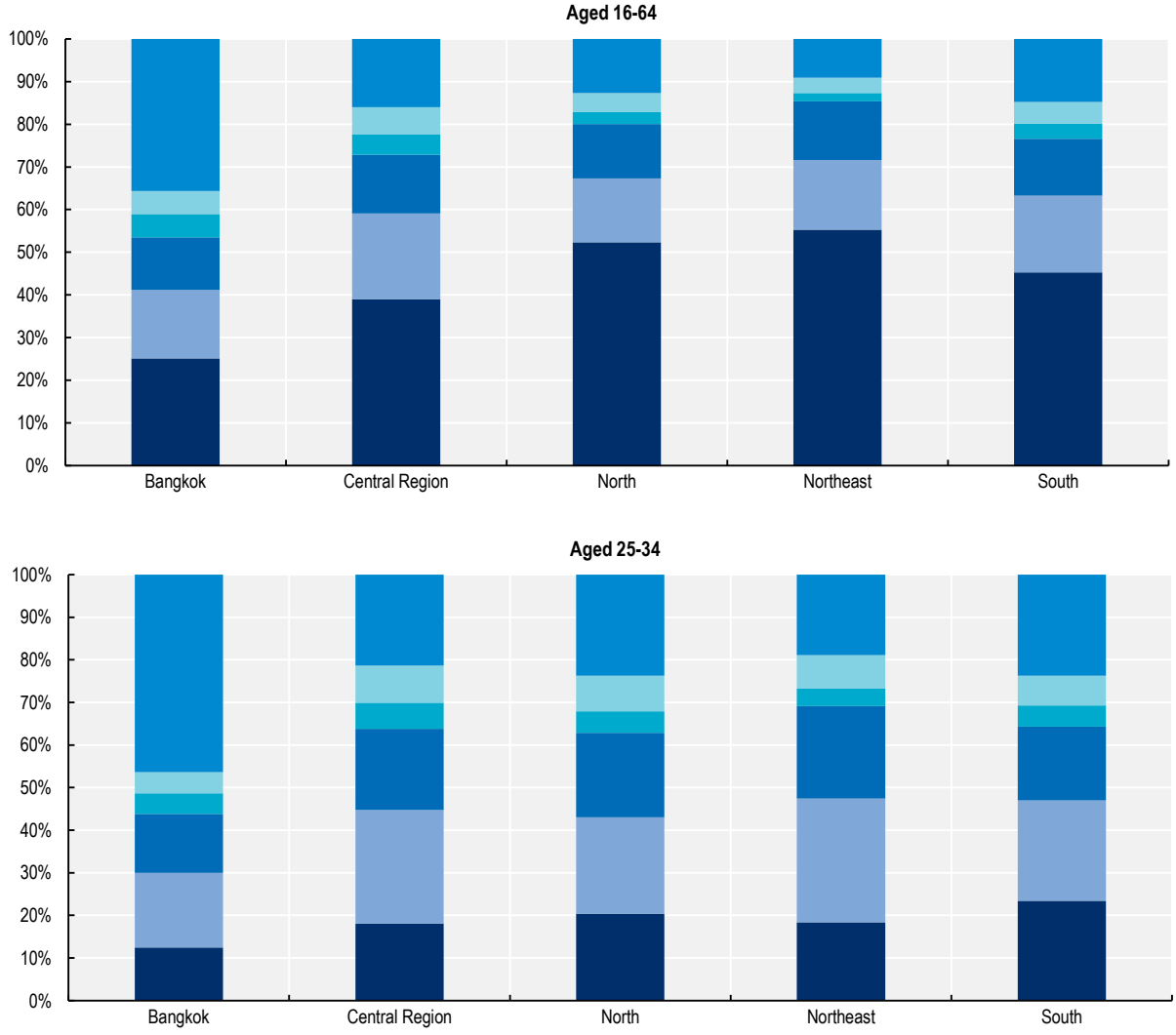
The focus of this report is on formal and dual vocational programmes at the upper secondary and post-secondary level. However, the formal bachelor of technology programmes are included when relevant. Non-formal programmes are outside the scope of this report, but -as highlighted later in the chapter (Box 1.3)- these types of programmes are fairly common in Thailand.

Source: Office of the Education Council (2017[6]), Education in Thailand, https://www.bic.moe.go.th/images/stories/pdf/EDUCATION_IN_THAILAND_2017.pdf; International Labour Organization (2016[5]), Compilation of assessment studies on technical vocational education and training (TVET): Lao People's Democratic Republic, Mongolia, the Philippines, Thailand and Viet Nam, https://www.ilo.org/asia/publications/WCMS_458131/lang--en/index.htm.

Educational attainment differs between regions in Thailand, see Figure 1.3. In Bangkok, for example, in 2018, around 35% of adults had achieved tertiary education, while this was less than 15% in the North and Northeast regions. The proportion of adults having only achieved primary education or below was close to 55% in both the North and Northeast regions. Moreover, the proportion of adults who hold a VET certificate or diploma is relatively low in all regions, ranging between 6% in the Northeast and 11% in the Central region. Educational attainment is on the rise in all regions, with young adults being much less likely to have at most primary educational attainment and a larger share of young adults having a tertiary qualification. However, regional differences remain substantial also in the young age group, especially between Bangkok and the rest of the country. Regional disparities are analysed in depth in Chapter 2.

Figure 1.3. Educational attainment differs between regions in Thailand

Educational attainment of adults aged 16 to 64 who are not studying, by age (2018)

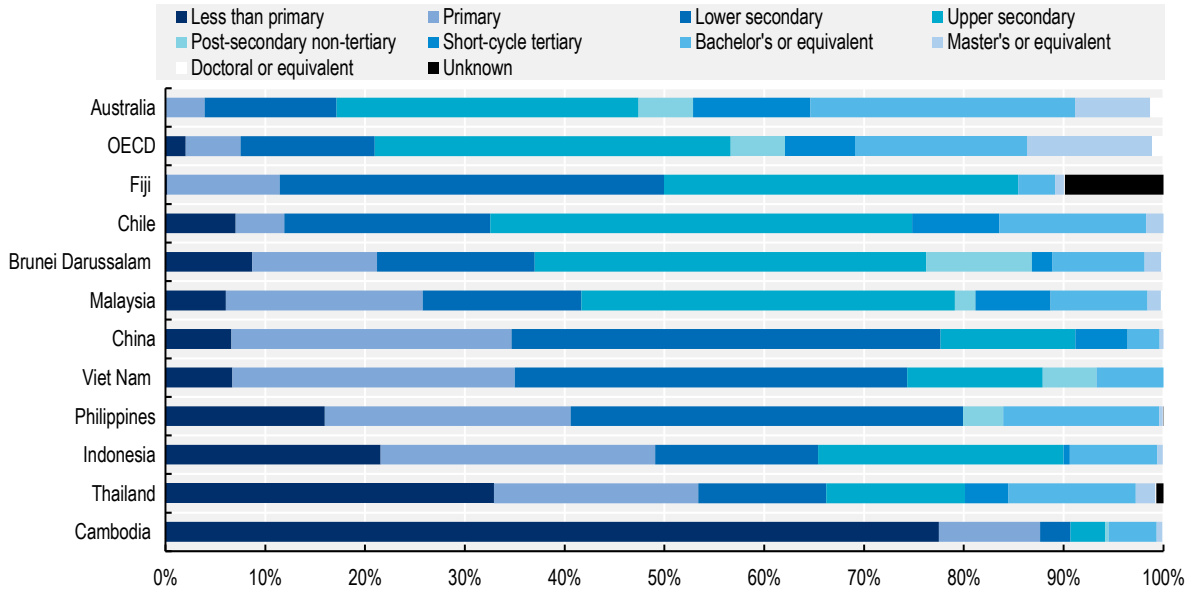


Note: "Upper secondary general" also includes upper secondary programmes that are neither general nor vocational diploma programmes (representing a negligible share of educational attainment). "Tertiary" also includes short-cycle general programmes (representing a negligible share of educational attainment).
Source: Authors' calculations using 2018 Thai Labour Force Survey data, National Statistics Office (2021[4]), Thai Labour Force Survey, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

From an international perspective, and despite recent improvements, educational attainment in Thailand is still low when compared to certain other countries in the region and the OECD average (see Figure 1.4). In 2018, the proportion of adults aged 25 or more, having attained primary education or less, was just over 50% in Thailand, which is higher than in neighbouring countries such as Brunei Darussalam (21%), Malaysia (26%) and Viet Nam (35%), but similar as in Indonesia (49%) and lower than in Cambodia (87%). The proportion of Thai adults with postsecondary education was 19% in 2018, similar to what is observed in Brunei Darussalam (24%), Chile (22%), Malaysia (21%) and Philippines (20%), but much lower than in most OECD countries like Australia (53%) or the OECD average (45%).

Figure 1.4. Compared to other countries, the educational attainment of the Thai adult population remains low

Share of population by educational attainment, population 25 years and older (2018, or latest available year)



Note: Information for Australia, Chile and the OECD average corresponds to *OECD Education at a Glance* data for population aged 25-64 (2019 or latest available year). Information from the remaining countries corresponds to UNESCO Institute for Statistics data for population 25 and older (2018 or latest available year).
Source: UNESCO Institute for Statistics (2021[1]), National Monitoring Database, http://data.uis.unesco.org/Index.aspx?DataSetCode=NATMON_DS; OECD (2020[7]), *Education at a Glance 2020: OECD Indicators*, https://dx.doi.org/10.1787/69096873-en.

Thai upper secondary students perform poorly in reading, maths and science from an international perspective

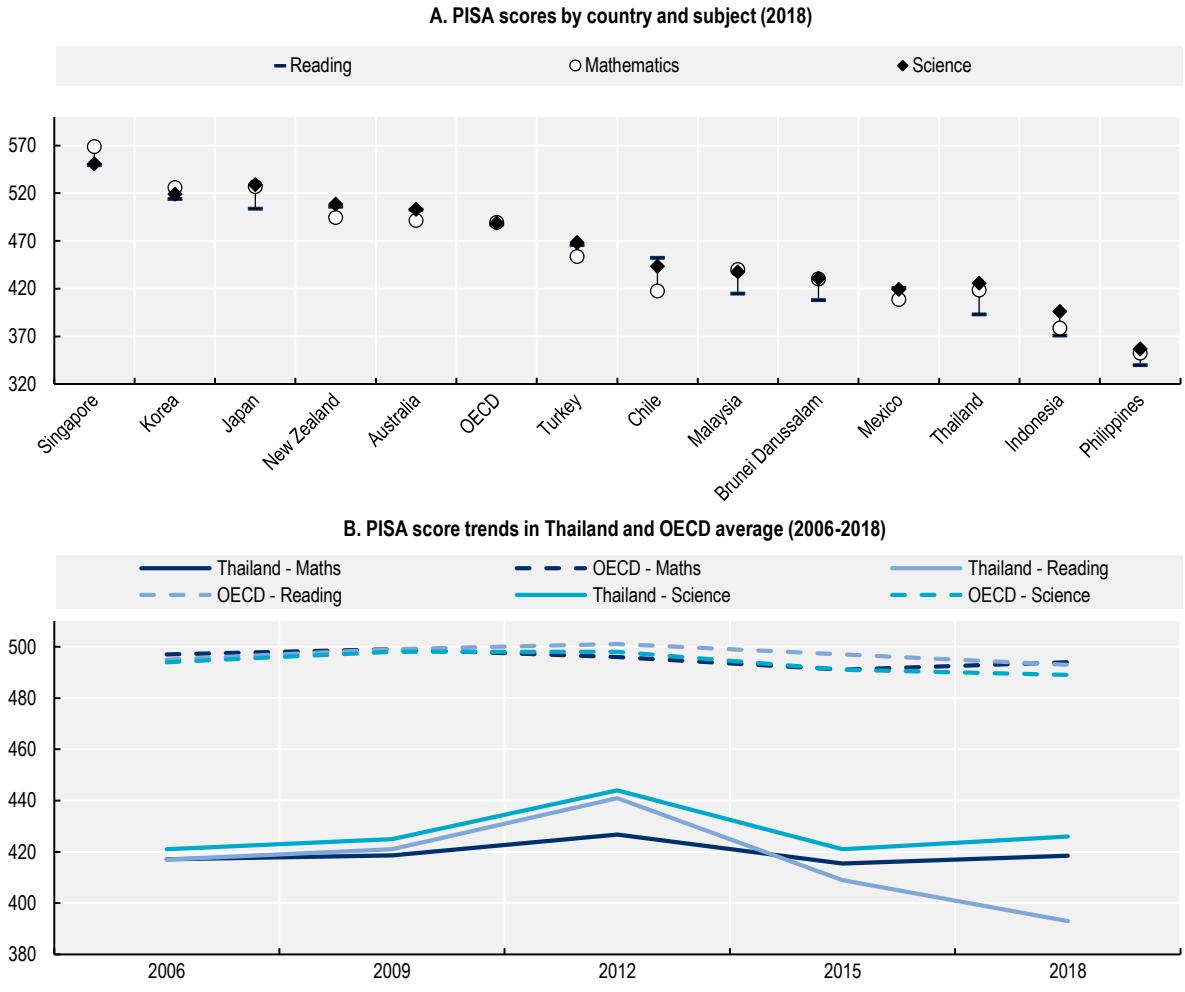
While Thailand has made steady progress in increasing enrolment in secondary education, the Thai education system today faces important challenges to improve the educational performance of students. According to the Programme for International Student Assessment (PISA), more than 59% of 15-year-old Thai students reach only level 1 or below in its reading test,[1] while 53% of them only reach this level in the maths test[2] (OECD, 2019[8]). This is much higher than the average across OECD countries, where these shares reach 22% and 24%, respectively. This situation is worrisome given the importance of foundational skills as key, for secondary Thai students, to enter further education or the labour market.

In PISA 2018, Thai students were outperformed by student from most OECD countries in all three subjects (see Figure 1.5, Panel A). For instance, in science, the difference in performance between Thai students and the OECD average was minus 63 points (-0.6 standard deviations). When compared to countries in the region, there were notable differences with Singapore (-125 pts), Japan (-103 pts) and Korea (-93 pts) and smaller differences with Malaysia (-12 pts) and Brunei Darussalam (-5 pts). By contrast, Thailand showed better results than both Indonesia (+30 pts) and the Philippines (+60 pts). Overall Thailand can be regarded as a low performing country in this assessment (OECD, 2019[8]).

When looking at recent PISA trends in Thailand (see Figure 1.5, Panel B), performance in the subject of reading has worsened importantly in recent years, with a drop of 50 points in a six-year period (2012-2018).

At the same time, performance both in maths and science has remained fairly stagnant. The negative trend in reading performance does not seem to be influenced by an increased proportion of the Thai population entering secondary studies. According to the PISA 2018 report, the proportion of 15-year-old eligible students in the PISA sample was 72% in Thailand (88% for OECD countries), and this figure has remained fairly constant over the period 2006-2018 (OECD, 2019[8]).

Figure 1.5. Thailand's 15-year-old students have low PISA scores compared to students in OECD countries



Source: OECD (2019[8]), *PISA 2018 Results (Volume I): What Students Know and Can Do*, https://dx.doi.org/10.1787/5f07c754-en.

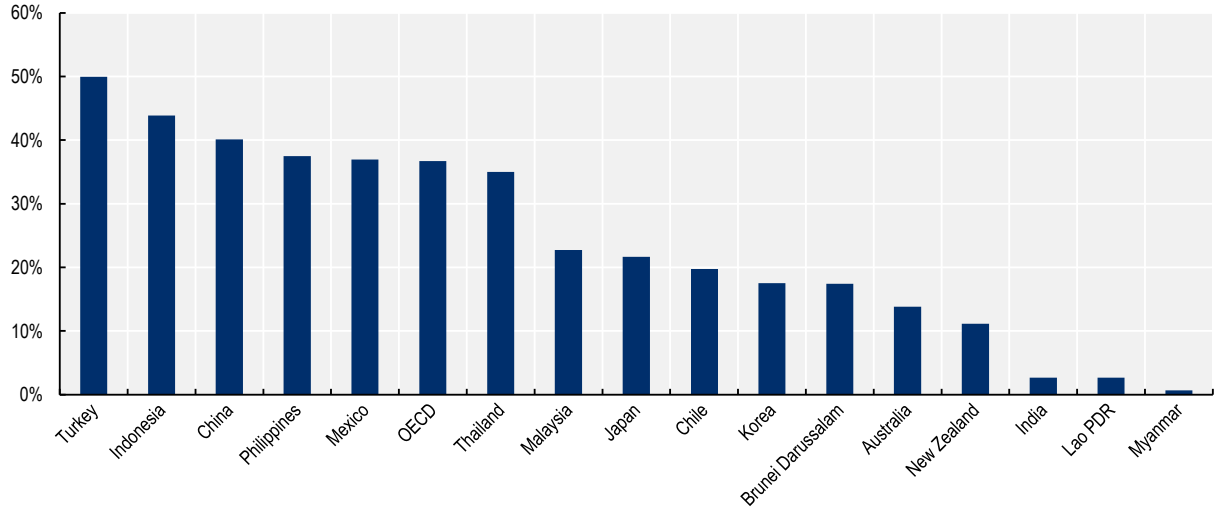
A third of upper secondary students are in VET programmes

As described in Box 1.1, the main VET programmes in Thailand are vocational certificate programmes (at the upper secondary level) and vocational diploma programmes (at the postsecondary level). More details on the governance of the VET system are provided in Box 1.2. At the end of lower secondary education, around 35% of students who stay in education choose the vocational education track, enrolling in upper secondary VET certificate programmes (Figure 1.6). This is similar to what is observed in several countries in the region, such as the Philippines, Indonesia or China, but substantially higher than in countries like India, Lao PDR and Myanmar where the share is negligible. The share of upper secondary students in VET is slightly lower in Thailand than on average across OECD countries, where it reaches 37%. However,

participation levels in VET at the upper secondary level go up to 70% in countries like the Czech Republic, Finland and Slovenia (OECD, 2020[7]). Germany and Switzerland, who are often considered as the leading VET countries in the OECD, have VET participation rates of 46% and 64%, respectively.

Figure 1.6. The share of upper secondary students in VET programmes in Thailand is lower than the OECD average, but higher than in many countries in the region

Share of all students in upper secondary education enrolled in vocational programmes (%) (2018)



Note: Information for Thailand corresponds to national estimates provided by the Office of the Vocational Education Commission (OVEC). Information for OECD countries was gathered from the *OECD Education at a Glance* database. Figures for all the remaining countries are from the UNESCO Institute for Statistics database. When using the latter database also for Thailand, the share would fall from 35% to 21%. The reason for this difference is that the UNESCO data for Thailand also include programmes for adults in upper secondary education, for which enrolment predominantly happens in general programmes. Figures for OECD countries and the OECD average correspond to the share of the population aged 15 to 19 years old enrolled in upper secondary education attending VET programmes.

Source: Office of Permanent Secretary for Ministry of Education (2020[9]), 2018 Education Statistics, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=655:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2561&catid=173&Itemid=114; UNESCO Institute for Statistics (2021[1]), National Monitoring Database, http://data.uis.unesco.org/Index.aspx?DataSetCode=NATMON_DS; OECD (2020[7]), *Education at a Glance 2020: OECD Indicators*, https://dx.doi.org/10.1787/69096873-en .

Box 1.2. Governance of the VET system in Thailand

The 2008 Vocational Education Act aimed to help the Thai vocational and technical education to overcome its difficulties and boost up the Thai economic base (Burapharat and Chupradit, 2009[10]). This act defined the types of institutions in charge of providing VET, the type of qualifications that would be offered in those institutions, and the organism in charge of overseeing the provision of VET.

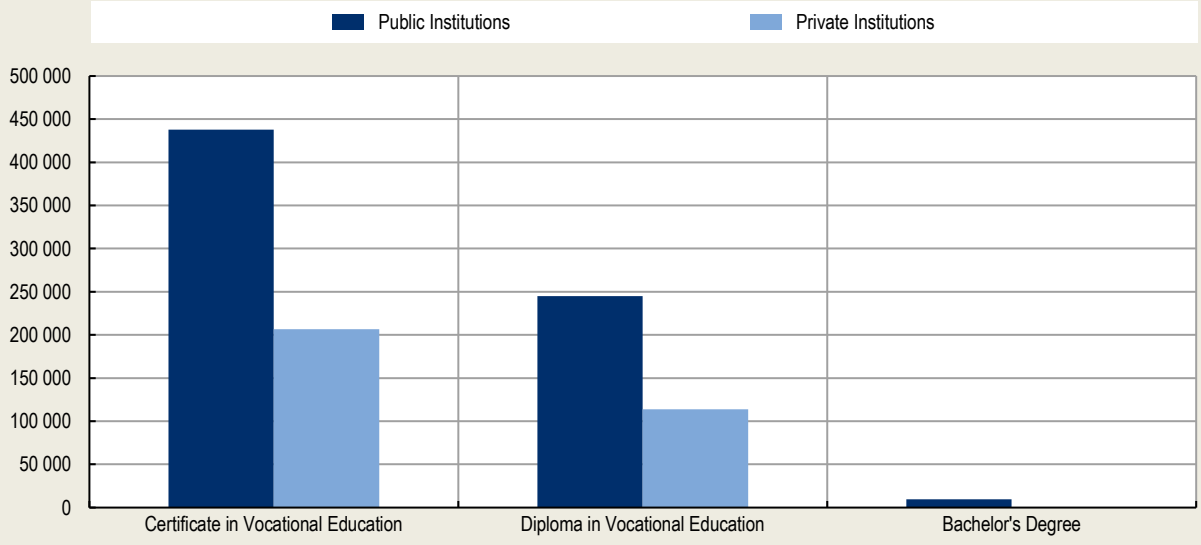
In Thailand, VET institutions are governed by the Office of the Vocational Education Commission (OVEC), which is under the Ministry of Education. OVEC is the main agency responsible for the administration of the VET system. Among its responsibilities are the following: i) Providing recommendations for developing VET related policies, developmental plans and standards and curriculum; ii) Co-ordinating the improvement of VET programmes and professional standards; iii) Developing VET teachers and personnel; and iv) Co-ordinating the actions of government and the private sector in the development of the VET system. The OVEC also plays an important role in financing the VET system, by defining the criteria and allocation of the budget and other necessary resources (UNESCO-UNEVOC, 2015[11]).

While the OVEC is the main body in charge of VET, there are some VET programmes that fall under the responsibility of other ministries (Office of the Non-Formal and Informal Education, 2008[12]). For instance, some short programmes in community colleges and tertiary vocational programmes are organised by universities, such as the Rajamangala University of Technology or Rajabhat University. These institutions are under the supervision of the Office of the Permanent Secretary of Higher Education, Science, Research and Innovation. Another example are Colleges of Dramatic Arts which are under the responsibility of the Ministry of Culture.

Today a wide variety of both public and private providers make up the Thai VET sector. A large proportion of VET institutions are private providers, many of which are linked to the business and industrial sectors. In 2019, there were 913 institutions registered, from which 53% were private. 37% of VET students were enrolled in programmes with private providers in 2019 (Figure 1.7). VET institutions are organised in multi-campus colleges. Each institution has its own administration and is managed by a council composed of enterprise representatives and other stakeholders (UNESCO-UNEVOC, 2015[11]).

Figure 1.7. A large proportion of students in VET programmes attend private institutions

Number of students in vocational education by institution type (2019)



Source: Office of the Vocational Education Commission (2019[13]), Public-Private Institution Information, http://techno.vec.go.th/ประชาสัมพันธ์/รายละเอียดข่าว/tabid/766/ArticleId/24086/language/th-TH/24086.aspx; UNESCO-UNEVOC (2015[11]), World TVET Database Thailand, https://unevoc.unesco.org/wtdb/worldtvetdatabase_tha_en.pdf; Burapharat and Chupradit (2009[10]), *Vocational and cooperative education in Thailand: A Presentation*; Research Institute on Contemporary Southeast Asia; Office of the Non-Formal and Informal Education (2008[12]), The Development and State of the Art of Adult Learning and Education. National Report of Thailand, https://uil.unesco.org/fileadmin/multimedia/uil/confintea/pdf/National_Reports/Asia%20-%20Pacific/Thailand.pdf.

Despite the fast-growing participation rate in secondary education in Thailand, the number of enrolments in upper secondary programmes has fallen in real terms, both in general and in VET programmes. In the period 2010-2019, the number of enrolments in vocational upper secondary programmes fell by 13%, as compared to a reduction of 7% in general programmes (Figure 1.8). This decline is partially due to an ageing population - see OECD (2020[14]) - and for VET also because of a lack of interest in the vocational track by prospective students (see Chapter 2). As the decline in student numbers in VET was stronger

than in general programmes, the importance of VET in upper secondary education has been going down, from 36% in 2010 to a low of 32% in 2014, rising again to 35% in 2019.

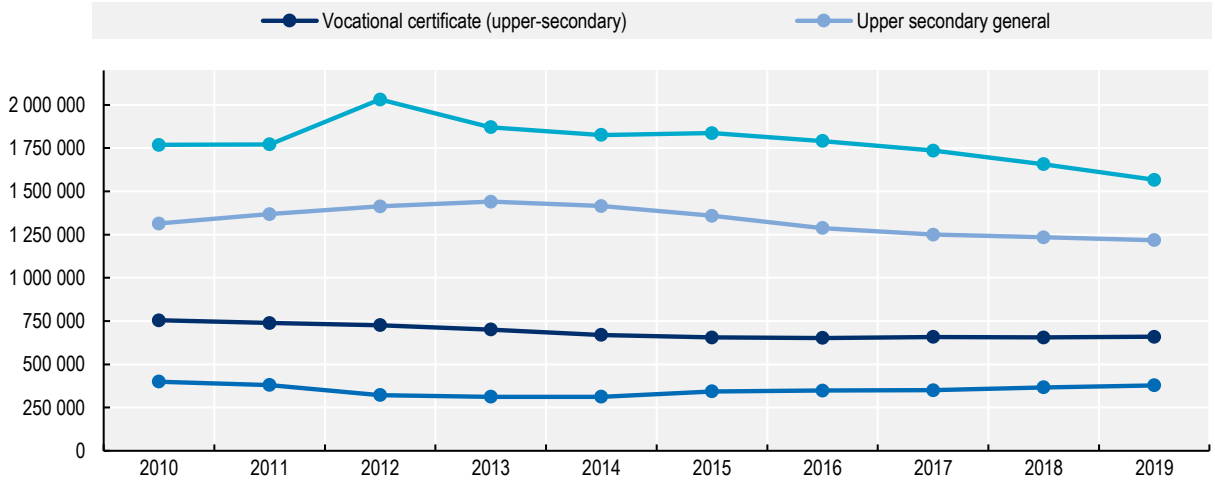
In post-secondary education, the situation is somewhat different (see Figure 1.8). The number of students in vocational diploma programmes fell by 5% in a 10-year period (2010-2019). This fall is less than for tertiary education, where the number of students fell by 11% in the same period, with an important drop from 2017 onwards. This means that the share of VET in postsecondary education has been on the rise (from 14% in 2012 to 19% in 2019[3]). The proportion of VET students being enrolled at the postsecondary level (VET diploma) is larger in Thailand than on average across OECD countries (OECD, 2020[7]).

Thailand has set ambitious goals in terms of student participation in VET (see Chapter 2), but the current figures and trends in enrolments suggest that there is still a relatively long way to go to reach these targets. As discussed in the following chapters, there are several reasons for the low number of students in VET programmes in Thailand, ranging from financial barriers, to a perceived low status of VET programmes, alongside questions about the quality of VET provision.

In addition to the formal VET system, Thailand also provides non-formal VET programmes, which enrol roughly 2.2 million students per year (see Box 1.3). While these types of programmes are outside the scope of this report, they are clearly an important part of the overall skills system in Thailand. These programmes are often shorter and more flexible than formal programmes, and can therefore be particularly attractive for adults. It is therefore important to recognise skills acquired through non-formal training towards a formal VET qualification when possible (see Chapter 2). While the recommendation in chapters 2 and 3 are focused on formal VET, many of them will also apply to non-formal programmes.

Figure 1.8. Student numbers are on the decline in Thailand

Number of students in upper secondary education and postsecondary education enrolled in general and vocational programmes (2010-2019)



Source: Office of Permanent Secretary for Ministry of Education (2020[15]), Education Statistics (2010-2019), http://www.mis.moe.go.th/index.php?option=com_content&view=category&id=173&Itemid=114.

Box 1.3. Non-formal VET provision

Non-formal training plays an important role in Thailand's education system. Non-formal programmes, along with other continuing education activities, intend to provide support to the great numbers of disadvantaged individuals who lack the opportunity of participating in formal schooling. Over the period 2010-2019, around 2.2 million students each year have been enrolled in VET non-formal training programmes (see Figure 1.9).

Several types of institutions provide this type of training. In 2006 there were 964 centres for the promotion of non-formal education, 8 697 community learning centres, and 4 280 private institutions conducting non-formal education (Office of the Non-Formal and Informal Education, 2008[12]).

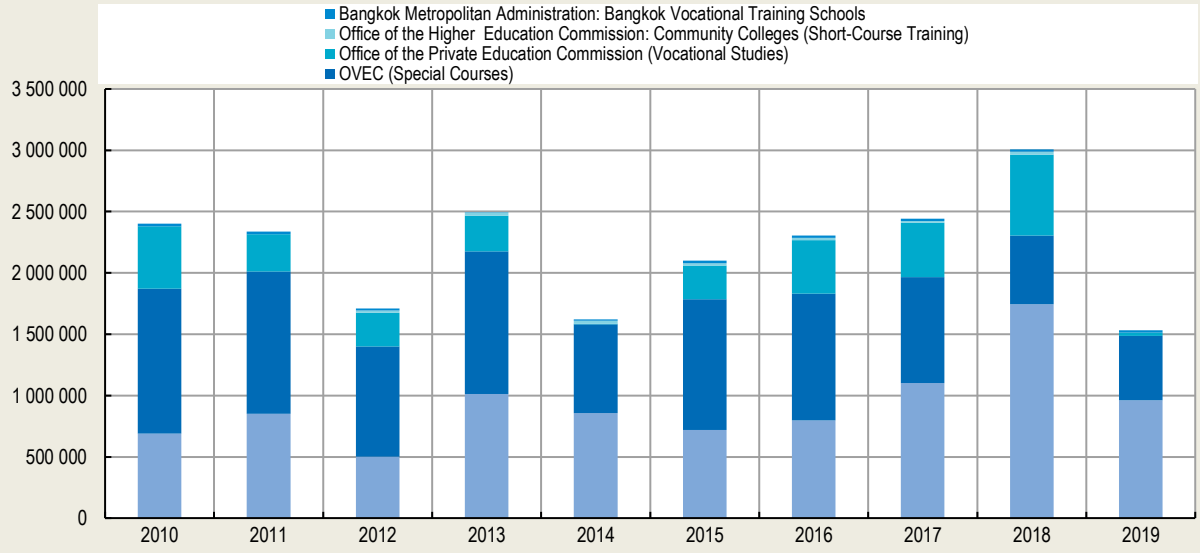
Today most non-formal VET programmes are under the responsibility of the Office of Non-Formal and Informal Education (ONIE), which is under the Ministry of Education. Also, a large proportion of programmes are under OVEC and the Office of the Private Education Commission (OPEC). The ONIE is responsible for: (1) giving recommendations concerning VET related policies, plans and strategies; (2) promoting collaboration between stakeholders; and (3) monitoring and evaluating non-formal VET programmes (UNESCO-UNEVOC, 2015[11]).

In Thailand, non-formal education activities fall into five domains: literacy promotion, continuing education, life-skills development, vocational development and vocational training. Non-formal and adult programmes are provided in a number of ways. For instance, occupational development programmes, which aim to develop students' vocational and occupation skills, emphasise the importance of the development of life skills to overcome unemployment and meet community needs. These type of programmes are organised in: (1) short occupation training programmes for life skill development; (2) skills training for job employment; (3) group learning for students of the same occupation or trade; and (4) occupational development through the application of technology such as Information and Communications Technology. Other types of non-formal vocational programmes include: (1) short training programmes; (2) group vocational courses; (3) vocational certificate programmes equivalent to lower secondary school; and (4) non-formal occupational certificate programmes (UNESCO-UNEVOC, 2015[11]).

In 2002, the National Education for All Plan of Action for Thailand set a number of VET-related goals; one of them was to expand the provision of programmes and education services, including non-formal VET, to promote learning and life skills development (UNESCO-UNEVOC, 2015[11]). Later on, in 2008, the Government of Thailand through the Ministry of Education pushed forward enforcing the Non-Formal and Informal Education Promotion Act (Office of the Non-Formal and Informal Education, 2008[12]). This act had similar general objectives. Among other goals, it promoted the decentralisation of roles to enable all educational organisations and networks to participate in conducting educational programmes and activities. It also contemplated the support of training organisations by providing, among others, learning resources and educational technology, and financial support for the development of non-formal education.

Figure 1.9. Non-formal VET is popular in Thailand

Number of students in the non-formal VET system by jurisdiction (2010-2019)

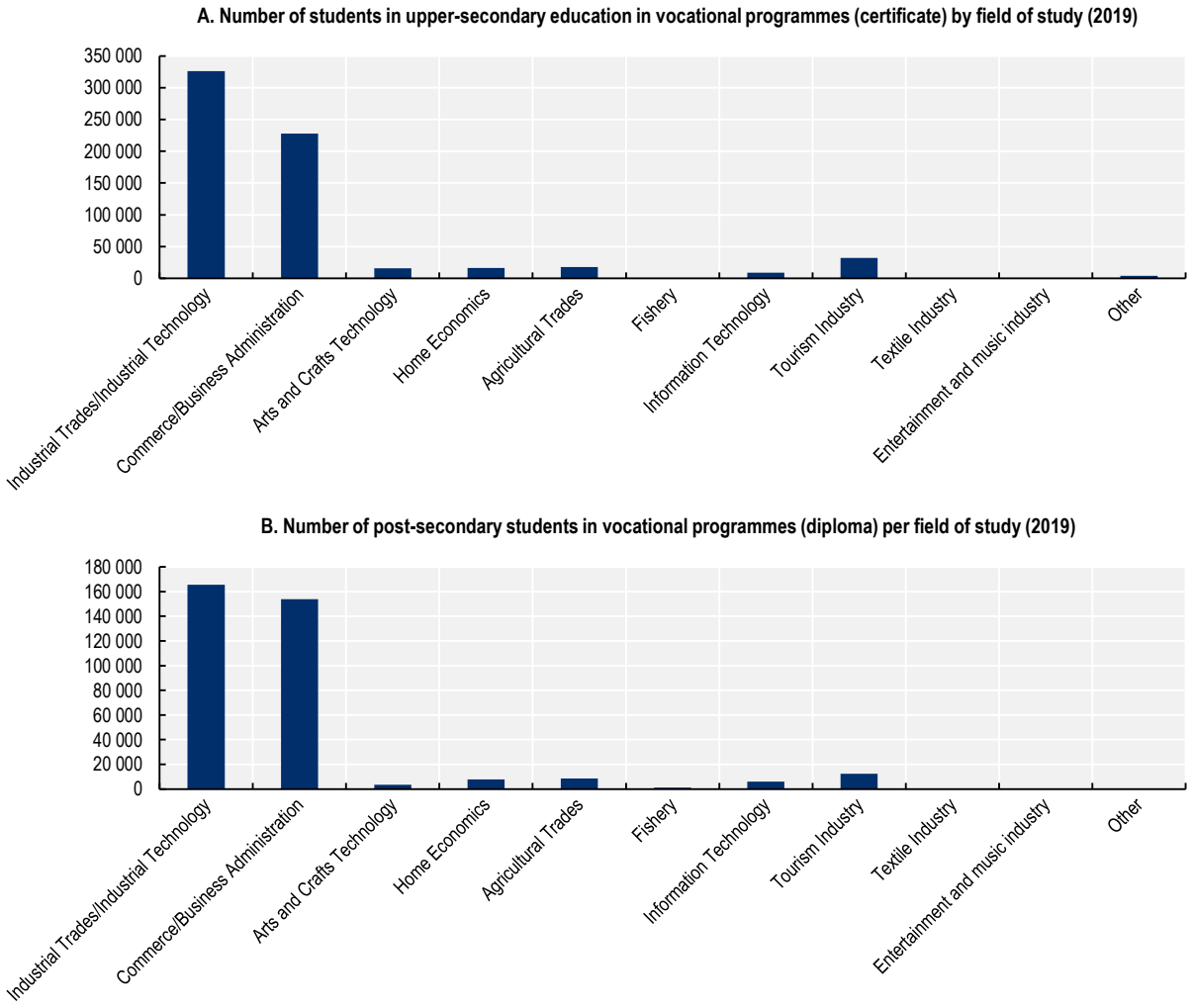


Source: Office of Permanent Secretary for Ministry of Education (2020[15]) Education Statistics (2010-2019), http://www.mis.moe.go.th/index.php?option=com_content&view=category&id=173&Itemid=114; UNESCO-UNEVOC (2015[11]), World TVET Database Thailand, https://unevoc.unesco.org/wtdb/worldtvetdatabase_tha_en.pdf; Office of the Non-Formal and Informal Education (2008[12]), The Development and State of the Art of Adult Learning and Education. National Report of Thailand, https://uil.unesco.org/fileadmin/multimedia/uil/confintea/pdf/National_Reports/Asia%20-%20Pacific/Thailand.pdf.

The current scope of vocational education in Thailand is relatively narrow

The lion's share of students enrolled in VET, both in the secondary and postsecondary levels, are concentrated in two fields-of-study. In 2019, the number of VET students in upper secondary education was 660 000, 50% of whom were enrolled in industry related programmes, and 35% in business administration and commerce programmes (see Figure 1.10, Panel A). Other fields-of-study have much lower enrolments, in spite of some of these fields being in demand in the labour market (see Chapter 3). For instance, despite today's crucial importance of technology in all areas of the economy, in 2019 the information technology field only made up to 1% of all enrolments in upper secondary VET. Students in agricultural programmes represented only 3% of enrolments, and students in tourism programmes 5%. For postsecondary education, participation rates according to field-of-study are very similar to those in upper secondary: 46% of students were in industry-related programmes, 43% in business administration and commerce; 2% in agricultural trades, 4% in tourism and 2% in information technology (see Figure 1.10, Panel B).

Figure 1.10. Enrolments in VET are concentrated in two fields-of-study



Notes: Panel A corresponds to the number of students in vocational diploma programmes for that year. Panel B corresponds to the number of students in vocational certificate programmes that year. Students in upper secondary vocational programmes under the supervision of the Office of Basic Education Commission are included as "Other".

Source: Office of Permanent Secretary for Ministry of Education (2020[15]), Education Statistics, www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:ประจำปี-2562&catid=173&Itemid=114.

VET is more popular among male students, and the choice of VET programmes is strongly influenced by gender

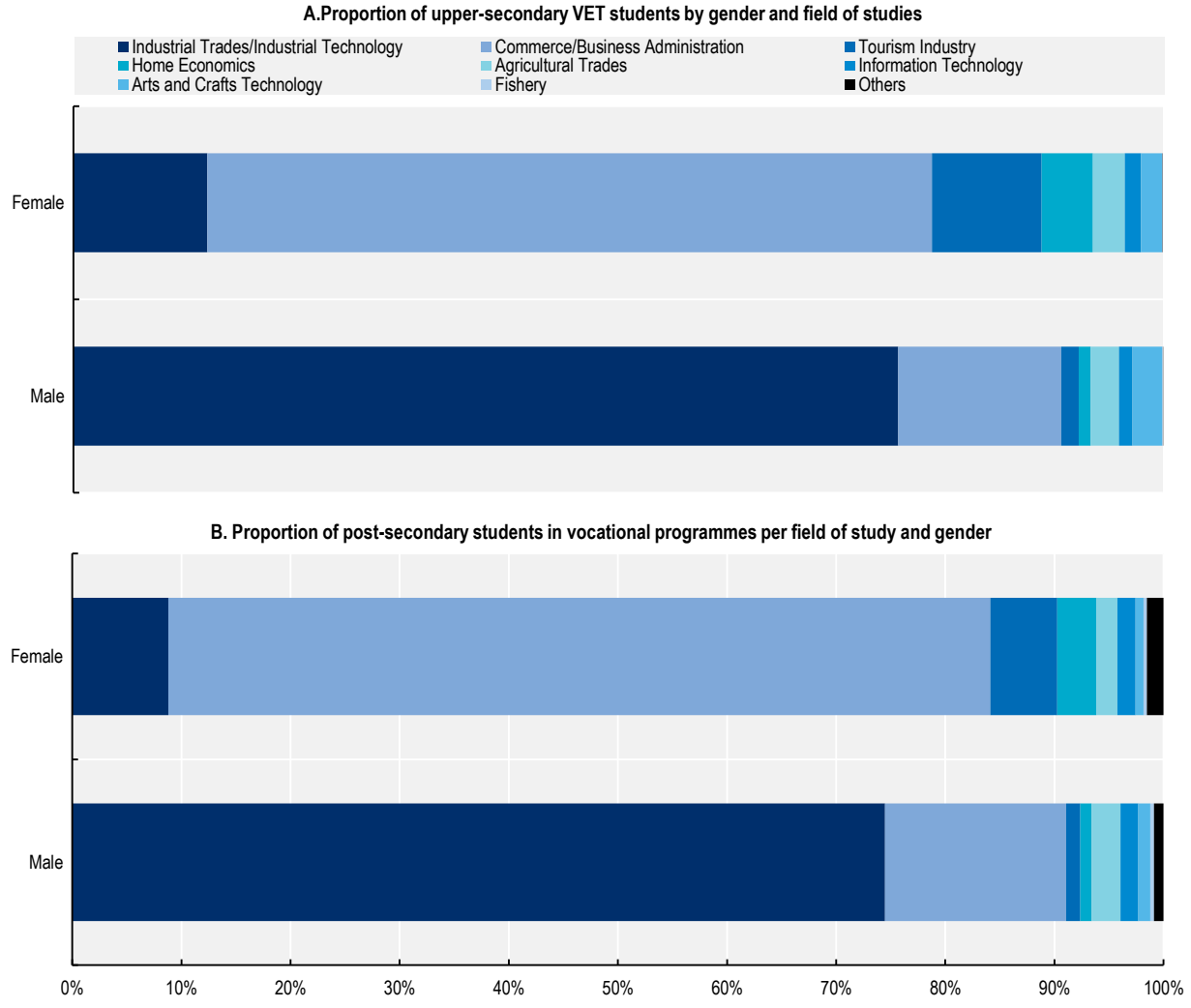
Male students are much more likely to choose to undertake VET studies. In 2019, out of 660 000 VET students in upper secondary programmes (vocational certificate), 60% were male. This as opposed to 40% in general programmes. In postsecondary education, male students represented 56% of VET students (vocational diploma). While female students are more likely to continue studies after they finish school, they are much more concentrated in tertiary programmes than male students, making up for 57% of students in tertiary studies (OECD, 2020[14]).

Female students are not only less likely to choose VET programmes, they also tend to choose some very specific fields-of-study, and these are different from the fields chosen by male students. In secondary education, two out of three female students in VET undertake business administration or commerce

programmes (66%), and only one in eight are in fields such as industrial trades or industrial technology (see Figure 1.11, Panel A). On the contrary, almost 75% of male students are enrolled in industry-related programmes, while only 15% of them undertake VET studies in business administration and commerce. When comparing fields-of-study by gender in upper secondary VET to those in postsecondary VET programmes, the choice patterns are very similar (see Figure 1.11, Panel B).

The fact that VET students in Thailand are predominantly men, and that male and female VET students enrol in very different fields-of-study, has to do with cultural aspects that seem to be very much embedded in the Thai education system, as the supply of VET courses is skewed to industrial fields which are often not attractive to female students. This issue is also linked with the topics of career guidance and career expectations, which are discussed as part of the section on gender inequalities in VET in Chapter 2. Differences in participation in VET and in field-of-study choice contribute to labour market differences, as adults with VET degrees have better labour market outcomes than those with general upper secondary degrees and certain fields-of-study in VET do significantly better than others in the labour market (see Chapter 3).

Figure 1.11. Male VET students are concentrated in the industrial field and female students in the commerce and business administration fields



Source: Office of Permanent Secretary for Ministry of Education (2020[15]) 2019 Education Statistics, www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:ประจำปี-2562&catid=173&Itemid=114.

Key features of the Thai labour market

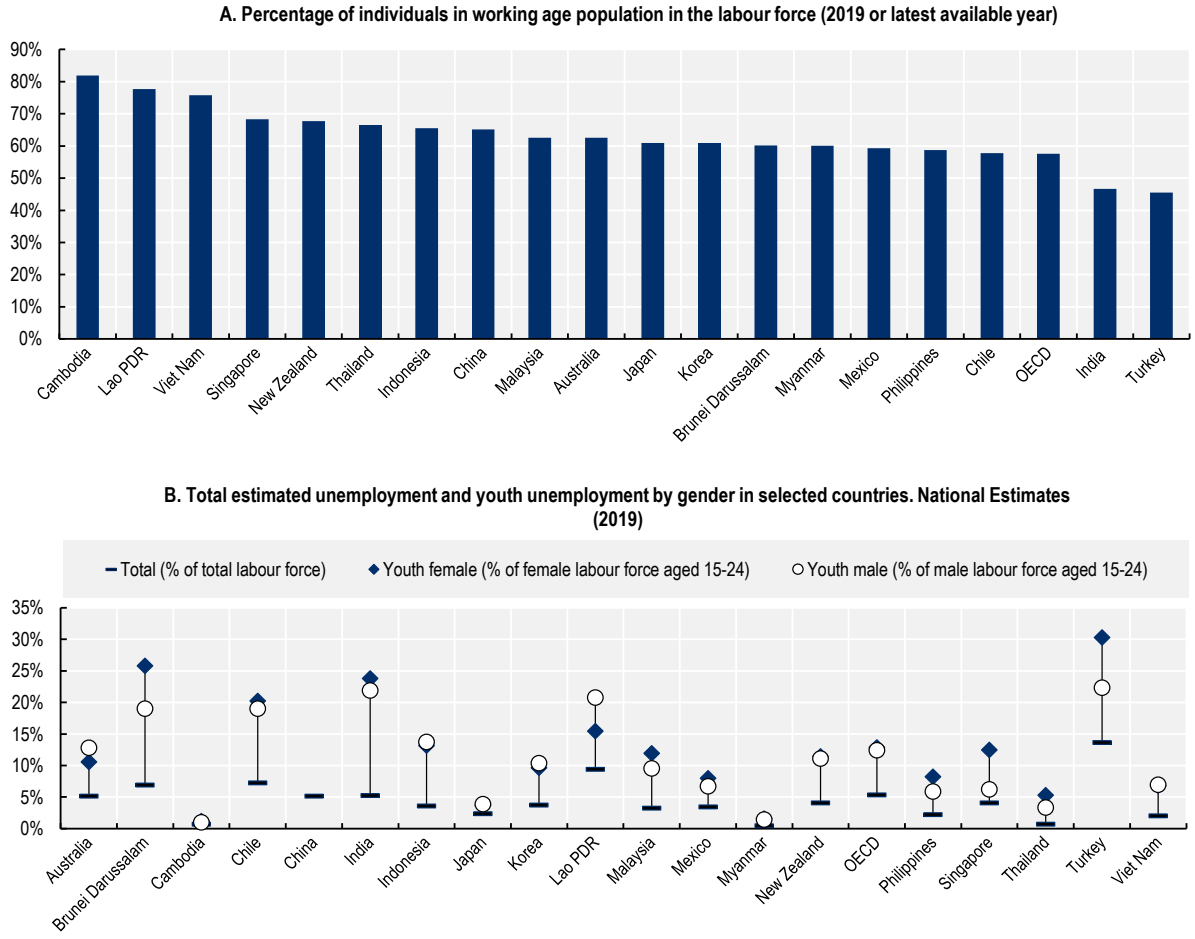
Employment rates in Thailand are high

Employment rates in Thailand are higher than the OECD average, but lower than in some countries in the region. In 2019, the employment rate for the population of age 15 and over in Thailand was 66%, compared to 58% on average across OECD countries. Lower employment rate in OECD countries partially reflect that populations are older and stay longer in education. Employment rates were higher in Cambodia (82%), in Lao PDR (78%) and in Viet Nam (76%) (see Figure 1.12, Panel A). At the same time, in recent years, unemployment levels in Thailand have been very low, both for young and older workers. In the period 2010-2019, the unemployment rate never exceeded 1% in Thailand (ILO, 2021[16]). Moreover, youth unemployment in the same period was on average 3%. These unemployment rates are lower than what is observed in the majority of OECD countries, but also than in many other countries in the region, such as Brunei Darussalam, Indonesia, Malaysia, Lao PDR and the Philippines (see Figure 1.12, Panel B).

Unemployment in Thailand affects young women more than young men. In 2019, it was 5% for young females aged 15 to 24, compared to 3% for young males (see Figure 1.12, Panel B). In recent years, there has been a rise in female unemployment. Young women are also much more likely to be not in education, employment or training (NEET). In 2020, the NEET rate for young women was 19%, as opposed to 12% for men (ILO, 2021[16]), and young married women in Thailand are especially more likely to be NEET (41%) than young married men (6%) (OECD, 2020[14]).

The COVID-19 crisis has had a very important impact on the Thai economy, with rising unemployment. Thailand's GDP in 2020 shrank by 6%, and the economy is expected to only partially recover in 2021 (OECD, 2020[14]). In 2020, all economic sectors had been affected by the crisis, with the accommodation and food services sector and the transportation and storage sectors being the most badly hit, due to restrictions on travel and the substantial drop in the number of foreign tourists. As a result of the crisis, unemployment levels in Thailand increased substantially during 2020, from 1% in the last quarter of 2019 to almost 2% one year later (OECD, 2020[14]). Although in 2020 the number of employed workers shrank during the first two quarters, and then improved towards the end of the year, still many jobs had not been recovered. This was especially the case in the manufacturing and retail sectors. In July 2020 youth unemployment in Thailand reached 10 % and has slightly improved subsequently.

Figure 1.12. Thailand has a relatively high employment and low unemployment rate



Note: In Panel A, according to the ILO, employment comprises all persons of working age who during a specified brief period, such as one week or one day, were in paid employment or self-employed. The working-age population is the population above the legal working age. However, to favour international comparability, the working-age population is defined as all persons aged 15 and older. However, this may vary across countries based on national laws and practices. Some countries also use an upper age limit (OECD, 2020[14]).
Source: International Labour Organization (2019[17]), ILOSTAT database, https://ilostat.ilo.org/data (Panel A); World Bank (2020[18]), World Development Indicators, https://databank.worldbank.org/source/world-development-indicators (Panel B).

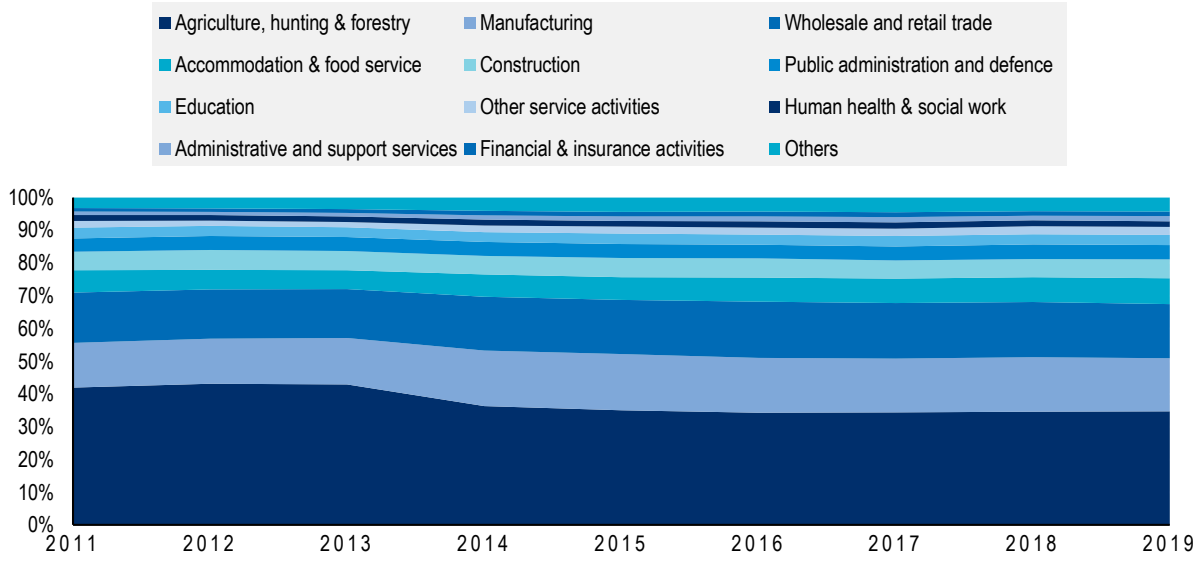
The composition of employment has shifted

The Thai economy has gone through structural changes over the last decade, as shown by significant changes in the relative importance of its main occupations and industries (see Figure 1.13). In part linked to the increasing openness of the Thai economy and its trading policies, international trade has kept growing at a high rate. By 2018, the export of goods and services represented 60% of Thailand's GDP, up from around 40% in 1998 (OECD, 2020[14]). This has contributed to a growing importance of economic sectors such as manufacturing, retail trade and the hospitality sector (Figure 1.13). Nonetheless, despite its continued decline in the past decades, a large share of the labour force continues to be employed in agriculture-related activities (34% in 2019). From an international perspective, the employment share of the agricultural sector is large in Thailand, especially when compared to OECD countries, but also to certain countries in the region, such as Malaysia (Figure 1.14). Agricultural employment is even more important in countries like Lao PDR, India, Viet Nam, Cambodia and Myanmar. Labour productivity is low in the Thai agricultural sector, and has not improved over the past decade. Productivity is higher in the

industrial sector – which has been at the centre of the country's development goals-, and increased by more than 30% in the period 2008-2018 (Thailand Development Research Institute, 2019[19]).

Figure 1.13. The relative importance of Thai economic sectors in the labour force is changing

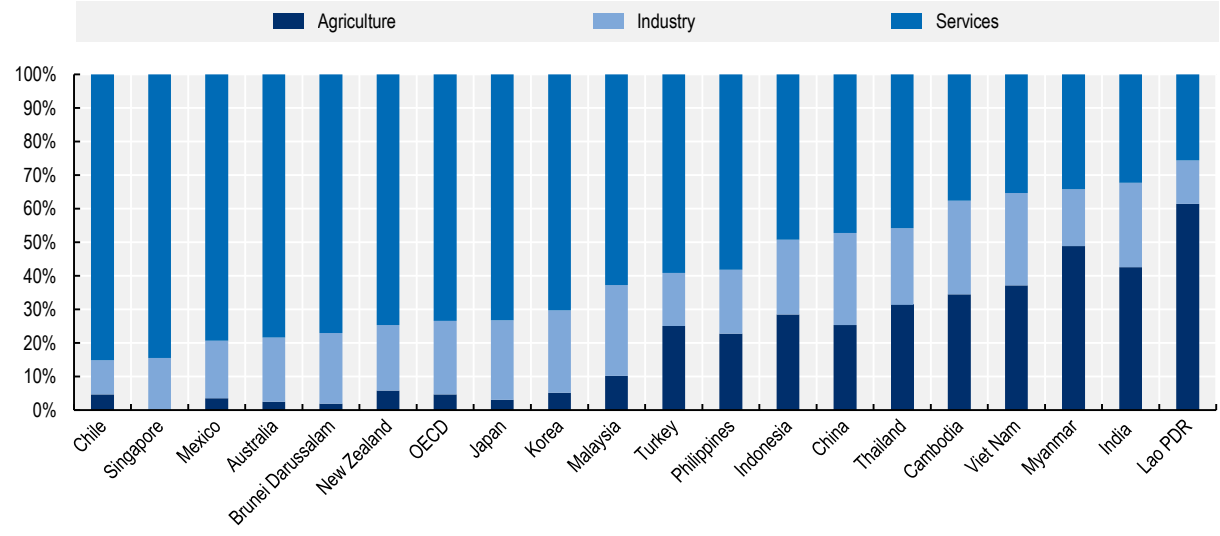
Proportion of employment by industry classification, 2011-2019



Note: Information corresponds to Quarter 3 in 2019. Industries are classified to 22 categories based on TSIC, revised by the National Statistical Office.
Source: National Statistical Office (2020[20]), The Informal Employment Survey, Ministry of Digital Economy and Society, http://www.nso.go.th/sites/2014en/Pages/survey/Social/Labour/The-Informal-Employment-Survey.aspx.

Figure 1.14. Thailand has a relatively large agricultural sector

Employment, by economic activity (2019)

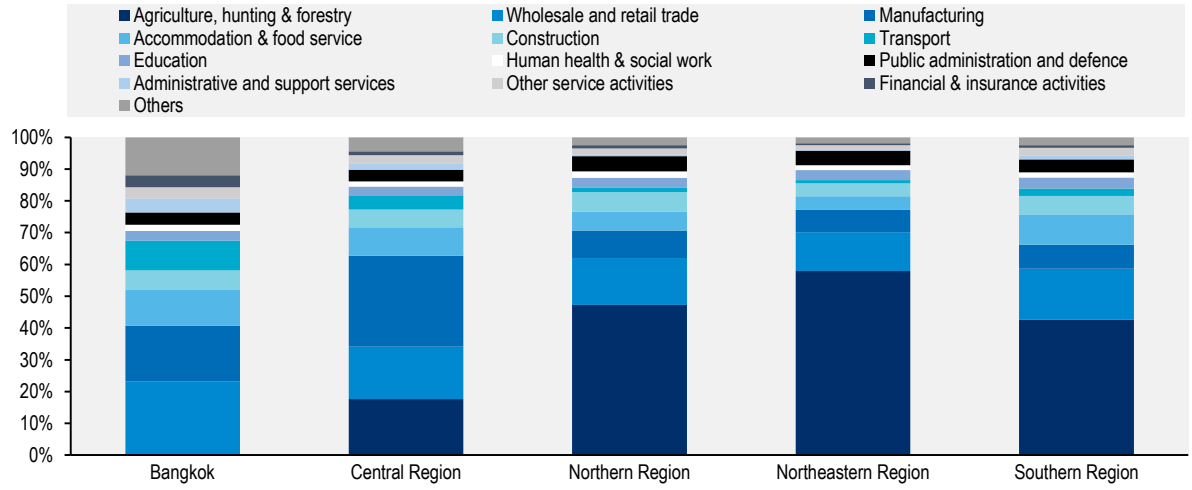


Source: International Labour Organization (2019[17]), ILOSTAT database, https://ilostat.ilo.org/data.

The sectoral composition of employment differs strongly between men and women, with larger shares of women than men in certain sectors requiring higher levels of education, such as financial and insurance activities, the education and health sectors. Female employment is also more concentrated in accommodation and food services. On the other hand, female workers are less present in the agricultural sector, the construction sector and the manufacturing sector. Regional differences are also large. The agriculture, forestry and fishery sector remains large in most Thai regions, and in the North East, for instance, more than 50% of workers are employed in this sector. The North and South Regions also have a large number of workers in this field (Figure 1.15). On the other hand, the retail trade and manufacturing sectors are quite important in Bangkok and the Central Region, accounting for 40% and 45% of total employment, respectively.

Figure 1.15. Regional differences in sectoral composition are large

Employment distribution by industry (by region, 2019)

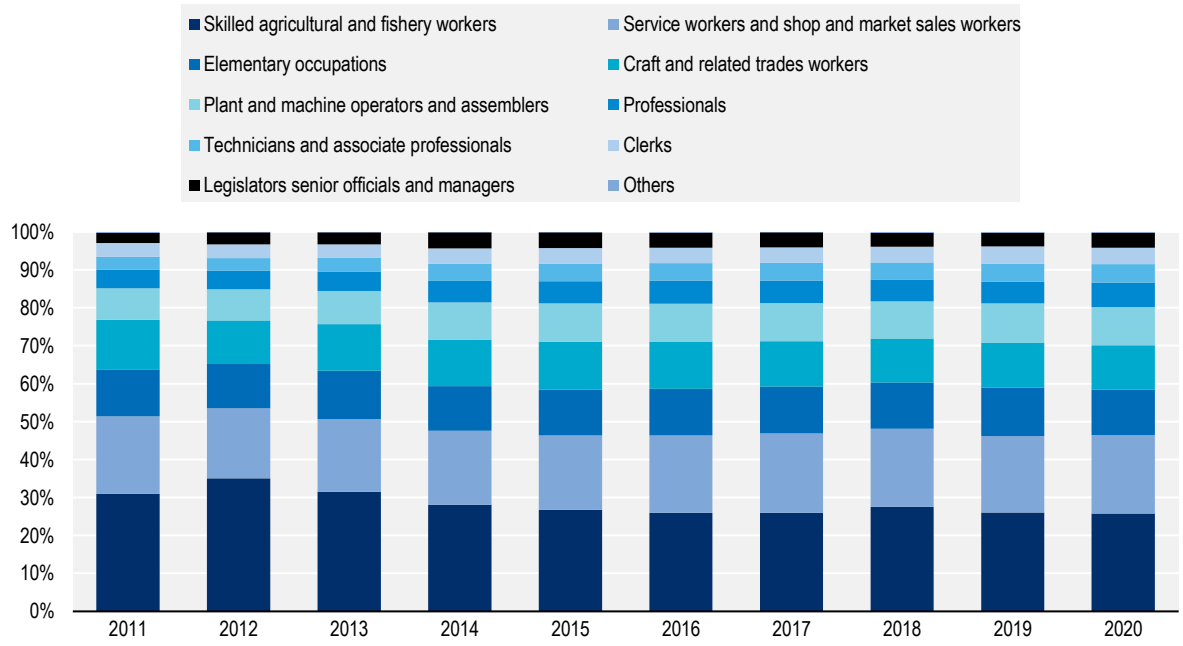


Source: Authors' calculations using 2019 Thai Labour Force Survey data, National Statistics Office (2021[4]), Thai Labour Force, Survey, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Looking at trends in employment by occupational category confirms that the importance of agricultural jobs is on the decline (Figure 1.16). While 31% of the labour force was employed as agricultural or fishery workers in 2011, by 2020 that share dropped to 26%. In the period 2011-2020, the proportion of plant and machine operators increased by 2 percentage points (corresponding to a net increase of 21%). The proportion of professionals also rose importantly, from 5% to 6% (30% net increase). This is in line with a larger importance of the manufacturing, trade and services industry in the Thai economy. In a context of changing skill demand, it is important to monitor that the supply of skills evolves in the same direction. Chapter 3 zooms in on issues related to imbalances between skills demand and supply. Such imbalances are one of the factors that could hinder economic progress in Thailand, alongside a declining labour force, an aging population, weakening labour productivity in some economic sectors and declining rates of investment (OECD, 2020[14]).

Figure 1.16. The relative importance of agriculture workers and elementary occupations is decreasing

Share of employed persons, by occupation, 2011-2020



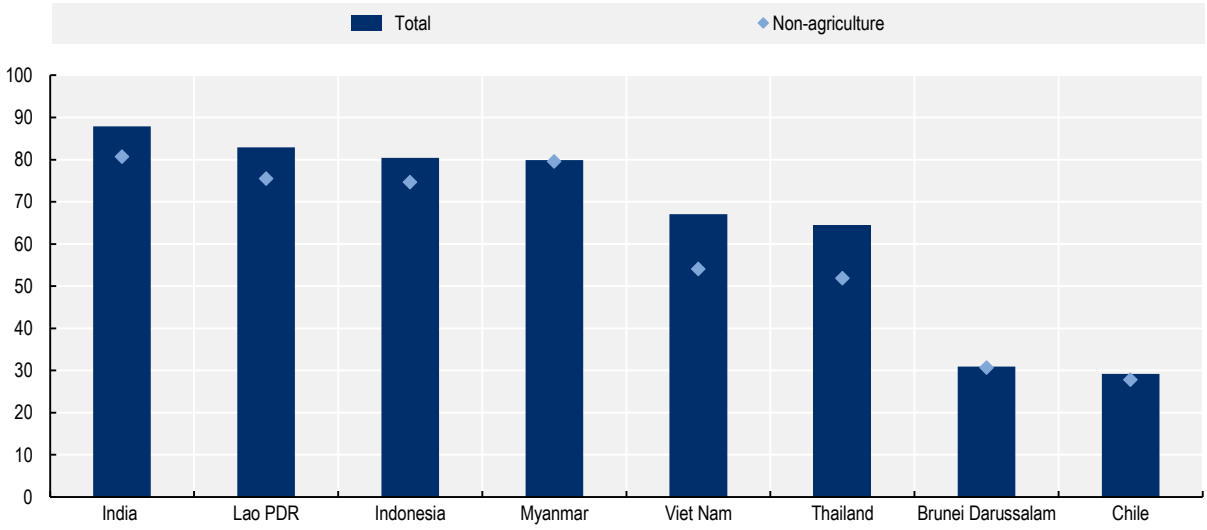
Note: All figures for Q1 of each year.
Source: Authors' calculations using Thai Labour Force Survey data (years 2011-2010), National Statistics Office (2021[4]), Thai Labour Force Survey, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Informality is widespread in the Thai labour market

The informal economy is very important in Thailand. According to ILO data, 64% of jobs in the country were informal in 2019. This figure falls to 52% when not taking into account jobs in the agriculture sector. When compared to other countries in the region (Figure 1.17), Thailand has a similar share of informal workers than Viet Nam and smaller than in countries such as Indonesia, Myanmar, Lao PDR and India. In general, informal firms tend to be smaller and less productive; and informality is also associated with occupational health risks, low investment into workers' human capital (education and training) and reduced tax revenues, amongst others (OECD, 2020[14]). Hence, the Thai government has been making efforts to incorporate more workers and firms into the formal economy. For instance, in 2010, the social security system was extended to informal and self-employed workers by offering a partial subsidy to people who voluntarily sign up for the Social Security Fund (SSF) which covers sickness, invalidity and a pension package (Fleischer et al., 2018[21]). Thailand has reduced the number workers in informal jobs substantially over the last 10 years. According to the Thai Informal Employment Survey, job informality fell by more than 7 percentage points between 2010 and 2019. The share has stabilised in the last five years, and it is likely to worsen as a result of higher unemployment levels in Thailand due to the COVID-19 crisis (OECD, 2020[14]).

Figure 1.17. Informality in Thailand is similar to other countries in the region

Informal employment rate (2019 or latest available)

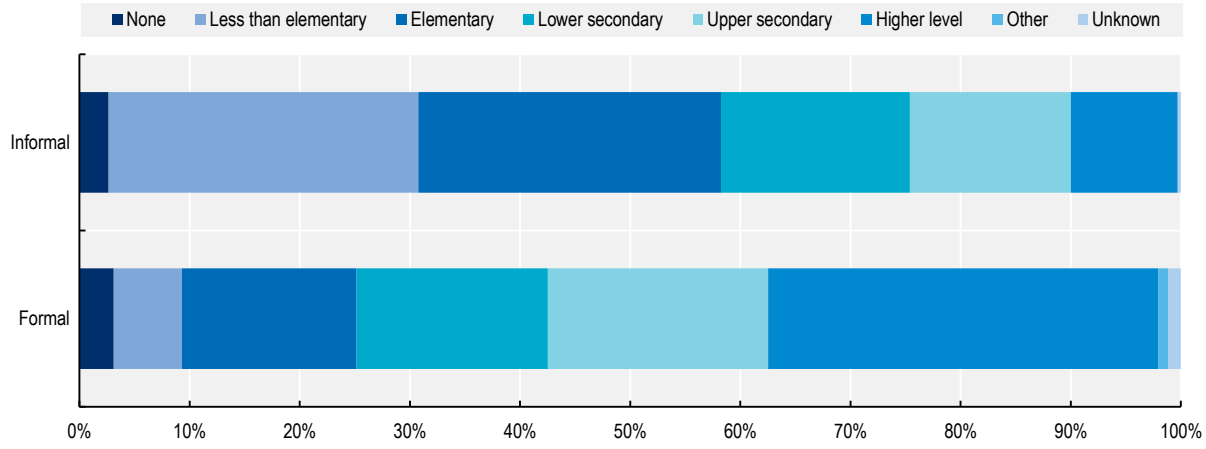


Note: The informal employment rate is the proportion of the employed population working in the informal sector. The informal sector are all workers in unincorporated enterprises that produce at least partly for the market and are not registered. It excludes households that produce exclusively for own final use, subsistence agriculture, construction of own dwellings, etc. Informal employment comprises persons who in their main job were: (a) own-account workers, employers or members of producers' cooperatives employed in their own informal sector enterprises; (b) own-account workers engaged in the production of goods exclusively for own final use by their household; (c) contributing family workers, irrespective of whether they work in formal or informal sector enterprises; or (d) employees holding informal jobs, whether employed by formal sector enterprises, informal sector enterprises, or as paid domestic workers by households (OECD, 2020[14]).
Source: International Labour Organization (2019[17]), ILOSTAT database, https://ilostat.ilo.org/data.

In Thailand, informality is most prevalent in the agriculture sector, and among workers in occupations for which low levels of qualifications are required. According to the Informal Employment Survey, 75% of workers in informal jobs in Thailand had achieved less than upper secondary education (Figure 1.18). This compares to 43% of workers in the formal sector. However, also a relatively large proportion of tertiary educated individuals work in the informal economy, many of them in professional or managerial positions: 25% of workers with tertiary studies are in the informal economy, and 46% of individuals with upper secondary studies have informal jobs.

Figure 1.18. Informality according to educational level

Labour force distribution by education level and gender in the formal/informal sector (2019)



Note: The formal sector are all workers in incorporated enterprises. The informal sector are all workers in unincorporated enterprises that produce at least partly for the market and are not registered. It excludes households that produce exclusively for own final use, subsistence agriculture, construction of own dwellings, etc. Informal employment comprises persons who in their main job were: (a) own-account workers, employers or members of producers' cooperatives employed in their own informal sector enterprises; (b) own-account workers engaged in the production of goods exclusively for own final use by their household; (c) contributing family workers, irrespective of whether they work in formal or informal sector enterprises; or (d) employees holding informal jobs, whether employed by formal sector enterprises, informal sector enterprises, or as paid domestic workers by households (OECD, 2020[14]).
Source: National Statistical Office, Ministry of Digital Economy and Society (2020[22]), The Informal Employment Survey 2019, http://www.nso.go.th/sites/2014en/Survey/social/labour/informalEmployment/2019/2562_Full_Report.pdf.

Conclusion

Thailand has shown important advancements in the educational attainment of its young population over the last decade, and has managed to substantially increase access to upper secondary education. Among young adults (aged 25 to 34), a quarter hold a tertiary education degree and 7.5% a postsecondary vocational diploma. At the same time, the performance of 15-year-old students in international assessments of reading, maths and science remains comparatively low. A large proportion of the Thai adult population have very low levels of educational attainment, with in some regions more than half of adults having completed at most primary education.

A substantial proportion of students enter vocational education, with one-third of upper secondary students being enrolled in vocational programmes and one in five postsecondary students pursuing programmes to obtain vocational diplomas. Vocational education is focused predominantly on two fields of study, industry-related fields and business administration and commerce, enrolling around 85% of all VET students. Male students are more likely to enter VET programmes than female students, and are enrolled in very different fields of study. Other programmes that correspond to fields of growing demand in the labour market, such as IT and health care, attract very few VET students.

Thailand's labour market has undergone important changes, with a growing importance of the non-agricultural sectors as a result of increased levels of industrialisation and international trade. The employment shares of plant and machine operators, and professionals have been on the rise, while employment shares of agricultural and elementary jobs are falling. Nonetheless, these latter two occupation groups still account for a large share of employment, and more so in some regions than in others. Unemployment rates have been consistently low in Thailand, although the COVID-19 pandemic

led to substantial job losses –particularly in sectors impacted by travel restrictions. A very large proportion of jobs are in the informal sector of the economy.

VET can play a key role in further increasing access to education, while at the same time developing the skills needed in the Thai labour market. For this to work, VET needs to be an attractive option for a diverse group of students and deliver high-quality training that allows students have good employment outcomes and engage in further learning. In the following chapters these and other related issues are discussed in detail, along with examples of good practices and policy recommendations on how to improve VET provision in Thailand.

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Notes

[1] In PISA 2018 students achieving Level 1 (Level 1a) or below in the reading examination can at best understand the literal meaning of sentences or short passages. Readers at this level can also recognise the main theme or the author's purpose in a piece of text about a familiar topic, and make a simple connection between several adjacent pieces of information, or between the given information and their own prior knowledge. They can select a relevant page from a small set based on simple prompts, and locate one or more independent pieces of information within short texts. Level 1a readers can reflect on the overall purpose and on the relative importance of information (e.g. the main idea vs. non-essential detail) in simple texts containing explicit cues (OECD, 2019[8]).

[2] At Level 1 in the PISA 2018 maths examination, students can answer mathematics questions involving familiar contexts where all of the relevant information is present and the questions are clearly defined. They are able to identify information and carry out routine procedures according to direct instructions. They can only perform actions that are obvious and that follow immediately from the given stimuli (OECD, 2019[8]).

[3] To estimate the share of students in post-secondary VET, the number of students in post-secondary vocational programmes (VET diploma) and those students enrolled in tertiary education are used in the calculations. Students attending non-vocational diplomas or graduate degrees are not included.

2 Improving access and quality of vocational education and training in Thailand

This chapter looks at access to vocational education and training (VET), both in general terms and for certain population groups. It discusses important barriers to access, related to the image, quality and organisation of VET. It zooms in on particular challenges faced by students from disadvantaged backgrounds, as well as differences in access to quality VET provision by gender, age and region. The chapter provides recommendations for making the Thai VET system more attractive, of better quality and more equitable.

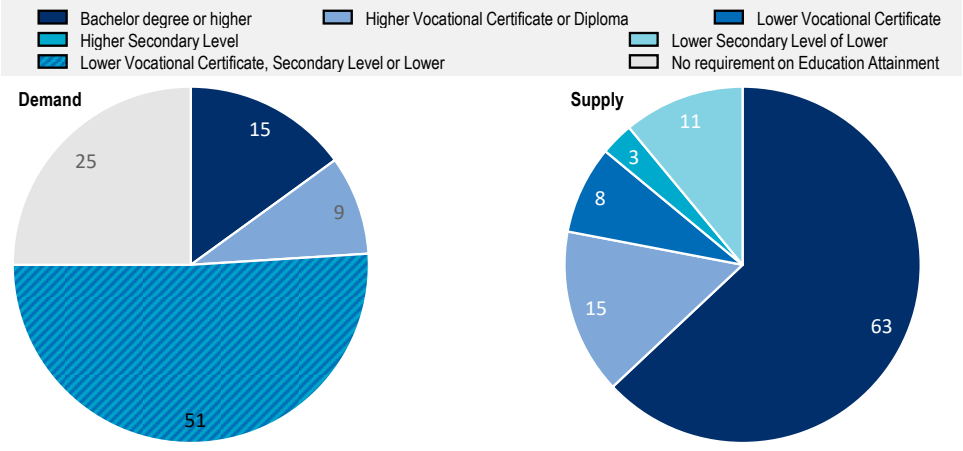
Improving access and quality

Many observers of the Thai VET sector argue for an expansion of its size. As discussed in Chapter 1, the share of the workforce with vocational certificates and vocational diplomas remains relatively low. According to the data available, currently about 35% of Thai students study a vocational programmes at the upper secondary level, which is lower than the OECD average of 37% and remains below the target set by the Thai government to increase the proportion of vocational students relative to general education ones to a ratio of 60:40 (Ministry of Education, 2013[1]). Although there are no "one-size-fits all" approach regarding what should be the adequate size and shape of a country's VET system, reports of skills shortages,[1] as discussed in Chapter 3, and Thailand's targets for VET enrolment, imply that the system needs to enrol more students.

Data on labour demand from the National Statics Office's Establishment survey show that employers are mostly looking for workers with low to medium-level qualifications, i.e. upper secondary level or below (including vocational certificates) (see Figure 2.1). This level represents 51% of demand, while the demand for bachelor's level or higher, and higher vocational qualifications only account for 15% and 9%, respectively. By contrast, data on the estimated supply of graduates shows that 63% of graduates have a bachelor's degree or higher, 15% have higher vocational qualifications, and 22% have low to medium-level qualifications. While there is clearly an oversupply of tertiary-educated workers, data by field of study show that the supply of science, technology, engineering, and mathematics (STEM) graduates falls short of the demand for these graduates, signalling that field of study choice is not well-aligned with labour market needs (Chantapong and Lertpienthum, 2018[2]). This also suggests that the mix of provision and the content of VET programmes may not have adjusted fast enough to labour market evolutions. Despite there being shortages of technical skills, both students and parents showed a preference for a university rather than vocational education. The demand, from both students and their parents, and employers, for academic credentials may be excessive, especially when these do not offer better labour market prospects than VET ones. One of the reasons may be that students may seek higher social status through university qualifications (Chalapati and Chalapati, 2020[3]). There are some reports also of employers preferring academic degrees from higher education institutions. The topic of mismatch and shortages is further discussed in Chapter 3.

Figure 2.1. The supply of highly qualified graduates exceeds demand

Demand and supply of labour by education level, 2013 and 2018 respectively



Source: Chantapong and Lertpienthum (2018[2]), Skills Mismatch: A Challenge for Education 4.0, https://www.bot.or.th/Thai/ResearchAndPublications/articles/Pages/Article_24Jul2018.aspx.

To have more students go into upper secondary VET programmes, and onto technical jobs in the labour market, VET has to become more attractive for students in initial education, while also cater to the needs of adults who might have already gone through some education and training, and have gained experience in the workplace. The promotion of VET through the idea that "vocation creates the nation (Thailand Development Research Institute, 2019[4]) and the aspiration to increase the proportion of students entering VET in itself can help to increase the attractiveness of VET – by opening new programmes and institutions. But in a system where students can choose to pursue general education options, increasing the proportion of students who enter VET will also depend on improving the status of VET.

Increasing access to VET can be achieved through multiple channels. First, for VET programmes to be more attractive, the system needs to ensure that vocational students can move onto further learning opportunities, both vocational and general education ones, so that VET is not perceived as a dead-end option. Second, institutional fragmentation has to be reduced, to increase co-ordination and coherence and to make the system more transparent and easier to navigate. Third, issues regarding the quality of learning and teaching, and the relevance of the programmes need to be addressed, to improve the image of, and consequently participation in, VET. Fourth, efforts are needed to increase access for certain underrepresented groups (including adults), and making sure that opportunities are of the same quality in all regions.

Improving pathways between vocational and general education programmes, including upwards

Moving between VET and general education programmes, vertically, is possible in theory

A lack of interest in vocational education among young Thai people with high academic potential could, at least in part, be due to the fact that VET programmes are seen as a dead-end, not allowing access to further education opportunities (Thailand Development Research Institute, 2019[4]). However, in principle, pathways are open, both toward higher-level vocational programmes and general education programmes. Upper secondary vocational graduates can apply to academic university programmes like their general education peers, with the exception of programmes in some health faculties (e.g. dentistry, pharmaceutical and veterinary science).

There is also the possibility for students to progress to postsecondary VET programmes. At that level, students can pursue vocational diplomas, after having completing either general or vocational upper secondary education. There are also bachelor's degree in technology or operation, in which students with a vocational certificate can enrol and which is shortened to two years (instead of four) for those who have a vocational diploma. Postsecondary VET programmes seem to have become more popular with respect to their academic equivalents (as discussed in Chapter 1), which is a strength. Assessed in terms of number of students, Thailand appears to have a fairly well-developed postsecondary VET sector, unlike many other middle income countries. In many African countries, for example, the focus in recent decades has been more on access and participation in primary and secondary education, focusing on academic programmes, rather than on the development of vocational tracks, especially at the postsecondary level.

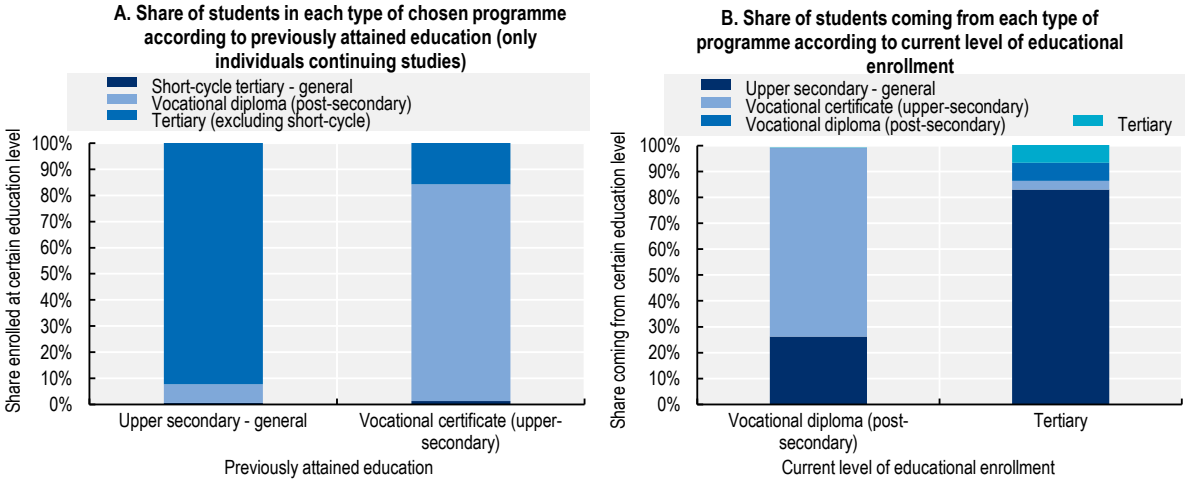
The Thai National Qualification Framework (NQF) helps to provide structure in the education and training landscape and the various pathways. It encompasses VET and postsecondary (including higher) education under the different ministries and agencies and locates programmes in a common sequence of levels. Recently, the NQF committee has developed prototypes to link occupational standards required by employers to VET curriculum and teacher training, learning material and equipment (Office of the Education Council, 2021[5]). Although no panacea, in principle, a NQF can make vocational education and training systems more transparent, so that the value of different qualifications can be more clearly recognised by students, employers and other stakeholders. If frameworks are underpinned by a strong methodology for allocating qualifications to levels, supported by key stakeholders, and backed by

complementary measures to unify the vocational and professional system and improve transitions, they can facilitate lifelong learning, and improve access to higher levels of education (OECD, 2010[6]). There is an effort to develop linkages and comparisons with the ASEAN Qualifications Reference Framework (AQRF). As such, every agency and institution providing VET programmes is mandated to use the National Vocational Qualifications Framework and seek approval from OVEC (Goncalves, 2019[7]).

These pathways are not widely used in practice

Despite formal pathways existing in theory, there are concerns that they are hard to navigate in practice. A transition from general secondary to a technical education programme is uncommon, and so is progression from VET into general or academic programmes. Data on the previous education level of current students show that 83% of students from upper secondary VET who continue to postsecondary education are in vocational diploma programmes and only 16% in tertiary education programmes (see Panel A of Figure 2.2). Looking at the same data from a different angle, only 25% of current vocational diploma students come from general upper secondary education and 73% from vocational certificate programmes (see Panel B of Figure 2.2). For current students in tertiary education programmes, 82% come from general upper secondary education, and only 6% and 3% from vocational diploma and certificate programmes, respectively. More and better data are needed to analyse the extent to which VET graduates successfully continue in further education. As discussed in Chapter 3, tracer studies can be a tool to analyse education and labour market outcomes of VET graduates.

Figure 2.2. Few students from upper secondary VET programmes progress into general education



Note: Panel A shows for all students with a certain level of education (i.e. upper secondary general or vocational certificate) who are currently enrolled in further education, the level of education in which they are enrolled. For example, the left bar shows that of all students with an upper secondary general qualification who are still in education, more than 90% are in tertiary education. Panel B shows for all students currently enrolled in a certain level of education (i.e. vocational diploma or tertiary), the highest level of education that they have already attained. For example, the left bar shows that of all students currently enrolled in vocational diploma programmes, less than 30% have a general upper secondary degree as their highest qualification.
Source: Authors' calculations using 2018 Thai Labour Force Survey data, National Statistics Office (2021[8]), Thai Labour Force Survey, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Few graduates from the different VET programmes proceed to further programmes at a higher level, and many of those who do continue in education do so at the same level, and do not receive exemptions for the overlapping coursework that they have already done (Chalapati and Chalapati, 2020[3]), leading to duplication and an important opportunity cost. This is also due to that the fact that higher education institutions are selective and prefer to take students with a general education background. As a result, entrants are overwhelmingly from general education: only few students in tertiary education come from a

VET background (9%, see Figure 2.2). This contrasts with experience in some other countries such as Switzerland and the Netherlands, where half or more of the students in universities of applied science come from VET backgrounds (OECD, 2014[9]).

This means that upper secondary VET programmes are still too often seen, and turn out to be, routes to the labour market, but not to further learning opportunities, which hinders their attractiveness. In Thailand as elsewhere, VET graduates need to have a full opportunity to progress into further and higher education. But at the same time it means that the VET track will need to be demanding academically, so as to prepare students for higher education (OECD, 2014[9]), or that bridging programmes need to be put in place (see Box 2.1). In Latvia for example, a one-year bridging programme enrolled around 15% of upper secondary VET students (OECD, 2016[10]).The positive experience in some fields in Norway is also relevant, noting that this also involves some adjustment of first year university programmes to ensure that VET graduates receive extra support to develop their theoretical knowledge.

Box 2.1. Creating links between vocational upper secondary and higher education, with bridging and hybrid programmes

Austria – Preparatory courses for higher education entry exams

In Austria, graduates from the dual system and 3-4 year VET schools can enter universities and *Fachhochschulen*, by completing special exams (*Berufsreifeprüfung*). Candidates for this special exam usually attend preparatory courses run by the *Wirtschaftsförderungsinstitut* (WIFI) or *Berufsförderungsinstitut* (Bfi). Since 2008, apprentices have the option of pursuing a double degree (*Lehre mit Matura*), combining the occupational qualification and the special higher education entrance degree. In 2018, around 6% of apprentices opted for this combined degree. For certain study programmes, VET graduates can conduct a *Studienberechtigungsprüfung*, i.e. a special exam that grants access to the individual programme.

The Netherlands – Initiatives to prepare VET students for higher education

In the Netherlands, many vocational education graduates at the upper secondary level (MBO-4) continue to higher education, as they have direct access to universities of applied sciences (HBO). Five years after graduation, 45% of them have obtained a HBO degree. However, the transition can be difficult, with a substantial share of students dropping out in the first year or changing programmes. In recognition of these difficulties, several education institutions have put in place initiatives to better prepare the VET students for higher education. These include extra lessons or projects and joint initiatives between the VET institutions and higher education institutions.

Norway – One-year bridging course

In Norway, graduates from the vocational track at the upper secondary level have the option to continue to higher education after a one-year bridging course. This bridging course covers six key academic subjects: Norwegian, English, Mathematics, Natural Sciences, Social Sciences, and History. A similar pathway is also available for adults aged 23 or above who want to enter higher education without a qualification and who have at least five years of work experience (or a combination of education and work experience). For certain higher education programmes, mainly in the engineering field, entry is allowed for vocational qualification holders without going through the bridging programme. These students might have an alternative first year in university, often with more theoretical subjects instead of the more practical parts of the programme compared to the other students. Experience from the engineering programmes, which first started accepting VET graduates, have been successful. Reports state that companies often find students with a VET background to be more attractive. Accepting VET graduates into engineering degree programmes is now an important tool used to ensure that Norway trains enough engineer.

Brazil – Hybrid upper secondary programmes combining VET and general education

In Brazil, 11% of all upper secondary students opt for VET programmes. The most common broad field is business, administration and law with 27% of upper secondary vocational graduates earning a qualification in this field (OECD, 2020[11]). There are two types of upper secondary VET provision combine general and vocational course content. The first one ('integrated') offers academic and vocational courses as one programme in the same secondary school. The second one ('concomitant') allows general upper secondary students to pursue a complementary technical programme at the same time, usually in a separate school. Students hold two qualifications, one vocational, and one academic, which allows them to transition more smoothly either to the labour market or to higher education.

India –Postsecondary VET as a springboard to university programmes

In India, 'polytechnics', 'institutes of technology' and other 'colleges of engineering', usually under the auspices of the All India Council for Technical Education (AICTE), offer three-year diploma courses, at the postsecondary level. Historically, their work was focused in the engineering area, but in recent decades many polytechnics have also offered courses in other disciplines, although still mostly technical, as in electronics and computer science. The intention is that graduates can provide mid-level engineering skills, between technicians and engineers. In the context of engineering programmes where women are underrepresented in almost all countries, a number of the polytechnic institutions are for women only. The three-year diploma programmes are intended for students after school year 10 (typically aged 16). Polytechnics also offer post-diploma and advanced diploma programmes of one or two years' duration in different specialisations. As the polytechnics fall under the same ministerial responsibility as higher education, credit recognition and progression to university programmes, in engineering at least, is facilitated.

Source: Vandeweyer and Verhagen (2020[12]), "The changing labour market for graduates from medium-level vocational education and training", *OECD Social, Employment and Migration Working Papers*, No. 244, https://dx.doi.org/10.1787/503bcecb-en ; Musset et al (2019[13]), *Vocational Education and Training in Estonia*, http://dx.doi.org/10.1787/g2g9fac9-en ; UNESCO (2018[14]), "Pathways of Progression: Between Technical and Vocational Education and Training and Further and Higher Education", http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Beirut/images/Education/LinkingTVETHED.pdf.

Many VET systems grapple with the challenge of effective pathways

Many countries struggle with the challenge of creating pathways between vocational programmes and higher level ones. Barriers often include fragmented education systems with limited transparency, limited development of general skills in mid-level VET to be successful in higher education, and a lack of flexibility in higher education programmes (UNESCO, 2018[14]).

Transitions between vocational programmes and higher-level ones are essential to increase the status of VET, and also to meet the needs of the labour market. In the past, VET, in Thailand as in other countries, was primarily designed to train young people for an occupation that they would pursue throughout their working life. But this simple pattern now rarely holds. Rapid change in the labour market, driven by technological progress and other structural changes, is changing the skillsets required in many occupations, and eliminating some types of jobs, while also creating other, new job roles. Higher level skills are increasingly in demand. This means that the typical worker with a VET qualification is likely to need to upskill and/or reskill during their working lives (OECD, 2014[9]).

A UNESCO report, looking at both OECD and non-member countries, encourages the development of pathways from initial VET programmes to further and higher education (UNESCO, 2018[14]). It argues that the development of such pathways serves multiple policy objectives, including increasing the attractiveness of initial VET by meeting student aspirations, and removing any perception of VET tracks

as dead-ends; helping to meet growing economic demands for higher level skills and qualifications; supporting lifelong learning; removing wasteful barriers, such as requirements to repeat course material; and improving equity by promoting the access of more disadvantaged groups to higher level programmes (see Box 2.2. for more details). All of these points are relevant to Thailand.

Box 2.2. Countries can implement policies and practices to promote pathways

To support transitions from VET into further education, UNESCO (2018[14]) recommends using National Qualifications Frameworks to support transitions; supporting credit recognition agreements linked to learning outcomes; developing systems for recognising prior learning; and offering quality career guidance, backed by data on labour market outcomes, allowing VET students and graduates to identify options for further learning.

To design initial VET to support lifelong learning, and augment it with bridges to more advanced programmes, it is recommended to build a sufficient range of general knowledge and skills, including study skills, literacy, numeracy and digital skills, into initial VET programmes. This will equip graduates with the skills needed to learn throughout their life, formally and informally, and support access to further and higher education. Moreover, providing optional bridging programmes for VET students supports them in accessing further and higher education. Examples of such programmes are provided in Box 2.1.

To remove the obstacles and fill the gaps in post-secondary provision, UNESCO (2018[14]) recommends widening participation in higher and further education, thus allowing more access for VET graduates; broadening entrance criteria to give full recognition to VET and practitioner competences alongside foundational skills; developing shorter post-secondary vocational programmes; and meeting the needs of adults through flexibility in time scheduling, and making full use of modern information and communication technology (ICT).

Source: UNESCO (2018[14]), *Pathways of Progression: Between Technical and Vocational Education and Training and Further and Higher Education*, http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Beirut/images/Education/LinkingTVETHED.pdf.

Articulation frameworks can help strengthen pathways. Such arrangements facilitate transitions between individual institutions and programmes. They may include common core curricula – for example the mathematics component of a programme for electricians-, guidance for students who envisage transferring their credits, incentives for institutions to establish articulation agreements, and data collection to monitor credit transfers. They can be codified in legislation or negotiated through agreements between institutions. In France, for example, it is possible for students from *instituts universitaires de technologie* (IUT, university institutes of technology) after the first two years of study to be admitted by the *grandes écoles*, whose masters-level graduates may, in turn, pursue doctoral programmes in universities (OECD, 2014[9]).

Reducing fragmentation of institutions

The Thai system suffers from fragmentation, reflecting a multiplicity of stakeholders, including different ministries and agencies, competing programmes and training providers. As a consequence, there is a very large variety of institutions offering both upper secondary and postsecondary VET programmes, under different governance arrangements. According to OVEC, in 2019 there were around 900 VET institutions in Thailand, 53% of them private, covering more than 350 subject areas. There are 14 different types of institutions: Technical colleges; Vocational colleges; Agricultural and technology colleges; Commercial colleges; Industrial and ship building technology colleges; Fishery colleges; Administration and tourism colleges; Polytechnic colleges; Automotive industry colleges; Golden Jubilee Royal goldsmith colleges; and Arts and crafts colleges. The size of a college varies considerably, depending on the location and programmes offered (see below) (UNESCO-UNEVOC, 2015[15]).

Diverse institutional contexts may support diversity and innovation. But multiple organisations and institutional structures involved also creates risks: it can also create confusion for students in the face of over-lapping VET programmes (OECD, 2010[6]). Each segment of the VET system addresses an essential need for vocational education and training, but the lack of a coherent and co-ordinated set of policies guiding the system limits its capacity to achieve its full potential, and fit with both the students' aspirations and the labour market needs. Also, employers can find engagement in multiple contexts too burdensome. Fragmentation of the VET offer can hamper the cost-efficient use of public resources, as it leads to duplication of tasks, such as curriculum design and quality assurance. It also makes it more difficult to have an exhaustive view of their training offer and its funding (OECD, 2014[9]).

A simpler system would be easier to co-ordinate, and more efficient financially. In a simpler system, it is also easier for companies to be involved in the governance of the VET system and to contribute to the definition of the training offer, which will increase employer's feeling of ownership, which can in turn raise their willingness to contribute to its funding. A reduction of the fragmentation would allow a better-planned approach to VET supply, and a more precise view of the funding going into it (Goncalves, 2019[7]).

More effective measures of co-ordination and a consolidation of the different programmes and institutions are needed in Thailand, as developed in Chapter 3. Box 2.3 describes the recent efforts in Malaysia to strengthen co-ordination in the VET system.

Box 2.3. Improving co-ordination in the fragmented Malaysian VET system

Malaysia has a complex VET landscape, with programmes governed by 11 ministries and delivered in around 1 300 private, public and state government VET institutions. In an effort to bring more co-ordination into this scattered landscape, a national TVET Council (MTVET) was set up at the end of 2020. The MTVET is the highest decision-making body related to the strategic direction of VET in Malaysia, and is responsible for improving the co-ordination in the system through public and private stakeholder involvement.

The MTVET also serves as a platform for the government to empower VET in meeting the needs of the industry. Three strategic thrusts have been defined for this empowerment: integrated and co-ordinated governance, industry-driven VET, and VET shaping the future. These are supported by six key initiatives: formulating sustainable financing models; developing policies to encourage industry participation; creating a national VET branding plan; establishing a VET collaboration hub; establishing VET programme policies; and developing a one-stop VET data centre.

Good practice examples of stakeholder engagement already exist in Malaysia. A number of institutions have been successful in establishing direct links with business, such as the Penang Skills Development Centre (PSDC), which is dedicated to meet the immediate human resource needs of the business community and whose graduates exhibit an employability rate close to 100%. Similarly, Polytechnic and Community Colleges have regular engagement with industries through Industry Advisory Councils (IAC), and have developed work-based-learning and mobility programmes aimed at connecting lecturers and students with industry.

Source: OECD (2019[16]),*OECD Economic Surveys: Malaysia 2019*, https://dx.doi.org/10.1787/eaaa4190-en; Ministry of Higher Education (2021[17]), *TVET Collaboration Hub*, https://sea-vet.net/news/860-malaysia-sets-up-national-tvet-council-to-enhance-tvet-ecosystem.

Strengthening quality

Several quality issues prevail in the Thai VET system

Despite recent efforts towards modernisation of the VET system, quality concerns remain, regarding out-of-date curricula, a lack of qualified staff and obsolete equipment. For instance, VET teachers in Thailand have been found to lack industry experience and pedagogical skills (UNESCO-UNEVOC, 2013[18]). Quality issues regarding work-based learning opportunities have also been reported (Thailand Development Research Institute, 2019[4]). There are also concerns regarding the labour market relevance of the technical skills taught in these programmes, with some reports showing that VET courses do not comply with the needs of the industrial sector, in particular for technicians and operators (Ministry of Labour, 2020[19]). The latter issue is discussed in detail in Chapter 3.

Resolving quality challenges must be the policy priority, alongside addressing subsequent pathways, and for that reason a high quality of VET programmes is a precondition for the development of pathways. But very often it will make sense to address the quality of VET alongside efforts to improve subsequent pathways, since those pathways are a major element in making VET attractive to students (UNESCO, 2018[14]).

Students enter VET with relatively low levels of foundational skills

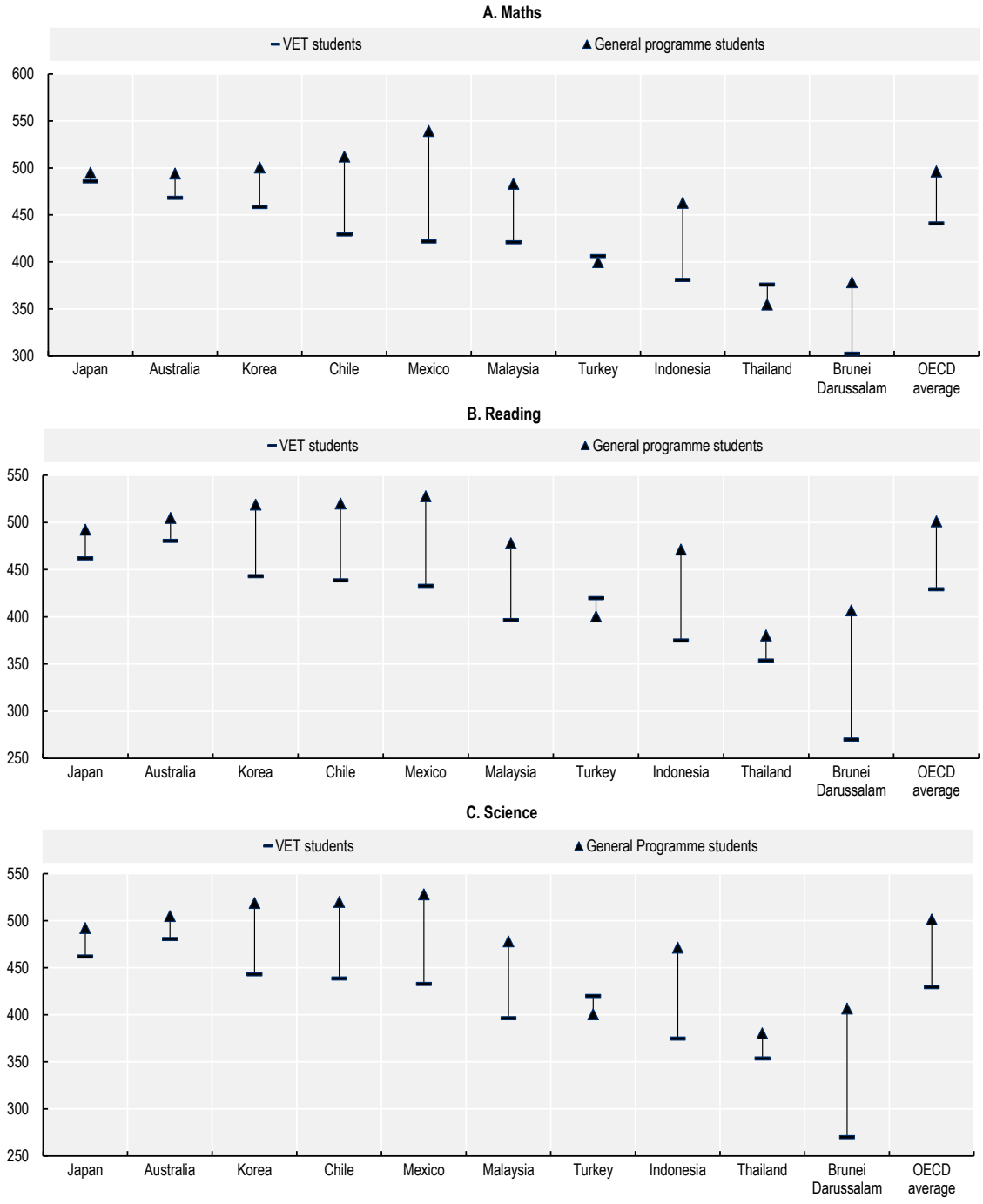
VET students do not only need to have technical skills, but also foundation skills, as these are the skills needed to adapt to changes in the labour market, and are skills sought by employers. When compared to OECD countries with available data (see Figure 2.3, Panel A), the scores of Thai 15-year-old VET students in PISA in maths is, on average, more than 100 points lower than the OECD average (one standard deviation in PISA). Thailand shows similar score in maths than Indonesia, but substantially lower ones when compared to other countries in the region, such as Malaysia (-45 pts), Korea (-82 pts) and Japan (-110 pts). Other upper-middle income countries such as Mexico (-45 pts), and Turkey (-30 pts) also show better performance than Thailand. However when taking into account students' socioeconomic status, Thailand's performance gaps with other countries in some cases shrink. Similar conclusions hold for performance in reading and science.

Interestingly, in Thailand, VET students have very similar performance levels to students in general programmes in the subjects of math and science. However, Thai students in VET programmes score on average almost 30 points less in the reading examination than students in general programmes (-0.3 standard deviations).

Given the importance of literacy and numeracy skills, they need to receive attention within vocational programmes, at both upper secondary and postsecondary levels. This may mean administering a test of numeracy and literacy on entry to vocational programmes to determine student needs, offering targeted help for those with the weakest basic skills. Strong literacy and numeracy will be particularly important for vocational graduates who wish to pursue further academic qualifications (OECD, 2014[9]).

Figure 2.3. 15-year-old VET and general education students in Thailand perform relatively poorly in maths, reading and science

Unadjusted PISA 2018 test scores for 15-year-old students in vocational programmes and general programmes



Note: Figures correspond to the weighted average score for 15-year-old individuals in general and vocational programmes (ISCED 3B) sitting the PISA examination in those countries of interest for which data on VET programmes are available. For students in vocational programmes, differences between Thailand and all other countries in the sample, except from Indonesia, are statistically significant for all three subjects: maths, reading and science. For students in general programmes differences are statistically significant in all cases. The number of students in the sample for Thailand was 1 325 in VET programmes and 8 633 in general programmes, distributed over 36 VET institutions and 290 schools respectively.

Source: Authors' elaboration based on PISA (2018[20]), PISA 2018 database, https://www.oecd.org/pisa/data/2018database/.

Some VET institutions are small and may face quality issues

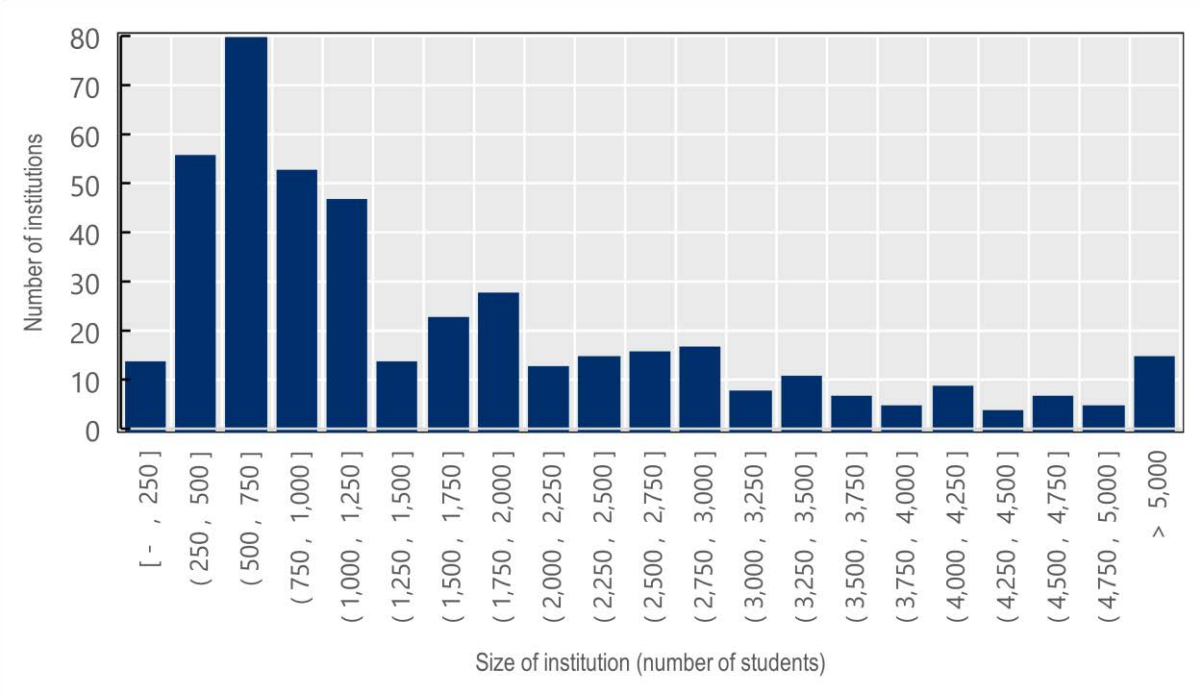
Analysis of student numbers in public VET institutions shows that there are 13 institutions that have less than 250 students and 55 that have been 250 and 500 students (see Figure 2.4).The size of institutions differs by regions, as discussed later in this chapter. In the case of private institutions, data show that almost 60% of private providers have less than 500 students (Jantrakool, 2016[21]).

The small size of schools increases the cost of VET provision in some programmes, as there is limited scope for economies of scale. Smaller institutions are unlikely to be able to offer the same variety of VET programmes as large institutions, which increases the risk that students will follow a programme that is not adequately linked to their career interest. These institutions might not always have access to sufficient resources to deliver a quality education.

Sometimes, consolidation may increase efficiency – similar or higher quality services are offered at a lower price. The efficiency gains from economies of scale may be set against some clear losses, such as longer travel times for school students. As a first step towards consolidation, stronger co-operation between different types of VET institutions, and also between VET and general education ones may be encouraged (see Box 2.4 on consolidation of VET schools in different countries).

Figure 2.4. There are some small public VET institutions

Size distribution of public VET institutions in Thailand



Note: Only includes public institutions that fall under the responsibility of the OVEC.
Source: Authors' calculations based on Office of the Vocational Education Commission (2019[22]), Student data statistics for the year 2019, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2562&catid=173&Itemid=114.

Box 2.4. Consolidation of VET provision in Denmark, Finland and Estonia

In Denmark, there has been a trend in recent years towards institutional consolidation, with a series of mergers leading to a considerable reduction in the number of VET institutions. Remaining institutions are larger and can offer students a greater choice of programmes. Currently in Denmark there are around 90 technical colleges offering upper secondary education. Upper secondary VET programmes are divided in two parts: a basic programme that is predominantly college based, and a main programme during which students alternate work placement with college education. The basic programme aims to equip students with general skills (e.g. in mathematics, Danish, English) and broad vocational skills. These institutions also offer higher technical and commercial examinations, programmes combining upper secondary academic and VET education and adult vocational courses. They can provide short-cycle higher education programmes and courses for enterprises in collaboration with higher education institutions.

Finland has encouraged mergers of VET institutions. This resulted in a decrease in the number of institutions decreased from 182 to 96 during the period 2005-2017, while enrolment only dropped by 2%, so that institution size increased dramatically. In 2005, there were 60 institutions with less than 300 students, falling to 28 in 2013. A similar trend was observed in adult education, where the number of providers nearly halved between 2005 and 2017. In parallel, the Finnish government has strongly encouraged institutions and other stakeholders to co-operate and build networks.

In Estonia, many small providers were merged into regional VET centres offering a wide range of qualifications, to increase the quality and efficiency of VET and in line with demographic trends.

Source: Kuczera and Jeon (2019[23]), *Vocational Education and Training in Sweden*, OECD Reviews of Vocational Education and Training, https://dx.doi.org/10.1787/g2g9fac5-en.

Private providers play an important role in VET provision, but need to be covered by a strong quality assurance system

An interesting feature of the Thai VET system is the relatively important size of the private sector (as discussed in Chapter 1). These private institutions are mainly located in Bangkok (there are more than 100 private VET institutions in Bangkok compared with only 21 public VET colleges, see below). They offer a different provision than public VET institutions: public institutions offer mainly industry-oriented and agriculture programmes, while 70% of private ones offer business and commerce programmes (Goncalves, 2019[7]). The industry-oriented specialization programmes offered by public colleges in the Bangkok area are not in high labour market demand, and the fields covered by private colleges seem to be more popular to students. While such private institutions may be helpful in supporting access to VET and can help fill gaps in the public offer, there are some concerns regarding the quality of private providers, because of the small size of some of them, as mentioned before, but also failing quality assurance mechanisms. Over the 2011-2015 period, only 256 private institutions, out of more than 450, were certified by an external quality assurance mechanism (Jantrakool, 2016[21]).

But private providers, balanced by effective quality assurance, can play a useful role. Very often, private providers (both for and not-for-profit) occupy a particular niche in provision, particularly where no public funds flow to these private providers. Sometimes they fill a gap in public provision – for example, in the Netherlands, the public sector faces barriers in delivering part-time programmes to adults, and as a result these are mostly offered through private providers (OECD, 2014[9]). Clearly, quality assurance needs to be linked to the level of public funding. Where government money flows to private providers, there are, or should be, accountability arrangements to ensure that government money is supporting good quality

provision. In England, the government inspection body, Ofsted, inspects provision funded by government regardless of whether it is delivered by a private or a public training provider or indeed an employer (OECD, 2018[24]). Thailand should make sure that proper mechanisms are in place to ensure that all private institution remain at an adequate quality level.

Thailand is to continue to addresses these quality issues

VET is at the centre of the strategic efforts to further develop and diversify the Thai economy in the coming years (Thailand Development Research Institute, 2019[4]). It is therefore essential to address the persisting concerns about its ability to provide VET graduates with the required knowledge and skills to successfully integrate them into the labour force (Burapharat and Chupradit, 2009[25]). In the absence of policies to ensure quality, VET programmes can exacerbate existing economic and social inequalities, channelling disadvantaged students into low quality programmes that do not lead to good jobs. In fact, low quality VET can be worse than no VET at all if it tracks students away from general education without equipping them with the skills necessary to succeed in the labour market. It is argued that when the quality of vocational programmes and student outcomes is improved, the image of vocational education will improve as well. When the negative perception of Thai society towards vocational education is changed, this may attract high-achievers, which would then further raise the quality and image of vocational education. This policy discourse on encouraging a positive attitude of Thai society towards vocational education is an important challenge for the Thai government in response to its skilled labour shortages (Chalapati and Chalapati, 2020[3]). Recently, the Ministry of Education has made significant efforts to develop policies for strengthening VET. A higher budget has been allocated for staff development and curriculum improvement, to better link training provision and labour market demands. The curricula have been updated with new occupational competencies (Goncalves, 2019[7]). Thailand is in the process of changing the way skills are assessed for VET graduates to make sure that that graduates are more “work-ready” (National Institute of Educational Testing Service, 2021[26]).Thailand should continue into that direction and make sure that the technical skills are aligned with what is needed in the labour market, which can be done through close collaboration with employers and through the promotion of work-based learning for all VET students (as discussed in Chapter 3), and making sure that VET students, especially those who come from disadvantaged backgrounds, are given sufficient opportunities to remediate possible skill gaps and to continue studying further if they wish to.

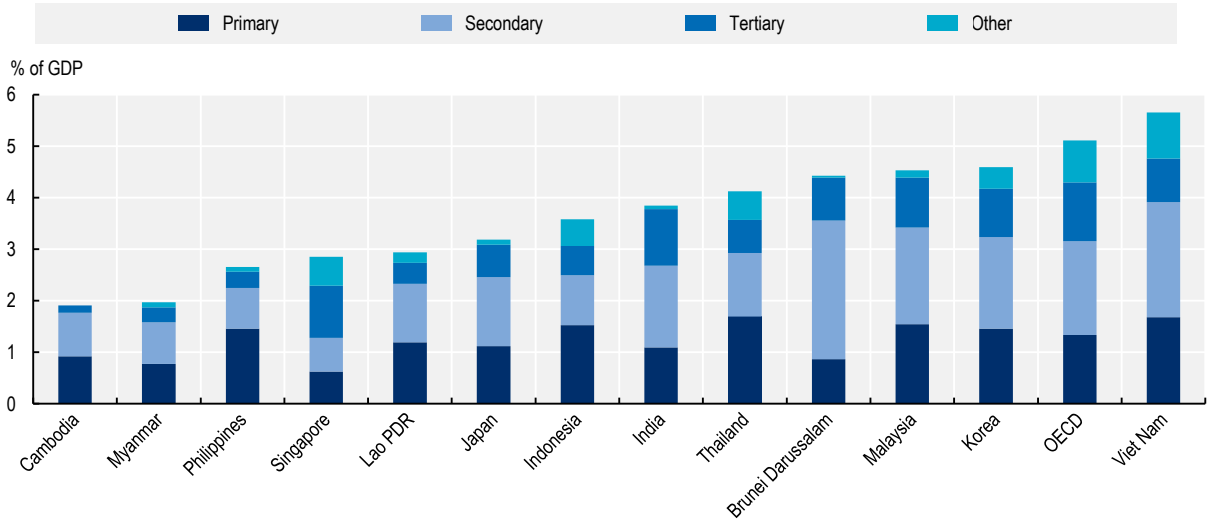
Funding may need to be increased

Further investment in VET are needed to achieve higher quality. Today, the overall funding of VET is relatively low. Figure 2.5 shows that Thailand spends less on education relative to its GDP than the average OECD country. The difference is particularly large at the secondary education level. However, spending on education in Thailand is higher than in many of the countries in the region. Moreover, differences in funding between VET and general programmes are significant, with the budget allotted to OVEC to manage the VET programmes at the upper and postsecondary levels being very small compared with that for higher education, taking into account their respective numbers of students (Goncalves, 2019[7]). This can be problematic, especially as delivering VET is often more expensive compared to general education, especially when programmes require expensive, up-to-date equipment (OECD, 2010[6]). The private vocational education sector has been promoted in Thailand to increase the education and training capacity of the country (Chalapati and Chalapati, 2020[3]), and these institutions receive subsidies from the OVEC. Subsidies for VET private secondary institutions vary by area of study and profile of students. For example, VET institutions providing training to disadvantaged groups, such as students from disadvantaged backgrounds, or disabled students, are subsidised at a higher rate than others. Interestingly, Thailand has introduced performance-based approaches to funding, and provided incentives to training providers regarding the introduction of apprenticeship and entrepreneurship modules,[2] and how well students integrate into the labour market, which allows to guide the provision while ensuring its quality

(Goncalves, 2019[7]). Performance-based funding can help improve the quality of VET institutions, but it needs to be carefully designed (see Box 2.5). This type of funding arrangements can also be used to make sure that the provision meets the needs of the labour market.

Figure 2.5. Public expenditure on secondary education is relatively low in Thailand

Total public expenditure on education as a % of GDP, 2018 or latest year available



Note: Lao PDR is Lao People's Democratic Republic.
Source: World Bank (2019[27]), World Development Indicators, https://databank.worldbank.org/source/world-development-indicators.

Box 2.5. Designing funding formulas

Funding arrangements create behavioural incentives for education institutions and it is therefore an important mechanism for the government to steer education and training provision. Broadly speaking across OECD countries, education institutions are usually provided with a per capita funding from the state, as well as additional direct funding from the local government.

One objective of funding is to ensure value for money, targeting resources to enhance the performance of the greatest number of students, and getting the most out of the resources to achieve better outcomes. Both centralised and decentralised funding systems can have efficiency advantages: for example, delivering economies of scale or making use of local knowledge in securing best value for service provision.

But excessive focus on efficiency within provision can easily undermine fair access to education. Students in poorer regions, for example, should have the same access to high quality education and training as students from wealthier areas. By including weights to distribute additional funds in recognition of the different costs and barriers preventing fair access, funding formulas can play an effective role in aligning the distribution of resources with national educational priorities. Carefully crafted funding arrangements should take into account differences in revenues across the regions as well as identifying vulnerable groups in potential need of targeted measures. There are two approaches to equity in funding: horizontal equity allocating similar levels of resources to similar types of provision, and vertical equity allocating different levels of resources to student groups with different needs.

Fazekas (2012[28]) identifies four main criteria commonly used in a funding formula across OECD countries: 1) student number and grade level, 2) student needs, for instance disadvantaged learners, 3) curriculum or educational programme, and 4) school characteristics.

Well-designed funding formulas are informed by consistent principles. They are transparent, simple and easily understood. Keeping funding simple and transparent helps in assessing the impact of spending decisions. Further, funding should be subject to periodical reviews and be determined through consideration of reliable data and accountability. There is also a strong argument for making funding predictable, so that school or local authorities can make – and confidently resource - long term plans.

Source: Bergseng (2019[29]), *Vocational Education and Training in Bulgaria: Governance and Funding*, OECD Reviews of Vocational Education and Training, https://dx.doi.org/10.1787/25bad018-en.; Fazekas (2012[28]), "School Funding Formulas: Review of Main Characteristics and Impacts", *OECD Education Working Papers*, No. 74, https://dx.doi.org/10.1787/5k993xw27cd3-en.

Tackling dropout

Finally, measures to increase access to VET and improve its quality should be accompanied with actions to reduce dropout. According to figures published in Thailand's National Scheme of Education, dropout rates from vocational studies in upper secondary programmes for the academic year 2015 were 17%[3] (Office of Education Council, 2017[30]). According to the same report, dropout rates in post-secondary VET programmes during the same period were lower, but still substantial (11%). There are many possible drivers of dropout. For example, there is evidence of career guidance issues –with many students finding their studies not to be aligned with their personal interests-; financial problems, linked to the students' families ability to afford tuition fees for vocational programmes; and other social issues, such as teenage pregnancy and social vulnerability (Center for Reproductive Rights, 2005[31]; Chandoevwit, 2006[32]). Efforts to increase access to and completion of VET should therefore go hand in hand with interventions in other related policy areas.

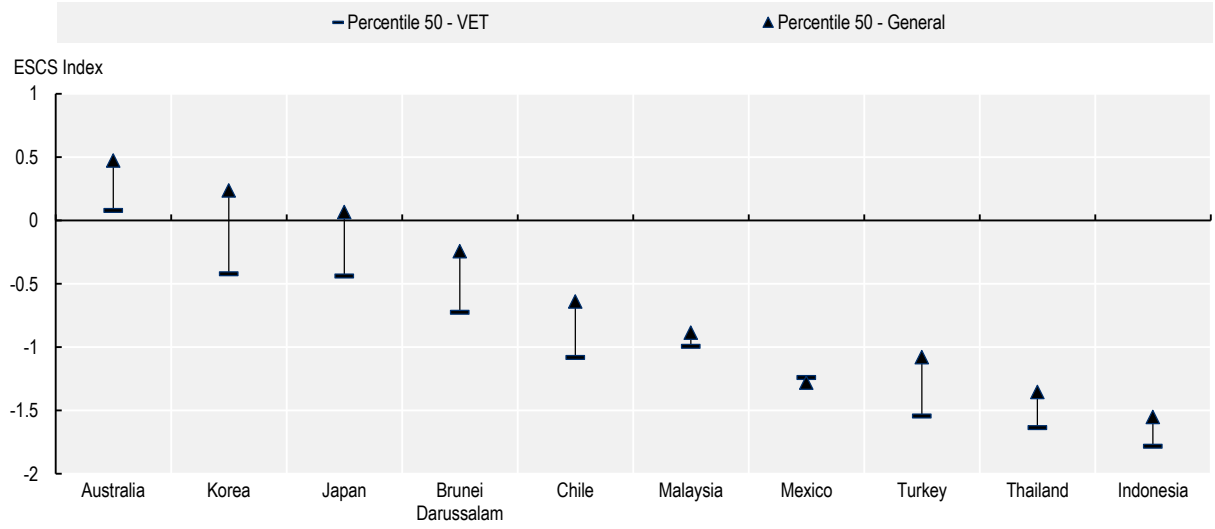
Reducing inequalities in access to and quality of VET

In Thailand, as in most countries, students in upper secondary VET programmes often come from less affluent backgrounds than those in general education. As Figure 2.6 shows, students in VET in the PISA dataset have a lower index of economic, social and cultural status. However, the gap is smaller in Thailand than in many other countries.

According to PISA data, Thailand does better than many countries in ensuring that students succeed regardless their socio-economic status. At age 15, socio-economic status explains 12% of the variance in reading performance in Thailand (OECD average: 12%). The average difference between advantaged and disadvantaged students in reading is 69 points, compared to an average of 89 in OECD countries. However, only 13% of disadvantaged students are academically resilient (OECD average: 11%) (OECD, 2020[33]). It is encouraging, as mentioned before, that in Thailand 15-year-old VET students have very similar performance levels to students in general programmes in the subjects of maths and science, despite having slightly less educated parents and showing a lower socio-economic status on average.

Figure 2.6. VET students are more likely to have a disadvantaged background

Average PISA index of economic, social and cultural status, by type of programme (2018)



Note: The vertical axis corresponds to the PISA index of economic, social and cultural status (ESCS). The country values presented are the weighted median (percentile 50) in this index for all students in the corresponding sample (i.e. students in VET vs. general programmes) per each country. The PISA ESCS index is a measure of student socioeconomic status created by the OECD on the basis of the following variables: the International Socio-Economic Index of Occupational Status (ISEI); the highest level of education of the student's parents, converted into years of schooling; the PISA index of family wealth; the PISA index of home educational resources; and the PISA index of possessions related to "classical" culture in the family home.
Source: Authors' elaboration based on PISA (2018[20]), PISA 2018 database, https://www.oecd.org/pisa/data/2018database/.

While upper secondary VET institutions are free of charge, postsecondary VET institutions can charge tuition fees. Tuition fees in private institutions are at least twice as high as in public VET institutions - although students in private institutions seem to come from less affluent backgrounds (Chalapati and Chalapati, 2020[3]).

To support students who might struggle with these tuition fees, since 2020, the Thai Ministry of Labour has a specific programmes to provide training courses to disadvantaged students – with around 400 students a year, but with plans to expand to 2 500 beneficiaries a year (Ministry of Labour, 2020[19]). The Equitable Education Fund also provides scholarships in VET, and the way in which these funds are targeted also provides an incentive for VET institutions to improve their quality (see Box 2.6). It is important to streamline such initiatives to all VET programmes, to make sure that students have access to adequate financial support when needed, including in postsecondary VET. Box 2.7 discusses an example of grant programmes for disadvantaged students in Peru.

Box 2.6. The Equitable Education fund and its actions

The Equitable Education Fund (EEF) was established under the Equitable Education Act 2018. The objective of the Act is to provide financial support for children and youth who are in greatest need, reduce educational inequality by forming partnership with different groups and conducting systematic research to support and develop teachers' effectiveness. The EEF is under the supervision of the Prime Minister and is governed by a Board of Governance, which is appointed by the cabinet and has a multi-sectoral structure. The board members include five ministries (Ministry of Education, Ministry of Finance, Ministry of Social Development and Human Security, Ministry of Interior and Ministry of Public Health) and seven independent experts from various disciplines (academic, private sector, civil society).

EEF supports vocational colleges in improving their quality by giving grants to disadvantaged students to pursue VET programmes. If an institution is selected, based on their curriculum and teaching quality, and ability to develop student skills, they are approved to start finding and selecting scholarship recipients. Those beneficiaries must be students finishing lower secondary or upper secondary vocational programmes, and match the criteria of the top 20% lowest income group, or has other disadvantages. They are also selected based on their academic performance. EEF provides the budget for scholarships, living expenses, resources for developing skills, and other activities for students and vocational institutions. Each institution will receive funding in proportion to how many scholarship recipients the institution has accepted out of the 2 500 scholarships that will be offered. EEF also establishes a system to provide academic support, to monitor and to evaluate institution's progress, and to organise a knowledge exchange platform at the local and national level. This means that vocational colleges must provide quality career guidance service in the schools. Colleges also need to show that they support students who receive the grant in different aspects, including academic support, career guidance and social support. Students have to enrol in specific programmes that are considered as high quality in terms of foundation skills and labour market relevance. Students also have to benefit from quality work-based learning experiences.

Source: Equitable Education Fund (2018[34]), *Equitable Education Fund brochure*, https://www.eef.or.th/wp-content/uploads/2019/07/eef_brochureEng.pdf.

Box 2.7. Programmes fostering equity in Peru

Peru's Beca 18 programme, which provides low-income students with grants to pay tuition at a selected group of postsecondary institutions, has some elements of an outcomes-based funding approach. Public funds (in the form of student financial aid) go to schools that have met eligibility criteria that align with the government's goal of wider access to high-quality postsecondary education for low-income students. The schools participating in the programme were chosen based on their educational performance.

The programme provides a good example of how to link access to public funding to institutional performance. In a VET system so dominated by private providers as Peru's, financial incentives linked to outcomes play to the strengths of a competitive, market-based approach to provision while addressing the tendency of providers to focus only on enrolments. It represents a strategy for increasing public financing of VET that is targeted and conditional. It can also serve as a valuable compliment to existing institutional and programme approval policies that seek to shape the supply of programmes.

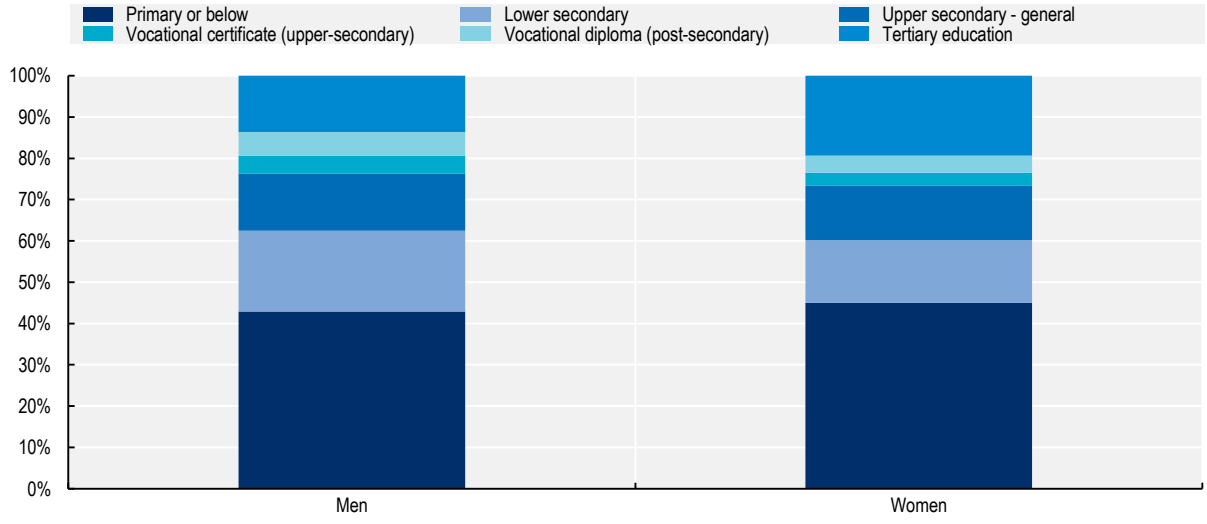
Source: McCarthy and Musset (2016[35]), *A Skills beyond School Review of Peru*, http://dx.doi.org/10.1787/9789264265400-en.

Reducing gender gaps

In Thailand, like in most countries, women now have a higher education attainment on average than men (see Figure 2.7). While 19% of women aged 16 to 65 hold a tertiary education degree, this is the case for only 14% of men. However, they are less likely to have participated in VET programmes, and still today, as highlighted in Chapter 1, the share of girls enrolled in VET is relatively low. PISA data show that 15-year-olds girls in Thailand perform better than boys in reading, the main topic of PISA 2018, with a statistically significant difference of 39 points (OECD average: 30 points higher for girls). Contrary to what is seen in most OECD countries, girls perform better than boys in maths, with a statistically significant difference of 16 points (OECD average: 5 points higher for boys). Likewise, girls perform better than boys in science with a statistically significant difference of 20 points (OECD average: 2 points higher for girls) (OECD, 2020[33]). Similar patterns are found for students in general and vocational programmes.

Figure 2.7. In Thailand, women are more likely than men to hold a tertiary degree

Highest educational level attained by gender, adults not currently in education, age 16-64



Source: Authors' calculations using National Statistics Office (2021[8]), Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Analysis of enrolment in VET by field of study shows that there are very important gender differences in study choice. As discussed in Chapter 1, female students are not only less likely to choose VET programmes, they also tend to choose some very specific fields-of-study, and these are different from the fields chosen by male students. The large majority of female VET students –at certificate and diploma level- are in business administration or commerce programmes, and only a small share are in fields such as industrial trades or industrial technology. On the contrary, industry-related programmes are the largest for male VET students.

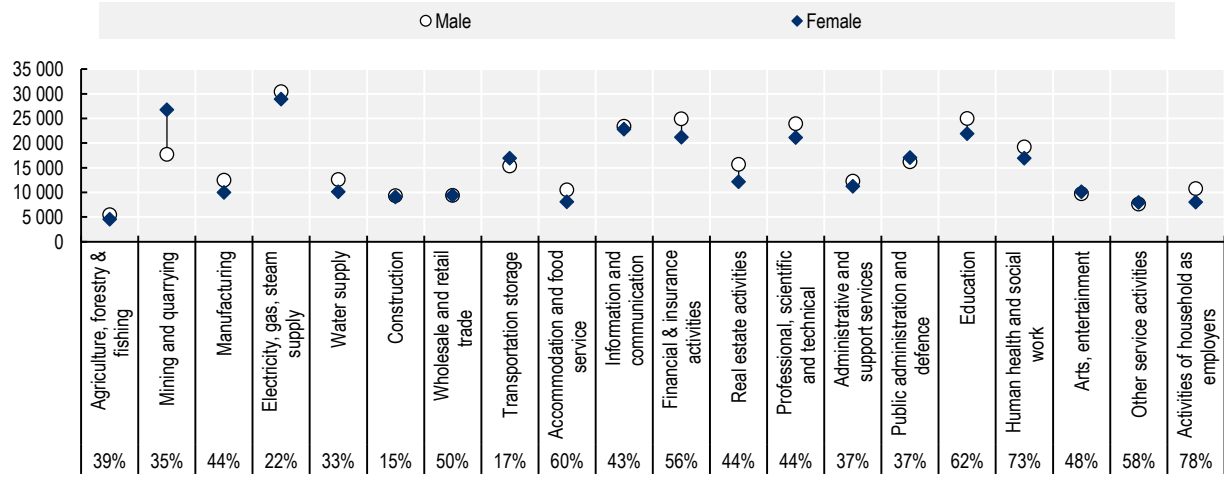
Gendered choices between fields-of-study contribute to gender segmentation in the labour market, with female students and apprentices often being concentrated in fields which have lower completion rates and weaker opportunities for progression. Moreover, because of their field of study choice, women are more likely to end up in jobs that are characterised by lower salaries, worse working conditions, and fewer opportunities for career advancement. This type of horizontal segregation (between occupations) can be an important cause of inequalities between men and women. Also, women may be pushed into part-time friendly' occupations, and take on the burden of unpaid care work at home – this maintains the traditional

division of labour within the job market and the household. Research on gender segregation in education shows that segregation is especially pronounced in educational systems with a strong vocational education and training sector at the upper secondary level (Heiniger and Imdorf, 2018[36]).

Data from the Thai labour force survey show that the industries acoounting for the largest shares of total female employment are the argicultural, wholesale and retail, manufacturing, and hospitality sectors (employing three quarters of all female workers). Women are over-represented relative to men in certain low-wage industries, such as the hospitality sector (see Figure 2.8, accounting for 11% of total female employment in 2015). At the same time, more women than men work in the education, health and financial services sectors, which are relatively high-wage industries (accounting jointly for only 9% of total female employment). The data also show that on average women are likely to have lower wages than men, in particular in sectors such as education, real state, and financial services (see Figure 2.8). Perhaps reflecting wider factors in Thailand, the large differences in career and education choices between women and men give cause for concern.

Figure 2.8. Women earn lower wages than men in many industries

Average monthly wage or salary by industry and gender (in Thai Baht, 2015) and share of female workers by industry (horizontal axis)



Note: Wage or salaries of government employees and private employees only. Share of female workers per industry for that year is included on the horizontal axis.
Source: National Statistical Office, Ministry of Digital Economy and Society (2015[37]), The Informal Employment Survey 2015, http://www.nso.go.th/sites/2014en/Survey/social/labour/informal/2015/6.Full%20Report.pdf.

Gender gaps in education and training are not determined by innate differences in ability but are the product of gender stereotypical role models that become internalised in the process of socialisation, in terms of perceptions of self-efficiency. Results from PISA discussed above show that girls outperform boys in all fields. Likewise, results of the International Computer and Information Literacy Study (ICILS), a computer-based assessment of eighth grade students' ICT skills conducted in 21 countries, shows that girls scored significantly higher than boys in all countries except Thailand and Turkey; and in these two countries, there was no statistically significant difference between female and male students' scores. However, on the ICILS assessment, girls had lower levels of self-efficacy even when they outperformed or performed similarly to boys on measures of digital skills. Analysis of PISA data also shows that gaps in self-efficacy start at home and are often accentuated by school system themselves, and the biases that teachers themselves have (Reisel, Hegna and Imdorf, 2015[38]; OECD, 2015[39]).

Career guidance can help guide girls into study programmes and occupations that they may not have considered

Gender stereotyping can deter both girls and boys from pursuing specific careers, especially so in traditional VET occupations, such as manufacturing (Makarova, Aeschlimann and Herzog, 2019[40]). Encouraging all students to pursue studies in the field that interests them and in which they can fully express their potential may result in better labour market and social outcomes. Greater occupation equality may help to eliminate gender stereotypes that have a negative impact on the status of women (OECD, 2015[39]).

In Thailand, there are some opportunities for career guidance and counselling in a formal sense – career education is provided throughout primary and secondary education, but with important variations, from six to 225 hours of career education (Office of the Education Council, 2017[41]). In addition, students have access to career guidance services at regional offices managed by DSD under the Ministry of Labour, where they receive information that is the same regardless of the region. Prior to the end of each semester, DSD regional offices normally set up mobile units to provide career guidance for students. However, there are reports from the Ministry about some areas having inedequate coverage. Overall, it is considered that there are too few opportunities for youngsters to become familiar with different jobs, and study programmes (Ministry of Labour, 2020[19]). It seems that students are largely on their own navigating a system which is complex, especially given the large numbers of private providers and types of institutions. In an environment in which the economic prospects and future professional development of particular educational programmes are not well known, students (and parents) will rely on other factors – convenience, familiarity, and of course gender stereotypes – to guide their decisions. These factors may not lead to desirable long-term outcomes. Private institutions in particular may excel in marketing and can be particularly effective regardless of the quality of the programmes they deliver or whether they align with the needs of the labour market.

Choosing a programme of study is one of the biggest decisions individuals makes in their lifetime. Public interventions in career guidance are often justified using arguments from social capital theory: the lack of both personal and professional network connections, and lack of exposure to different occupations, is thought to hinder the labour market progress of young people, in particular from disadvantaged backgrounds. Career guidance may help reduce inequalities in opportunities associated with a child's background (related to socio-economic status and gender for example) and parental experiences and expectations. An important purpose of career guidance is to provide students with relevant information and experiences in order to broaden aspirations. Evidence shows that career guidance interventions for disadvantaged students, such as young people at risk of becoming not in education, employment, or training (NEET), work best when they are targeted, located in the community and highly individualised - see (Musset and Mytna Kurekova, 2018[42]) for a review of the evidence.

Stereotypes preventing girls to progress in the same fields as boys can be countered by improved information and career guidance interventions. Having "role models" sometimes is a good way to encourage students, especially girls, to pursue new areas that are traditionally not considered for females (Hughes et al., 2016[43]; Musset and Mytna Kurekova, 2018[42]). As such, engaging employers of different sizes and sectors, including successful young entrepreneurs, in career guidance programmes will be useful for students. Nonetheless, career guidance interventions have to be designed carefully to be effective, especially when they involve work placements, because if not well designed, they can exacerbate rather than challenge students' gender stereotypical trajectories (Osgood, Francis and Archer, 2006[44]). A study by the U.K. Equal Opportunities Commission (2005[45]) recommends, amongst other things, that:

- Students experience at least two different types of work placement with one in a non-traditional occupation.
- Guidance and training is provided for schools and employers to tackle gender stereotyping in work experience placements.

Box 2.8. Targeted career guidance with gender in consideration

Switzerland

The Futures programme is organised in Switzerland for students in grades 5-7 to encourage them to spend a day at work of a parent or other relative and to tackle gender stereotypes. The key element of the programme is that children are exposed to occupations of the other gender, i.e. girls visit fathers' workplaces and boys visit mothers' workplaces. The programme also includes other special projects where children can engage with adults working in (so far) unusual forms of employment, such as fathers working part-time, or female IT programmers.

Canada

In Canada, two regions support programmes specifically aimed at promoting non-traditional jobs among girls. The "Futures in Skilled Trades and Technology Programme" supports greater participation of women in skilled trades in the Newfoundland and Labrador Province by piloting modules targeted at girls in grade school. The Ontario "Youth Apprenticeship Programme" reserves some of its funding to promote skilled trades among women through conferences and hands-on activities.

Germany

Some countries also support initiatives to attract interest among male students in female-dominated professions. Germany, for example, funds a nationwide network and information platform to support gender-sensitive career and life orientation for boys through the programme "New Paths for Boys and Boys' Day". The programme provides information and material to education and social work professionals, career advisers, human resource teams, education and training specialists, and parents. Nationwide conferences and meetings are also organised to facilitate exchanges between researchers and practitioners.

Source: Musset and Mytna Kurekova (2018[42]), "Working it out: Career Guidance and Employer Engagement", *OECD Education Working Papers*, No. 175, https://dx.doi.org/10.1787/51c9d18d-en ; OECD (2015[39]), *The ABC of Gender Equality in Education: Aptitude, Behaviour, Confidence*, https://dx.doi.org/10.1787/9789264229945-en.

Data infrastructure and tools for career guidance

Technological advances have opened up access to new sources of information about different education and training options. A robust data infrastructure that can reliably connect education and employment is an essential step toward connecting educational supply and labour market demand. Ideally, students can have access to information on: all available options and pathways specific to the individual's needs, including VET ones; the qualifications to which they lead, and the further qualifications to which these give access; the occupations to which these qualifications provide access, and the extent to which the qualifications are sufficient for entry; the salary/wage levels offered by these occupations; the projected demand for these occupations; and the labour market outcomes achieved by those successfully completing the programmes, including the nature of their jobs, their salary/wage levels, whether or not the jobs are in an occupational sector directly related to their VET programme, and the extent to which they are using the skills and competences acquired in the programme (see Chapter 3 on graduate tracer surveys). For example in Peru, the ministries of education and labour have set up a website (www.ponteencarrera.pe, Get into a career) to provide data on the cost and labour market returns of specific programmes of study at all of the country's technical institutes and universities. In Norway, the public career guidance web portal (www.utdanning.no) includes an overview of the educational pathways and descriptions of more than 600 careers and professions. The portal also includes interviews with skilled workers, overview of places to work and information on average salaries.

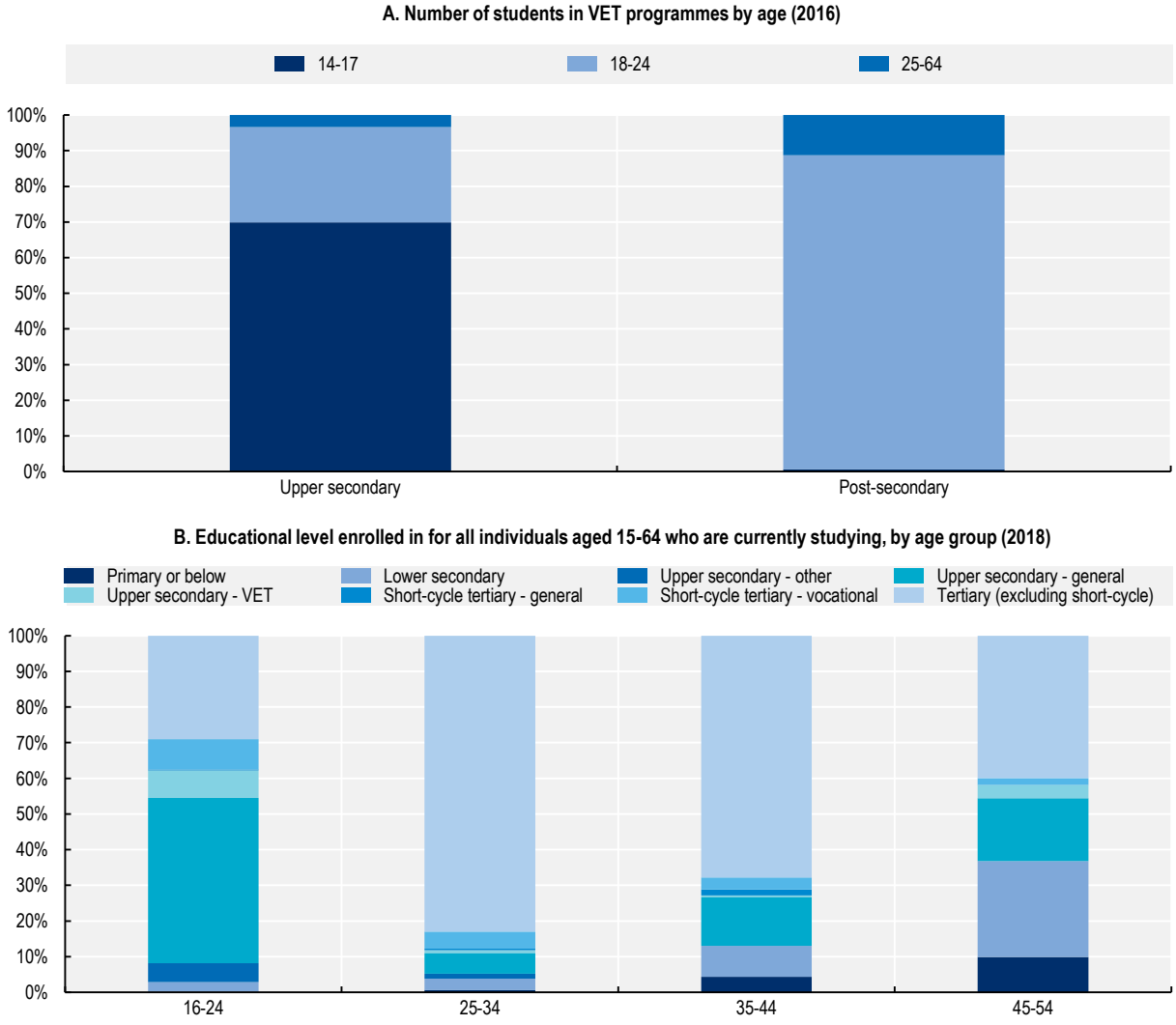
Increasing access for adults

Adults can take advantage of VET programmes to deepen their technical skills, make a sideways career move, or return to work after a period out of the labour market. Structural changes in the labour market mean that some workers need to upskill to remain abreast of changing requirements, while others have to reskill entirely (OECD, 2014[9]). This need for upskilling and re-skilling is reinforced by the COVID-19 crisis and the consequent shift in the economy (see Chapter 3 for a discussion on the impact of the crisis in Thailand). One of the fundamental issues of the Thai economy is the lack of well-trained workers to face the challenges of a more complex economy. While the proportion of workers achieving at least 12 years of formal education has increased tremendously in the latest years, still around 45% of working adults aged 16-64 have only achieved primary education or below (see Chapter 1). Opportunities for adults to invest in their skills are therefore crucial.

Although data on adult participation in VET in Thailand are scarce, it seems that participation is very low for adults in these programmes. For example, data on the age profile of students in VET programmes show that only 3% of vocational certificate students and 11% of vocational diploma students are older than 25 (see Figure 2.9, Panel A). Among adults who are currently studying for a formal qualification, tertiary-level programmes are most popular, followed by general upper secondary education (see Figure 2.9, Panel B). However, these data only capture participation in formal education programmes, and evidence from OECD data clearly shows that many more adults participate in non-formal training than in formal training. As discussed in Chapter 1, Thailand has a fairly large non-formal VET sector. Non-formal training often has the advantage of being shorter and more flexible than formal training, which is an important advantage for adults. However, the non-formal training market often lacks transparency with a lack of quality assurance. Moreover, as non-formal does not result in a qualification, it might be difficult for adults to show to employers that they have gained skills through non-formal training.

Data on training provision by firms in the formal economy suggest that workers in Thailand have comparatively limited access to training opportunities. According to the World Bank Enterprise Survey, which contains information from over a thousand registered firms with at least five employees, only 18% of employers provided organised training activities to their workers between 2015 and 2016 (see Figure 2.10). This share is much lower than the average in upper-middle income countries (36%) and East Asia and the Pacific (38%). Thailand introduced a levy scheme in 2002, which promotes training efforts by granting a 200% tax deduction to enterprises for investing in skills development. The funds collected by the levy scheme aim to improve the skills standard of Thailand's existing labour force and is compulsory for companies with more than 100 employees. Enterprises that provide staff with occupational training (approved by the Ministry of Labour) are eligible for certain privileges and benefits. Training should be organised on a yearly basis and provided to at least 50% of the company employees. Evidence shows that the introduction of the levy scheme in Thailand has led to a sharp increase in the training provided by companies, reaching around four million workers who receive training every year (Goncalves, 2019[7]). But research suggests that little was done to involve firms in the development of the levy and the processes for approving training programmes and claiming the tax reduction are daunting (Ritchie, 2010[46]). Another shortcoming of the levy is that by definition informal workers are excluded. Usually, once in the informal economy, opportunities for learning and upgrading skills are scarce when compared to employees' opportunities in formal firms, or for the self-employed working formally (Alonso Soto, 2020[47]).

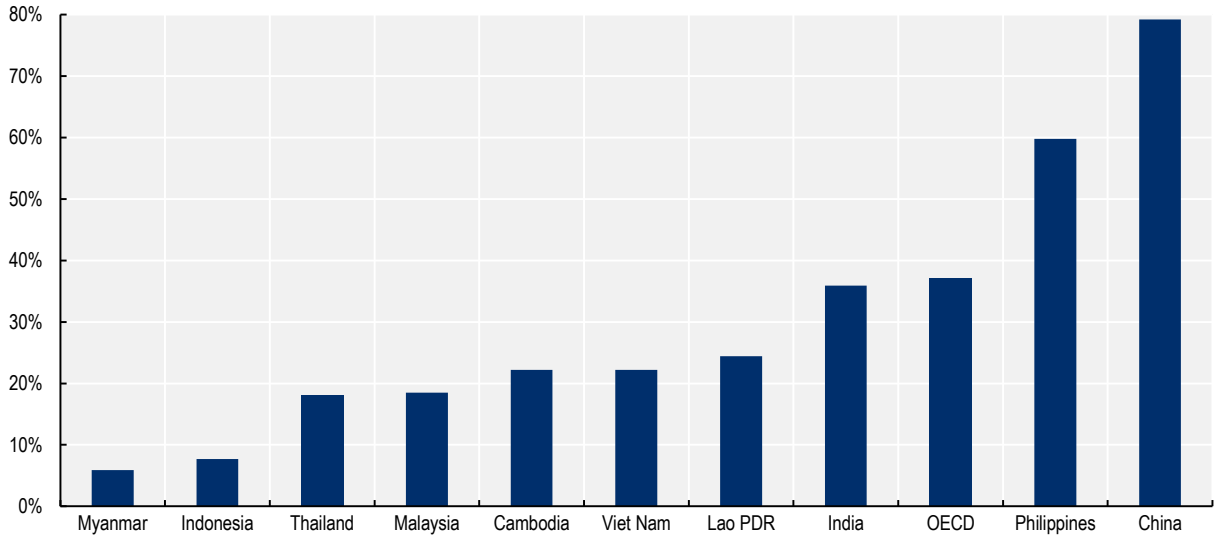
Figure 2.9. Few adults are enrolled in VET programmes



Note: Panel A refers to the number of Students in the institutions under OVEC by age in academic year 2016.
Source: Office of the Vocational Education Commission (2016[48]), Educational statistics data for the year 2016, http://techno.vec.go.th/ประชาสัมพันธ์/รายละเอียดข่าว/tabid/766/ArticleId/5977/language/th-TH/.aspx (Panel A); Authors' calculation based on National Statistics Office Thailand (2021[8]), The Labour Force Survey 2018, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx (Panel B).

Figure 2.10. Relatively few firms train workers in Thailand

Percentage of manufacturing firms offering structured training

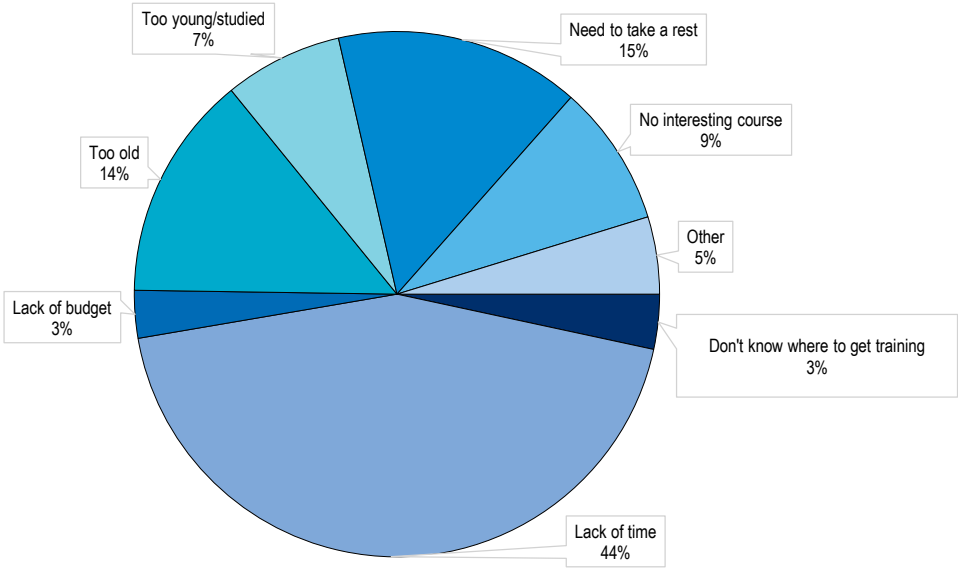


Note: Data refer to 2013 for China, 2014 for India, 2015 for Indonesia, Malaysia, Philippines and Viet Nam, to 2016 for Cambodia, Myanmar and Thailand, 2018 for Lao .PDR. and to 2010-19 for the OECD average of 15 available countries. Only training that has a structured and defined curriculum (e.g. classroom work, seminars, lectures, workshops, and audio-visual presentations and demonstrations) is included.
Source: World Bank (2021[49]), Enterprise Surveys, http://www.enterprisesurveys.org.

Available information for OECD countries shows that, in most countries, adults face multiple barriers to access training. Adults might not participate in training for a variety of reasons, some related to a lack of motivation, others to practical barriers, such as financial and time constraints (OECD, 2019[50]). In Thailand too, according the Skills Development Survey data (2019) from the National Statistical Office of Thailand, about 92% of adults responded that they do not desire to participate in adult learning. This lack of interest is lower for younger adults aged 15 to 24 (88%). On the other hand, the share is higher among people with low levels of education (95%) than among those with at least a secondary education qualification (90%). Some of the reasons for not wanting to participate in training for Thai adults include lack of time (44%) and no interesting course being available (9%) (see Figure 2.11). Online training could help overcome some of these barriers, and recently the TPQI has made available a large number of e-learning course for anyone to access free of charge (TPQI, 2021[51]).

Figure 2.11. Thai adults face multiple barriers to training participation

Reasons for not desiring to participate in job-related adult learning, 2019



Note: Other reasons include reasons due to sickness, handicapped, and unknown reasons, among others.
Source: National Statistical Office (2021[52]), Skills Development Survey 2019, http://www.nso.go.th/sites/2014en/Pages/survey/Social/Labour/The-Skill-Development-Survey.aspx; OECD (2020[53]), *OECD Economic Surveys: Thailand 2020*, https://dx.doi.org/10.1787/ad2e50fa-en.

Promoting adult participation in VET programmes

If the Thai education and training system is to seriously address the challenge of adults not having the right skills for their jobs and employers facing skills shortages, it has to offer meaningful routes to careers for those who have left school with poor skills and low levels of qualifications. The promotion of adult learning can assist Thailand into moving away from its reliance on labour-intensive industries and promoting skilled-intensive industries in areas such as computing, telecommunications, and electronics (Chalapati and Chalapati, 2020[3]).

More attention to the learning needs of adults is needed. In practice, many adults lack time for training because of work and/or family responsibilities, and those who are in informal employment cannot always count on their employer to provide or support training. Re-engaging them in education may require programmes that are flexible and adapted to the needs of adults (e.g. part-time programmes, distance learning). Modular approaches are especially helpful in providing adult learners with greater flexibility on their learning path. They allow adult learners to focus on developing the skills they currently lack, complete self-contained learning modules on these skills and combine these modules to eventually gain a full (formal) qualification. Breaking down programmes into discrete modules to allow for course exemptions and different paces of study can be challenging, but necessary for adults (OECD, 2019[50]; OECD, 2014[9]).

VET can play an important role in up-skilling and re-skilling adults – especially if it is of high-quality and well-aligned with labour market needs, but only if it designed in an adult-friendly way. International comparison shows that there are different ways to engage adults into VET (see Box 2.9). There are some cases of individual institutions in Thailand that have taken it upon themselves to adapt to the needs of adults – for example, the Bangkok Metropolitan Administration's (BMA) Vocational Training Centre provides a number of job training courses, including part-time and weekend courses (OECD, 2020[53]).

Box 2.9. Countries organise their VET systems for adults in different ways

The training needs of adults can be met through vocational programmes in a variety of ways:

- Separate adult learning institutions may offer the same qualifications as those delivered to young people. In Denmark, a separate parallel adult education system allows access to postsecondary qualifications at levels corresponding to those of the ordinary education system. More than 40% of adults participate in formal and/or non-formal education in any given year.
- Spread throughout Flanders (Belgium), centres for adult education provide second-chance education and basic skills programmes, and vocational programmes at upper secondary and postsecondary level. To facilitate the participation of working adults efforts have been made to make programmes (particularly associate degrees) flexible through modular provision.
- Iceland has an approach designed to serve the needs of a sparsely populated country. Twelve regional lifelong-learning centres offer distance learning and distributed learning programmes at all education levels, including training in the regulated trades; recognition of prior learning takes place through both formal and informal assessment. The centres work with employers to identify training needs and offer career guidance.

Source: McCarthy and Musset (2016[35]), *A Skills beyond School Review of Peru*, http://dx.doi.org/10.1787/9789264265400-en; OECD (2014[9]), *Skills beyond School: Synthesis Report*, OECD Reviews of Vocational Education and Training, https://dx.doi.org/10.1787/9789264214682-en.

Developing skills certification and recognition of prior learning

Many adults in VET have already acquired some skills in the workplace, formally or informally. As people work, in both the formal and informal economy,[4] they gain new skills and knowledge. But without a formal qualification, they may have difficulty leveraging those new skills to find a new job or secure a promotion. Labour market mobility is essential for generating inclusive growth and sustaining a knowledge-based economy. When students can receive credits and course exemption for skill acquired outside of the formal education system, this would make it easier and more attractive for adults to participate in VET.

Skills recognition can be used to give access to an education or training programme, in recognition of pre-existing skills (e.g. a person who did not complete upper secondary education may access a postsecondary programme). This can widen access to further learning opportunities. One challenge is that potential beneficiaries may have weaknesses in some areas (e.g. learning in academic settings, literacy or numeracy). To address this, a number of countries have implemented initiatives that offer targeted support to students who might otherwise struggle (Kis and Windisch, 2018[54]).

Skills recognition can also be used to reduce programme duration. This route is suited to learners who already hold some of the skills targeted by the VET programmes, but not all of them. Several OECD countries have education and training schemes that allow for reduced duration (Kis and Windisch, 2018[54]). In Thailand, in theory, workers can use both their work experience and prior education records to earn extra credits with an exemption of some particular courses based on their experience This is possible in 32 different fields - including industry, mechanics, metallurgy, high power electricity, electronics, computer techniques, construction, agriculture and tourism. According to the previous experience, the lengths of the coursework can be shortened to eight months, in the formal, non-formal and dual system. In the case in dual programmes, a maximum of two-thirds of total credit hours can be accredited for prior learning. Within the Thai system of recognition of prior learning (RPL), one out of three assessors must be an industry representative. Trainees are provided with additional courses after validation of their experience or assessment of prior learning (Office of the Vocational Education Commission, 2020[55]). No data are

available on the actual use of these possibilities in Thailand, which may be very limited. Education institutions sometimes have inadequate financial incentives to recognise prior learning, particularly if course exemptions trigger reduced fee income or public funding. Compensatory mechanisms can balance this effect. In Denmark the government provides institutions issuing RPL certificates (and therefore shortening the duration of the programme) with one-off funding (Field et al., 2012[56]).

Finally, skills recognition can also be used to give VET qualifications without a required training programme. This route is suited to individuals who have most or all of the skills required by the targeted qualification. For example, several countries allow access to the final examination in apprenticeships for candidates with relevant work experience (see Box 2.10). This option can serve as an alternative to regular apprenticeships or offer second chances to low-qualified adults.

Undertaking validation is demanding, as it depends on the capacity of a person to identify and articulate their existing skills and prove them. This may be particularly hard for disadvantaged adults – even though the potential benefits of validation would be particularly large for them. In addition, validation may sometimes receive little support from employers (Kis and Windisch, 2018[54]).

Box 2.10. Helping incumbent workers acquire formal recognition of their skills and abilities

Examination for occupational qualification in Peru

Since 2011, the Ministry of Labour has been authorising partner organisations that meet specified criteria to award qualifications. The organisations administer written and/or performance-based examinations to interested individuals for a fee. Individuals who pass are awarded an officially recognised occupational qualification, such as a certification in carpentry or baking. The innovative approach is designed to appeal to both employers and workers, enabling both to make their skills more visible. Employers can take stock of their human capital, identifying potential skills gaps or opportunities to leverage existing talent. Workers and job seekers can obtain third-party validation of their skills and abilities, easing their transition from one position to another. Building linkages between alternative qualifications and formal VET programmes helps workers and students move along career pathways. Alternative credentialing is a strategy uniquely well suited to a country like Peru, with high levels of labour market informality and low postsecondary completion rates. It builds an infrastructure for supporting upward mobility that can be particularly difficult to achieve in informal economies.

Direct access for adults to final apprenticeship examinations in Austria, Germany, Norway & Switzerland

In Austria, individuals aged 18 or more with relevant experience may directly apply for the final apprenticeship examination without enrolling as an apprentice. This route accounted for 15% of awarded apprenticeship qualifications in 2012.

In Germany, individuals may take an “external examination” (*Externenprüfung*), taking the final assessment of regular apprenticeship programmes without completing the programme itself. Access is limited to those who have worked in the target occupation at least for one and a half times as long as the duration of the apprenticeship, and they have been performing skilled tasks in their job. Candidates may prepare for the assessment by following preparatory courses. In 2009, candidates who took the external examination accounted for about 6% of successful apprenticeship final examination candidates.

In Norway, it is possible to take the trade or journeyman's examination without an apprenticeship. The candidate must demonstrate comprehensive competence in the field. The candidate must have work experience in the field equal to the length of the apprenticeship plus 25% (usually meaning five years in total) and must pass a theoretical exam. About a third of journeyman certificates were awarded on the basis of experience-based certification in 2015/16.

In Switzerland**,** adults with relevant work experience may access the final qualifying examination for apprenticeships and obtain a federal vocational diploma or certificate. Five years of work experience are required, and in most cases, this includes of minimum of several years - usually three - in the targeted occupation. Cantons provide advice to applicants about how to prepare for the examination. In some occupations, preparatory courses for adults are available. In all occupations, adults may pursue additional training by attending vocational schools or intercompany training centres.

Source: McCarthy and Musset (2016[35]), *A Skills beyond School Review of Peru*, http://dx.doi.org/10.1787/9789264265400-en; OECD (2020[57]), *Strenghtening Skills in Scotland*: *OECD Review of the Apprenticeship System in Scotland*, https://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf.

Tackling regional inequalities in VET

Thailand's regions are at widely different levels of economic development, and VET can play a key role in closing the gap. Comparisons between frontier and lagging provinces in terms of labour productivity growth show that provincial human capital endowments matter in two ways. Provinces that converge towards the frontier have a higher share of workers who attained upper secondary education than diverging provinces, while almost 30% of the workforce in lagging provinces have never completed primary school. At the same time, provinces at the frontier have higher a share of workers who have completed tertiary education than in other provinces. A secure and inclusive economic transition therefore depends on the capacity of Thai provinces and regions to upgrade the skills of their labour forces and to generate innovation. Expanding access to upper secondary is crucial for diverging provinces to catch up. Employment surveys show that, across all regions, students that decide not to pursue higher education obtain better salaries if they complete upper secondary vocational training, rather than upper secondary general education. The wage premium of VET over general secondary education is above 20% in all regions. It is highest in the North and Northeast, where salaries for VET graduates are even higher than in Bangkok. Moreover, VET graduates also show higher rates of insertion. At the national level, nine out of ten skilled workers find qualified jobs, and the share is above 90% in every region (OECD, 2019[58]).

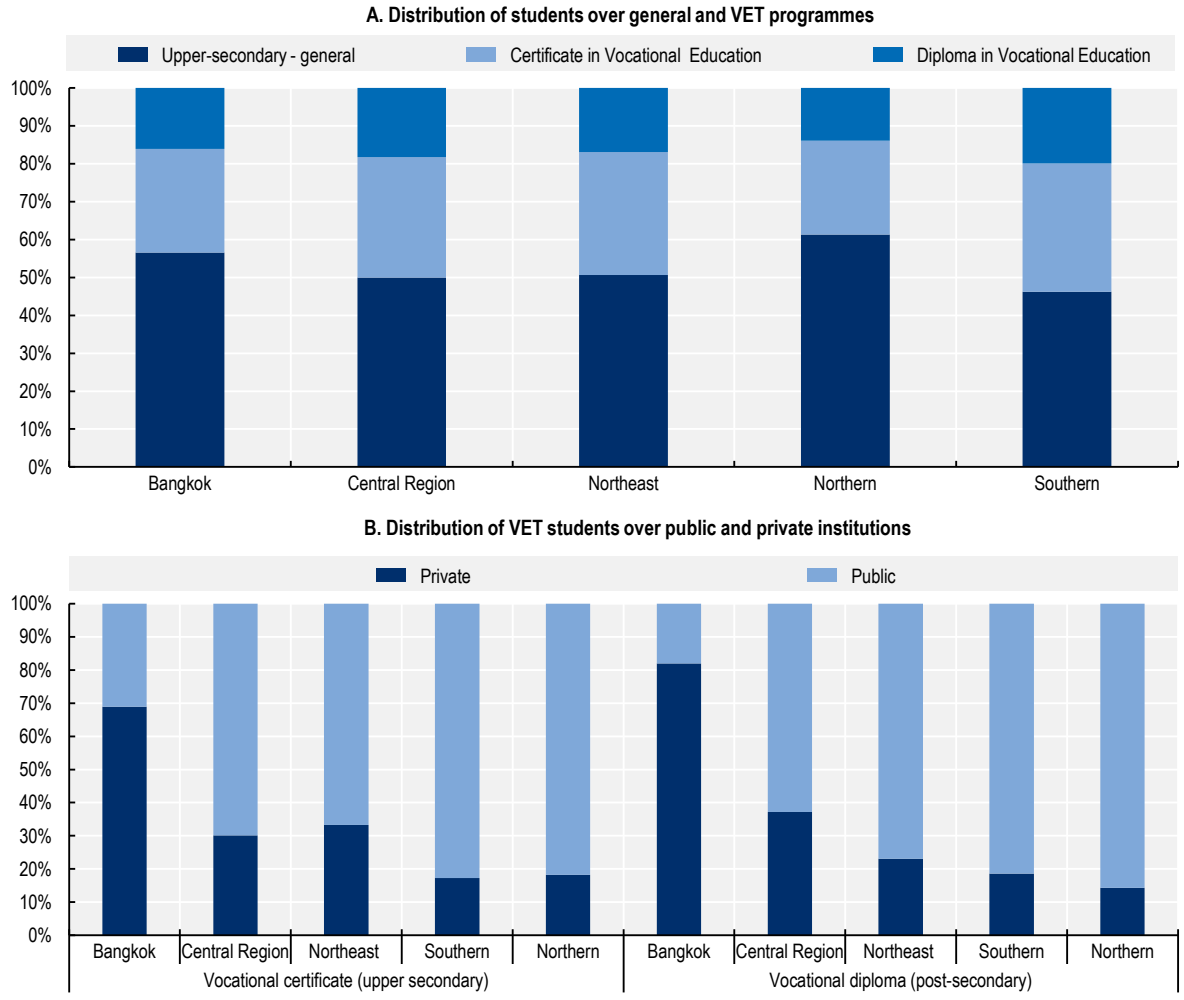
Some regions rely more on private VET providers than others

Looking at the students currently enrolled in VET programmes (certificate and diploma) or general upper secondary programmes, the distribution looks very similar across regions (see Figure 2.12). Enrolment in VET relative to general education is highest in the South, Northeast and Central regions. Looking only at the upper secondary level, VET (i.e. certificates only) accounts for around one in three students on average, with the share being highest in the Southern region and lowest in the northern region. Within VET, the distribution over certificate and diploma programmes also only slightly differ between regions, ranging from 63% of VET students in certificate programmes in Bangkok and the Southern region to 66% in the Northeast region.

Regional differences are more outspoken for the fraction of VET students enrolled in private institutions. In Bangkok, almost 70% of VET students in certificate programmes and 80% of VET students in diploma programmes are in private institutions. This is the case for less than 20% of students in the Southern and Northern regions. This partially reflects the different mix of provision in Bangkok compared to other regions, with public institutions focusing more often on more technical fields –which are in lower demand in the

Bangkok region. As discussed above, strong quality assurance mechanisms are important for private providers. Moreover, as private VET institutions often charge higher tuition fees than public providers, it needs to be ensured that this does not create barriers to access, especially for disadvantaged groups.

Figure 2.12. VET students in Bangkok are much more likely to be enrolled in private institutions than VET students from other regions



Note: "Upper secondary- general" includes all students in year 10, year 11 and year 12 in institutions that fall under the OBEC. This number of upper secondary general students is augmented with the number of upper secondary general students in private institutions. As the latter is only available for Bangkok and the aggregate of other regions, the private-to-public ratio of the non-Bangkok region is applied equally to the Central Region, Northeast, Northern and Southern Regions.

Source: Office of the Vocational Education Commission (2019[22]), Student data statistics for the year 2019, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2562&catid=173&Itemid=114.

Differences by region also can be seen in data on VET institutions. The number of institutions varies strongly between regions, with only 98 VET institutions in the Bangkok region and 299 in the Northeast region. Bangkok and the Northeast region are the only regions to have more private than public VET institutions. By contrast, in the Northern region only 38% of all VET institutions are private. The differences in the number of institutions of course partially reflect differences in the size of the VET student population. When looking at the number of institutions relative to the total number of students, difference between

regions are relatively small, with the exception of the Southern region. While other regions have between 1 100 and 1 200 VET students per VET institution on average, in the Southern region there are only 830 VET students per institution. When looking at the number of institutions relative to the total youth population (aged 15 to 24), differences are a bit more outspoken. The Bangkok and Northern region have over 12 000 youth per VET institution, while the Central and Southern region only have around 10 000 youth per VET institution.

Table 2.1. The Southern region has the most VET institutions relative to the student population

Number of VET institutions, absolute numbers and relative to student population

	Number of institutions		Number of VET students relative to number of VET institution	Number of youth relative to number of VET institutions
	Public	Private		
Bangkok	20	78	1 114	12 959
Central Region	123	110	1 194	10 358
Northeast	118	181	1 177	11 489
Southern	81	62	831	10 018
Northern	87	53	1 103	12 298

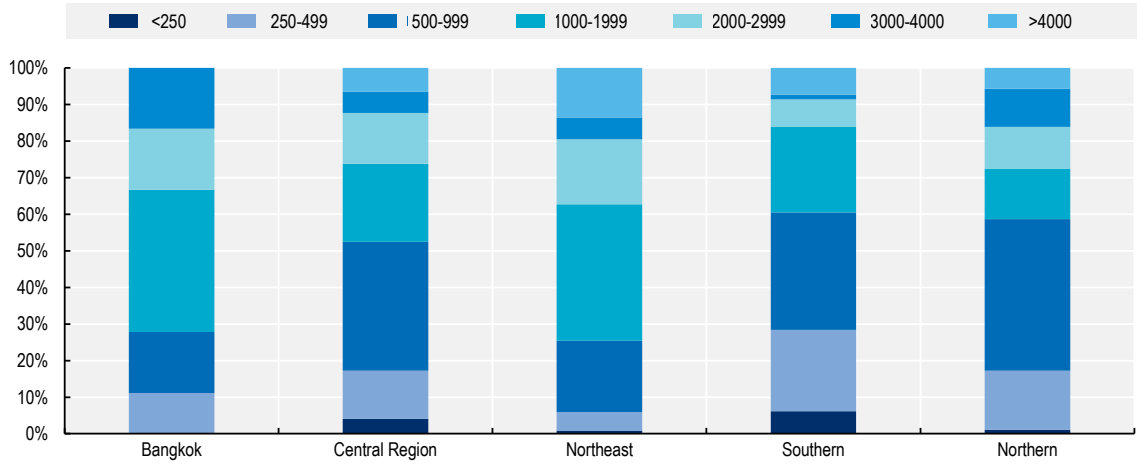
Note: Only includes institutions that fall under the responsibility of the OVEC. The number of students or youth per institution refers to private and public institutions combined. The number of VET students refers to students in certificate and diploma programmes under the OVEC. The number of youth refers to the total population aged 15 to 24.
Source: Authors' calculations based on Office of the Vocational Education Commission (2019[59]), Information on public-private education institutions, http://techno.vec.go.th/ประชาสัมพันธ์/รายละเอียดข่าว/tabid/766/ArticleId/5977/language/th-TH/.aspx.

In some regions VET institutions are small and may face quality issues

Data on the number of students per public VET institution show large differences in institution size, with the smallest public VET institution having only 30 students (located in the Northeast region) and the largest having just over 7 500 students (in the Central and the Northeast region). In the Southern and Northern regions around 60% of public VET institutions have fewer than 1 000 students, while in the Bangkok and Northeast region this is only the case for less than 30% of institutions (see Figure 2.13). The Southern region has the largest share of small institutions (26%), i.e. with fewer than 500 students, and the smallest share of institutions with more than 3 000 students (9%). As discussed above, too small VET institutions can problems in achieving an acceptable quality level, and some countries have started consolidation processes in such cases (see Box 2.4).

Figure 2.13. Public VET institutions in the Northeast and Bangkok region are larger than in other regions

Size distribution of public VET institutions (size measured as number of students)



Note: Only includes institutions that fall under the responsibility of the OVEC.
Source: Authors' calculations base on Office of the Vocational Education Commission (2019[22]), Student data statistics for the year 2019, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2562&catid=173&Itemid=114.

Technology has the potential to increases access to a wide range of VET programmes, also in remote or rural areas with few and/or small VET institutions. For example, students can access online course or modules that are not delivered in their local VET institution. Likewise, virtual reality and simulators can give students access to technologies or virtual workplaces that are difficult to access in their local area. While these technologies have many potential benefits, including through their scalability, they require an initial investment, both in equipment and infrastructure, and in the skills of teachers. Box 2.11 provides examples of the use of technology to support students in accessing the required training content.

When introducing technology in VET, it needs to be ensured that this does not exacerbate existing inequalities. The COVID-19 outbreak and the closing of schools have shown that distance learning can result in important inequalities in access to education. The digital divide hugely impacts access to education, especially for students without computers and home Internet (Thailand Development Research Institute, 2021[60]). For example, only 21% of Thai households have computers, with important differences between Bangkok (41%) and the rest of the regions.

Box 2.11. Using technology to facilitate access to high-quality VET

Norway: E-platforms for apprenticeships

In Norway, apprentices are now able to complete training requirements, provide documents and access government assistance through specialised e-platforms. One popular system known as OLKWEB has been optimised for use by training offices, who are able to follow up on their apprentices and generate reports that document the apprentice's activities and outputs. Apprentices are also able to interact with each other through the system, and can use the interface to record meetings and receive information. The employer is also able to monitor the apprentice's progress in off-the-job training.

In the hyper-rural Norwegian area of Nordland, the customised apprentice interface allows apprentices to fulfil their training requirements without travelling vast distances. E-platforms also remove administrative burdens and allows young people to flexibly complete their apprenticeship requirements.

United States: Micro-industry engagement

In Louisiana (United States), a multifaceted effort that combines technology and hands-on teacher support connects rural students with employers. A major component of this micro-industry engagement is a strategic partnership with Nepris, a company that virtually connects schools, teachers and students with workplace experts and professional mentors. Through this partnership, teachers have engaged industry experts to conduct interviews with students, provide feedback on a capstone or other project or judge student competitions. The micro-industry engagement is intended to be a series of cumulatively structured engagements and is designed around four key tenets:

- Virtual access to workplace experts in every industry sector.
- Teachers are empowered with the technologies and curated instructional resources.
- Schools offer virtual and in-school exercises akin to onsite workplace-based learning.
- Students prepare with workplace experts, mastering sophisticated communication skills.

Singapore: Virtual and augmented reality

The Institute of Technical Education (ITE) is a principal provider of career and technical education in Singapore. In the past, theory was largely taught using conventional methods, while practical lessons were given in authentic learning spaces such as in an operational hotel, restaurant, aeroplane hangar, etc. If authentic learning spaces were too costly or impractical, students learned in classroom environments through role-plays. While lecturers tried to incorporate situated learning into their lessons as much as possible, safety concerns and high costs made it hard to replicate certain work environments or tasks. In view of the need for more authentic learning experiences, the ITE decided to introduce two types of immersive technologies:

- *3D virtual reality* technology is particularly useful when it is not possible for learners to access real-world work sites and when such sites pose dangers to learners. For example, students enrolled in the Marine and Offshore Technology course used a multi-wall 3D VR system to practice their skills on a simulated oil rig platform. Using this ICT, students were able to safely train for adverse weather conditions such as heavy rain and strong wind, and learned to adjust to a variety of environmental conditions and associated job hazards.
- *3D augmented reality* applications enable students to interact with real world environment using real time data, thus contextualizing knowledge for just-in-time learning. For example, students in the Aerospace Technology course were able to load into their mobile devices 3D aircraft engine models and watch simulations of these engine parts in the AR viewer. These 3D simulations helped them to visualise details of complex systems and the operational flow inside the equipment.

The schools worked closely with technology solution providers to design relevant learning activities for students, based on the curriculum requirements.

Source: UNESCO (2017[61]), *Beyond Access: ICT-enhanced Innovative Pedagogy in TVET in the Asia-Pacific*, https://bangkok.unesco.org/sites/default/files/assets/article/ICT%20in%20Education/TVET/TVET%20pub.PDF; Advance CTE (2020[62]), *CTE Distance Learning in Rural Communities*, https://cte.careertech.org/sites/default/files/documents/fact-sheets/CTE_Distance_Learning_Rural_Fact_Sheet_2020.pdf.

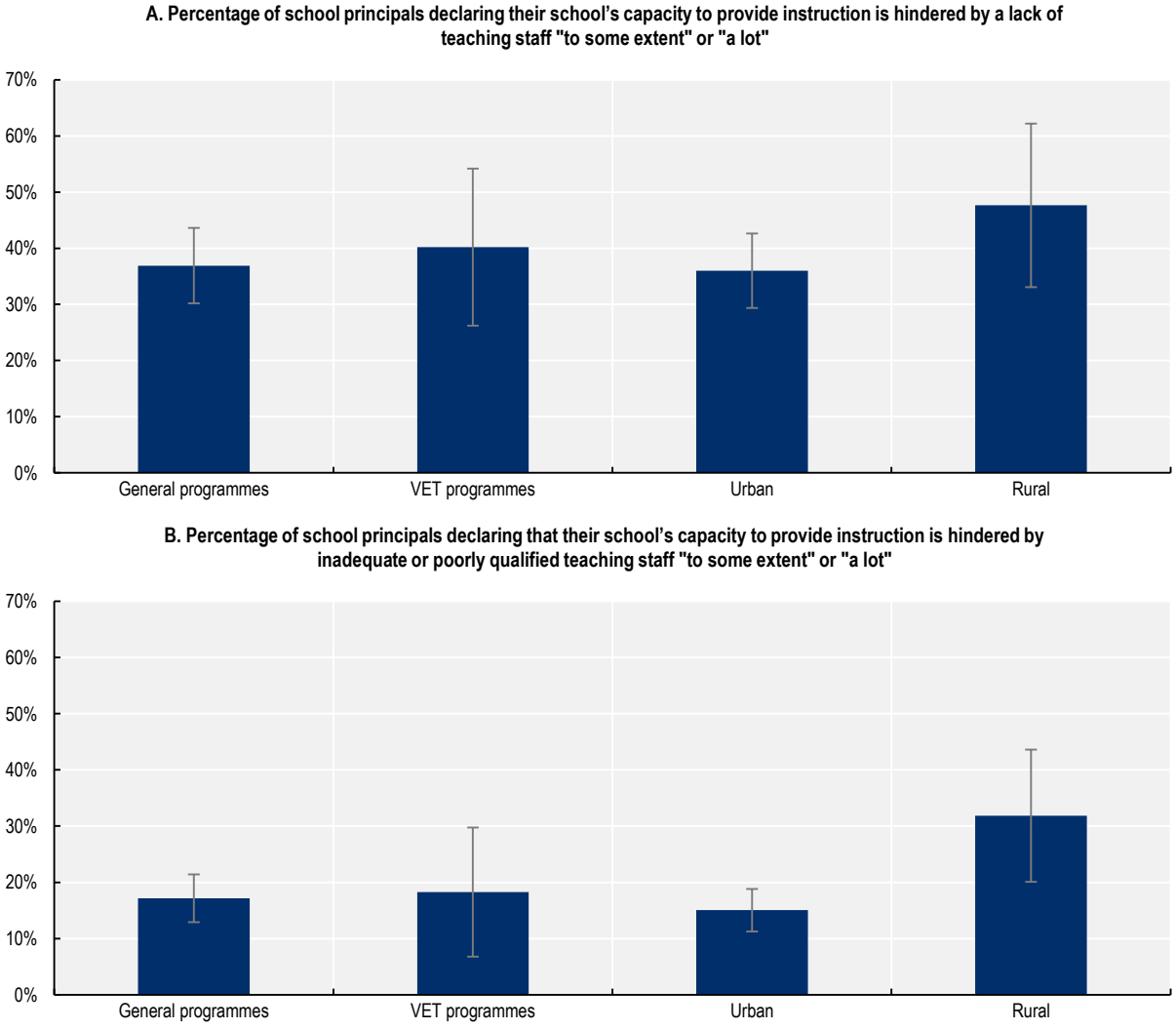
There are important differences between regions in the quality of VET teaching

Regional differences do not only exist in enrolment and provision of VET, but also in the quality of VET provision. Teachers play a key role in the quality of VET. One factor that could contribute to regional differences in VET quality is the low supply of qualified teachers in rural areas. OECD analysis presented in Chapter 3 shows that the education sector is the sector experiencing the largest shortages in the Thai labour market. Shortages of qualified teachers could result in higher student-teacher ratios and in the reliance on under-qualified teachers. It is not only important to attract a sufficient number of VET teachers, but also to ensure that these teachers have the right skills. Although all teachers in Thailand are obliged to possess an undergraduate degree, a recent World Bank report (Lathapipat, 2015[63]) highlights that while one out of five teachers in schools under the OBEC in Bangkok also have a graduate degree, only one out of 11 teachers have graduate degrees in the Mae Hong Son province, where schools are smaller in size on average. In addition, teachers in Bangkok have more years of experience on average.

As Figure 2.14 shows, principals in rural upper secondary education institutions in Thailand are more likely than those in urban areas to report that a lack of teaching staff hinders the institution's capacity to provide instruction. Likewise, principals in rural education institutions in Thailand are more likely to report issues around inadequately or poorly qualified teaching staff than in urban areas. These challenges are common across VET and general education institutions.

Student-teacher ratios in public VET institutions differ between regions, ranging from 20 VET students per teacher on average in the Southern region to 29 in the Northeast region (see Figure 2.15). In all regions except Bangkok, the student-teacher ratio is higher in VET than in general education (all levels under the OBEC). On average across OECD countries, the student-teacher ratio in upper secondary education equals 13 both for general and vocational programmes (OECD, 2020[64]).[5] In about 40% of OECD countries with data, the student-teacher ratio is greater in upper secondary vocational programmes than in general ones. A combination of several factors may influence the variation in student-teacher ratios between vocational and general upper secondary programmes. In some countries, vocational programmes are significantly work-based, so vocational students spend considerable time outside the school resulting in fewer teachers. Countries where more than half of upper secondary vocational students are enrolled in combined school- and work-based programmes tend to have an equal or higher number of students per teacher in vocational than in general programmes. In contrast, in most countries where all upper secondary vocational students are enrolled in school-based programmes, the student-teacher ratio in general programmes tends to be the same or higher than in vocational ones. However, programme type alone does not explain all differences between student-teacher ratio in vocational and general upper secondary education. Other factors, such as field of study, also influence the student-teacher ratio in vocational programmes. Some fields require greater instructor attention and supervision, particularly those where students have access to more sophisticated equipment. This may be particularly the case in technical fields such as engineering, manufacturing and construction, or some specialties in health and welfare. Smaller classes are often seen as beneficial, because they allow teachers to focus more on the needs of individual students and reduce the amount of class time needed to deal with disruptions. Yet, while there is some evidence that smaller classes may benefit specific groups of students, such as those from disadvantaged backgrounds, overall evidence of the effect of class size on student performance is mixed (OECD, 2020[64]).

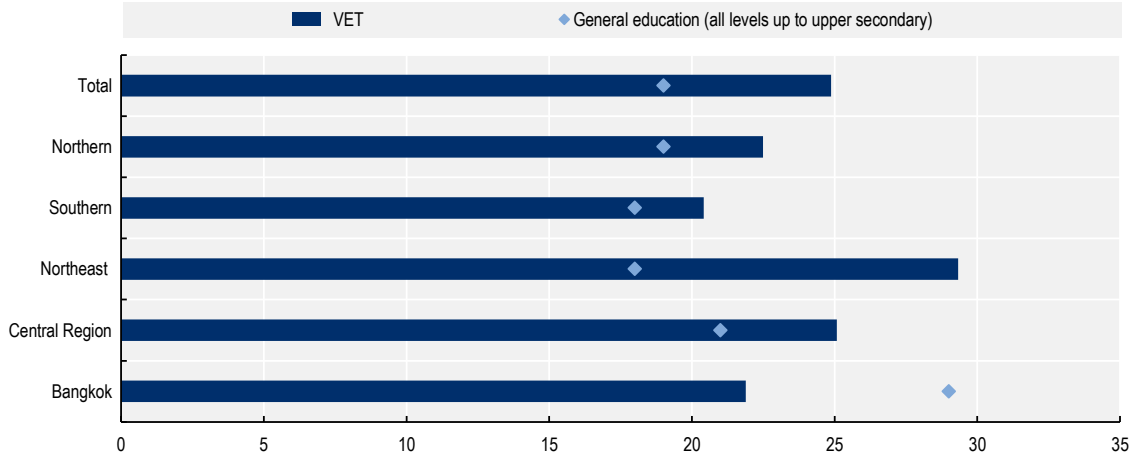
Figure 2.14. Teacher shortages and quality differ between rural and urban areas



Note: The vertical lines represent 90% confidence intervals.
Source: Authors' elaboration based on PISA (2018[20]), PISA 2018 database, https://www.oecd.org/pisa/data/2018database/.

Figure 2.15. Student-teacher ratios in VET differ strongly between regions

Number of students per teacher in public institutions



Note: Includes only public VET institutions under the responsibility of the OVEC.
Source: Authors' calcualtions base on Office of the Vocational Education Commission (2019[22]), Student data statistics for the year 2019, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2562&catid=173&Itemid=114.

From a policy perspective, the regional gaps in teacher supply and quality can be addressed by strategically increasing investments and re-structuring the incentives currently in place for teacher placement (OECD, 2020[53]). The present teacher management system allows teachers to select their location once they have been in service for over two years, with salaries of teachers in remote areas being lower on average. This is partly driven by the fact that these tend to be younger and less experienced teachers compared to those working in cities. For teachers with official with permanent employment, salaries cannot vary between locations. In this context, it is positive that Thailand has been working on improving the incentives in place for younger teachers. At the request of the Ministry of Education, the Ministry of Finance has agreed on providing financial support for rural teachers working in hardship locations, helping them to sustain their daily lives and hoping to encourage them to keep teaching in hard-to-reach locations for more than two years. In Australia, certain states provide targeted incentives and other support measures for teachers to teach in remote areas to experience teacher shortages (see Box 2.12). In VET, one strategy for alleviating teacher shortages is to attract industry professionals, who can bring their industry knowledge and experience to classroom (see Box 2.13 for examples). Partnerships with employers can facilitate the involvement of industry professionals in VET teaching. Such a strategy should be combined with flexible training and qualification programmes in place to allow these industry professionals to also develop the necessary pedagogical skills (OECD, 2021[65]).

Box 2.12. Attracting teachers to remote areas in Australia

Queensland

The state of Queensland – which has a population of 4.69 million (2013) and area of 1.85 million km2 – offers a range of benefits, with a very clear structure for incentives, based on the remoteness of the school. These benefits include subsidised relocation, housing, salary supplements, special leave and induction support.

In addition, the regional government is also concerned about increasing the quality of teachers recruited to remote areas. The state of Queensland runs two schemes targeted at high achieving teacher candidates in the final year of their initial teacher education programme. Rural and Remote – Graduate Teacher Scholarships provide a one-off payment of AUD 15 000 and an offer of permanent employment to 40 high-achieving primary or secondary pre-service teachers, committing to teaching in remote areas. Similar scholarships are offered under the Rural and Remote – STEM Graduate Teacher Scholarship scheme, but targeted at 32 high achieving pre-service teachers with a science, technology, engineering and maths (STEM) specialisation.

Northern Territory

In the Northern Territory, the region with the lowest population density, a number of initiatives have been initiated by the government and schools to attract teachers to remote schools. Approaches include:

- Collaborating with universities outside the Northern Territory to offer practicum places to students from other states that have an interest in remote schools and teaching indigenous students.
- Providing opportunities for school leaders and experienced teachers in remote schools to participate in roadshows and other events aimed at recruiting teachers across Australia.
- Offering financial and other incentives to teach in remote schools. For example: furnished housing, and subsidised or free electricity; relocation allowances; free airfares out of isolated locations; increased pay through incentive allowances, and salary progression; extra business days to access services not available in remote locations.
- Providing professional development opportunities through study-leave incentives and online courses. A range of online courses are available, which can be included as evidence in a teacher's portfolio to support their progression to "proficient" and "highly accomplished" and "lead" teacher status, according to the Australian Professional Standards for Teachers. In addition, teachers in remote schools are able to accumulate points for paid study leave on full or half pay.

Source: OECD (2018[66]), Promising Practice - Attracting Teachers to Schools in Rural and Remote Areas in Australia, http://www.oecdteacherready.org/promising-practice/attracting-teachers-to-schools-in-rural-and-remote-areas-in-australia/.

Box 2.13. Attracting industry professionals to VET teaching

Relaxing entry requirements

United States

In the United States, relaxed qualification requirements are considered to be a tool to smooth inflows from industry into teaching in VET. For example, 15 states recently passed Career Technical Education (CTE) teacher certification or development policies to address the recruitment and certification, as well as the preparation and professional development, of CTE faculty and staff. Ohio grants alternatively licensed CTE teachers a four year teaching license known as an Alternative Resident Educator license. Missouri created a one-year teaching certificate for visiting scholars from industry who are part of a business-education partnership and have relevant education credentials. A recent law in Michigan allows non-certified, non-endorsed individuals to teach in certain VET programmes[6] as long as they meet certain requirements, such as having acquired 2 years of professional experience in the relevant subject area during the past 10 years. The impact of these measures remains to be seen, but in the context of restrictive and somewhat complicated licensing structures and certification policies (e.g. VET teachers needing to complete state-approved programmes to obtain a teacher certificate), such flexibility can encourage mobility between industry and VET teaching.

Japan

In Japan, industry professionals with relevant experience may acquire a special or temporary teacher licence without going through the official exam when they are proven to have relevant skills and experience. Special part-time lecturers, who can be recruited from industry, do not need a teacher licence. A subject-related bachelor's degree with additional credit related to teaching can also lead to a teacher licence.

Combining teaching and work in industry

Flanders (Belgium)

In Flanders (Belgium), a two-year trial "dual teaching" project was launched in 2021. Within the project, professionals can teach in VET for a few hours per week on a temporary basis, in fields where schools have difficulty finding qualified VET teachers. These professionals can start teaching after a three-day pedagogical training programme (those who already have a teacher qualification are exempted). The training programme is financed by the government and the European Social Fund. Participating professionals continue to receive their normal wage, paid by their regular employer, who receives a lump sum subsidy per teaching hour from the government.

United States

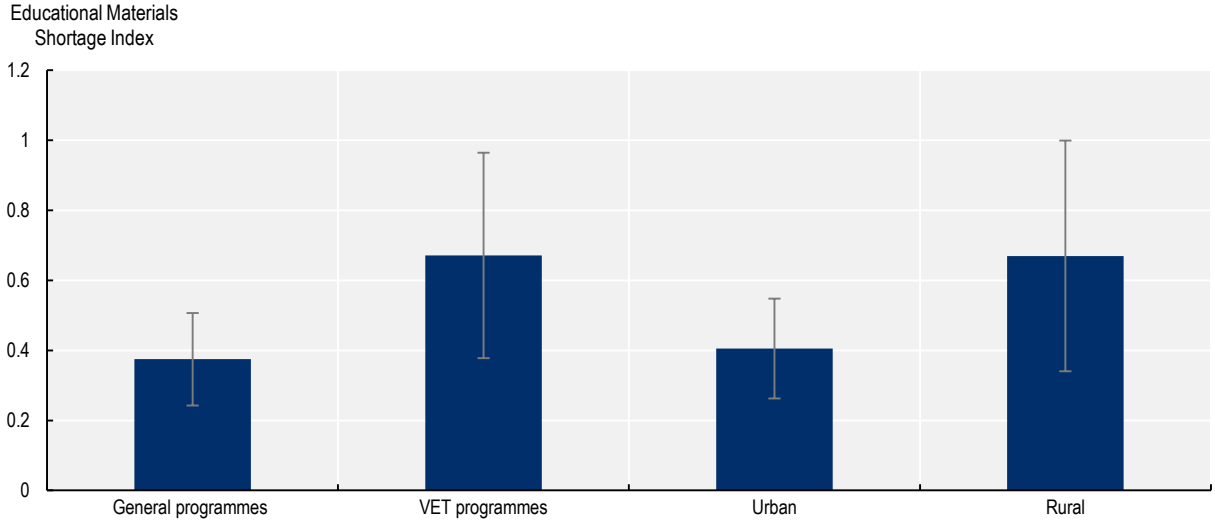
Community colleges in the United States increasingly hire part-time adjunct faculty to teach in VET courses. For example, in California, the expansion of VET programmes has increased the demand for highly specialised faculty who teach part time while remaining professionally active in their field. These teachers can have up to 67% of the paid workload of their full-time counterparts. Similarly, in Colorado community colleges have increased their hiring of part-time adjunct instructors by 44% between 2007 and 2015 (compared to 17% for full-time faculty), in part due to increasing delivery of VET courses. This follows national trends in college and university instructional employment over the past decades, driven by declining financial support. Adjunct faculty earn about USD 68 a week (or USD 21 288 annually), compared to an average of USD 188 a week (or USD 53 000-57 000 annually) for full-time faculty.

Source: Adapted from OECD (2021[65]), Teachers and Leaders in Vocational Education and Training, *OECD Reviews of Vocational Education and Training*, https://doi.org/10.1787/59d4fbb1-en.

Beyond differences in teacher quality between urban and rural sectors, there are other disparities that are visible along geographical divisions, such as insufficient material resources and physical infrastructure. Figure 2.16 shows that according to PISA data, material shortages are more intensive in VET programmes in Thailand than in general programmes, and in rural areas than in urban areas.[7]

As gaps in physical infrastructure and learning material contribute to low the quality of teaching instruction, future increases in public education expenditure should be oriented towards reducing these gaps as well. In VET, a strong work-based learning system reduces the need for expensive equipment, as students learn a large proportion of the curriculum in the workplace. As discussed in chapter 3, for work-based learning to be effective, workplace trainers need to have a good understanding of what skills they need to develop in their students and also have the right skills to support the learning of the students. Other forms of collaboration between VET and employers can also alleviate the need for expensive equipment in schools, such as for example the establishment of employer-led training centres (see Box 2.14). As discussed above, technology can also play a role, as the economies of scale associated to VR, AR and simulators imply that these technologies can be used in a large number of VET schools and in different fields-of-study, which reduces the need for schools to invest in expensive equipment. Moreover, these technology solutions can be updated regularly following the latest developments in industry, reducing costs related to investment in expensive equipment.

Figure 2.16. VET institutions in upper secondary education show bigger material resource shortages than general schools, and shortages are larger in rural than in urban areas



Note: The vertical lines represent 90% confidence intervals.
Source: Authors' elaboration based on PISA (2018[20]), PISA 2018 database, https://www.oecd.org/pisa/data/2018database/.

Box 2.14. Industry-led training centres

Malaysia

The Penang Skills Development Centre (PSDC) was established in 1989 and is the first tripartite (i.e. employers, government and academia), industry-led skills training and education centre in Malaysia. Since its inception, the PSDC has grown to become one of the learning institutions in the country, dedicated to meet the immediate human resource needs of the business community and to support and strengthen business requirements. The Centre has 224 members, of which 21 are founding members. Over a period of 29 years, the centre has trained over 200 000 participants through more than 10 000 courses. One of its current programmes is the German dual vocational programme, which trains apprentices through a two-pronged approach, where training is conducted at both workplace and PSDC in actual work conditions under the guidance of competent coaches and classroom trainers. Likewise, the Malaysian meister programme –built on the German meister or master craftsman programmes- takes a dual approach to upskill graduates and reskill the existing Mechatronic Engineering and Precision Machining workforce.

Bangladesh

The Centre of Excellence for Leather Sector Skills (COEL) was established in 2009 in Bangladesh by the Leather Industry Skills Council (ISC) and was registered as not-for-profit organisation under the Company Act. It is a good example of employer-led initiative that leads to qualifications recognised in the public education and training system. The ISC leather manages this initiative. It is a dual apprenticeship model with classroom training in the COEL's training Centre for three months and workplace training in the factory for nine months. The training centre of COEL is situated outside the capital town at Chandra, Gazipur, which serves as the hub of COEL's Leather Skill Training Programs and has the capacity to train 300 trainees at a time. The main objective of COEL is to increase and improve the overall skill level of the workforce of the leather sector to meet the sector's immediate and long-term skills needs. The COEL are targeting unemployed youth from low socio-economic backgrounds, including women from low-income families who are willing to be engaged in work and increase their earnings and livelihoods.

France

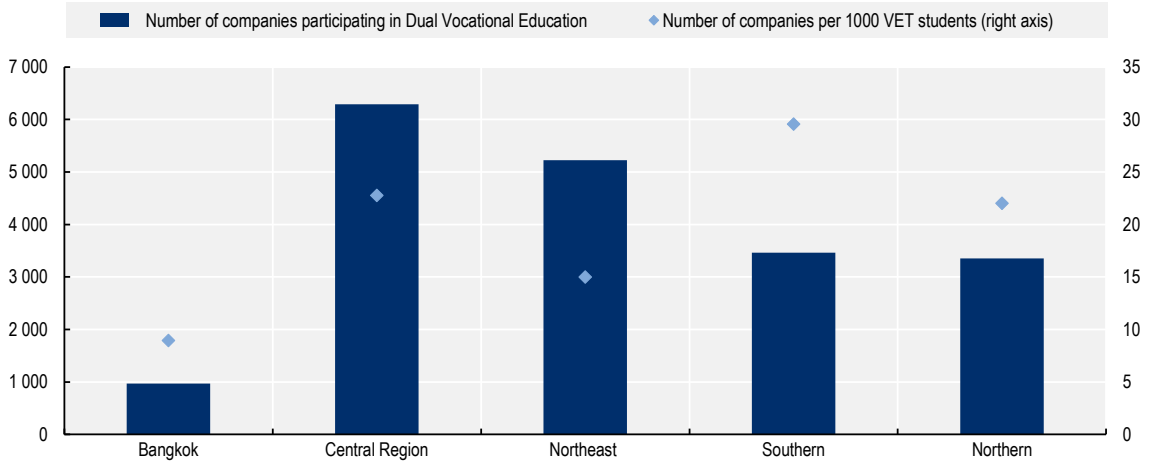
In France, the 2018 *loi Avenir Professionnel* (Professional Future law) opens up the possibility of establishing and operating apprenticeship training centres (CFA) to employers. The CFA determines the organisation of the training together with the enterprise providing the work-based learning opportunity and with the student. The training needs to respect the principal of apprenticeship training (i.e. alternating between classroom-based and work-based training) and the qualification frameworks. These CFAs can benefit from public funding, but only if they have received a quality certificate. Since the creation of this system in 2019, numerous –mostly large- firms have taken the opportunity to open their own apprenticeship training centre(s), often as a way to tackle skill shortages. By the end of 2020, around 30 CFAs led by employers were operational, and a further 20-30 were in the process of being set up.

Source: Penang Skills Development Centre (2019[67]), *Annual Report 2019*, https://www.psdc.org.my/documents/2019-PSDC-annual-report.pdf ; Ministère du Travail (2019[68]), *Ouvrir votre propre CFA*, https://travail-emploi.gouv.fr/IMG/pdf/ouvrir_son_cfa-print.pdf ; Management de la Formation (2020[69]), *Le CFA d'entreprise: Qui a osé de franchir le pas? (2/2)*, https://www.managementdelaformation.fr/reforme-formation-professionnelle/2020/11/17/le-cfa-d-entreprise-qui-a-ose-franchir-le-pas-2-2/ ; OECD/ILO (2017[61]), *Engaging Employers in* Apprenticeship *Opportunities: Making It Happen Locally*, https://doi.org/10.1787/9789264266681-en.

Finally, another dimension of quality in regard to regional differences is access to work-based learning opportunities. As discussed in Chapter 3, work-based learning is integrated in school-based VET programmes and those programmes can also be delivered as dual programmes, taking place for a large part in the workplace. But the roll-out of the dual system seems to differ between regions, see Figure 2.17. While data on student participation in dual programmes by region are not available, data on the number of companies participating in the system show some interesting regional differences. The number of employers in the dual system ranges from around 1 000 in Bangkok to around 6 300 in the central region. When expressing this relative to the total number of students enrolled in vocational programmes (certificate and diploma, irrespective of whether they are part of the dual system or not), substantial differences remain: the Southern region has around 30 participating companies per 1 000 VET students, the Central and Northern region between 25 and 30, the Northeast region around 15, and the Bangkok region only just under 10.

While the availability of work-based learning (WBL) opportunities depends strongly on the economic realities of the region, it is important to ensure that companies from different sizes and sectors participate. This will also make the provision better aligned with the needs of all the different sectors of the economy, as further discussed in Chapter 3.

Figure 2.17. The roll-out of dual system differs between regions



Note: The number of VET students include all students in vocational certificate or diploma programmes under the OVEC.
Source: Dual Vocational Education Center (2020[70]), Report on the Number of Companies participating in Dual Vocational Education, https://dve.vec.go.th/index.php?app/report/ajax&m.

Conclusion

In order to achieve the Thai government's objective of expanding the size of the VET sector, and to overcome reported skill shortages, VET programmes and institutions should become more attractive. This will require actions on different fronts. First, vocational students need to be able to move easily into further learning opportunities, both vocational and general education ones. This is essential to increase the status of VET, and also to meet the needs of the labour market. Such transitions are not very common in Thailand: less than 10% of students in tertiary education come from a VET background. Second, the VET system needs to be easy to navigate. The Thai system consists of a large variety of institutions, reflecting a multiplicity of stakeholders, including different ministries and agencies, and parallel governance arrangements. This may support diversity and innovation, but it also creates confusion for students and employers. A simpler system would be easier to co-ordinate, and more efficient financially. Third, higher

quality programmes with strong labour market outcomes will automatically make the VET system more attractive to students. However, out-of-date curricula, lack of resources and equipment are mentioned by different stakeholders as key issues for the Thai VET system. Quality issues may be especially present in private and small institutions. High quality of VET programmes, based on sound quality assurance mechanisms, is a precondition for the growth of the sector and the development of pathways.

Expanding the VET system should happen in an inclusive way, creating opportunities for all. Increasing opportunities for groups who are currently underrepresented in VET, including women and adults, will make the system more equitable and can contribute to tackling skill shortages in the Thai labour market. Career guidance can help break gender stereotypes and help students make informed choices and navigate the currently complex VET landscape. VET could play an important role in up-skilling and re-skilling of adults in a changing world of work, but additional flexibility and support is need to help overcome barriers that adults often face when it comes to training participation. Finally, regional disparities in the quality of VET, in terms of the availability of qualified teachers and of adequate teaching resources, are substantial, and these have to be better monitored and tackled.

Key recommendations

Improving access to VET

Building effective pathways and fostering transparency

- Collect more and better data to analyse to which extent VET graduates successfully continue into further education, including graduate tracer surveys.
- Build a dialogue with higher education institutions, to promote the access for VET graduates to relevant programmes and offer bridging programmes that provide remediation in foundation skills and general education subjects.
- Ensure that when students move from postsecondary VET programmes (diploma) to other tertiary programmes that they receive recognition for the coursework they have already completed.
- Develop and implement systematic arrangements, including articulation frameworks, to improve articulation between VET and postsecondary institutions.
- Ensure that all students are aware of the different routes to postsecondary VET and general education programmes, through career guidance. Such guidance activities should make ample use of information on labour market prospects, and provide the opportunity to VET students to interact with labour market actors.
- Put in place effective measures of co-ordination between the different VET stakeholders, and clarify roles and responsibilities to make the system more transparent and to avoid duplications.

Strengthening quality

- Reduce fragmentation and consolidate small programmes and institutions by merging institutions -when feasible. Such consolidations may need to be accompanied by other interventions to minimise the negative effects on students (e.g. when they increase transportation time and costs).
- Strengthen quality assurance mechanisms, especially for private providers. These quality assurance mechanisms need to be transparent for the VET providers, and the outcomes of quality evaluations need to be communicated transparently.

- Avoid cutting funding for the VET system in the ongoing COVID-19 crisis, and even consider raising the funding in VET, with both effectiveness and equity in mind, at least to similar levels as general education.

Reducing inequality in access and quality

Making VET work for all

- Make sure that all disadvantaged students have access to adequate financial support when needed, including in postsecondary VET.
- Use career guidance to make girls aware of the opportunities in VET, broadening the occupation choices they consider. Strong career guidance is built on high quality information and data on pathways and outcomes.
- Adapt the system to the needs of adults, providing programmes that are flexible and developing part-time and modular modes of study.
- Allow for course exemptions when adults already have relevant skills and/or work experiences, and certify skills through RPL mechanisms that are easily accessible and not too burdensome. Build incentives for VET institutions to engage in RPL.

Tackling regional inequalities in VET quality

- Encourage qualified VET teachers to work in rural schools through the use of targeted financial and non-financial incentives.
- Enable industry professionals to teach in VET institutions as a way to overcome shortages but also to bring up-to-date industry knowledge and experience to the VET classroom. Facilitate and encourage this especially in regions and/or fields that are facing VET teacher shortages.
- Strengthen ties between VET institutions and local employers to encourage employers to provide work-based learning opportunities and/or set up joint training centres. This is particularly important in areas with small or under-resourced schools that have a limited offer of VET programmes to support students in accessing a wider set of opportunities and relevant equipment and technology.
- Explore the potential of new technologies in increasing access for students to a broad set of VET courses and practical experiences. Carefully weigh the benefits of new technologies against their costs in terms of equipment and infrastructure investment and teacher training expenses.

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Notes

[1] The EEC development framework estimates the plan will need 173 705 people with vocational qualifications. But the country is still 55 642 (or 32%) short of that number (Thailand Development Research Institute, 2019[4]).

[2] Training institutions achieving a good performance during the previous year are allocated THB 500 000–2 000 000 (USD 14 000– 56 000), depending on the public budget available.

[3] Dropout rate is computed by dividing total number of dropouts in the relevant level (Cert. or Dip.) by total enrolments in that level (using the same academic year figures).

[4] Workers in the informal economy can acquire foundation skills, professional and personal skills, core work skills and technical and vocational skills both before they start working in the informal economy, and once they start working. Many of those working in the informal economy will have experienced periods of formal education and training, some type of schooling, perhaps technical or vocational training (or tertiary education). Some people will also bring into the informal economy skills they have acquired in a previous (or concurrent) formal sector job.

[5] The student-teacher ratio in primary and lower-secondary equals 15 and 13, respectively, on average across OECD countries.

[6] State (Perkins) approved and elective VET programmes and industrial technology programmes.

[7] Because of small sample sizes, these results need to be interpreted with caution.

3 Aligning vocational education and training with labour market needs in Thailand

This chapter looks at the alignment between the vocational education and training (VET) system and the skill needs in the labour market. It looks at the current states of imbalances in Thailand and zooms in on labour market outcomes of adults with VET qualifications. The chapter discusses how better use of skill intelligence in VET, stronger involvement of employers, and more and better work-based learning opportunities can help improve the alignment of VET with labour market needs.

The alignment between VET and the labour market

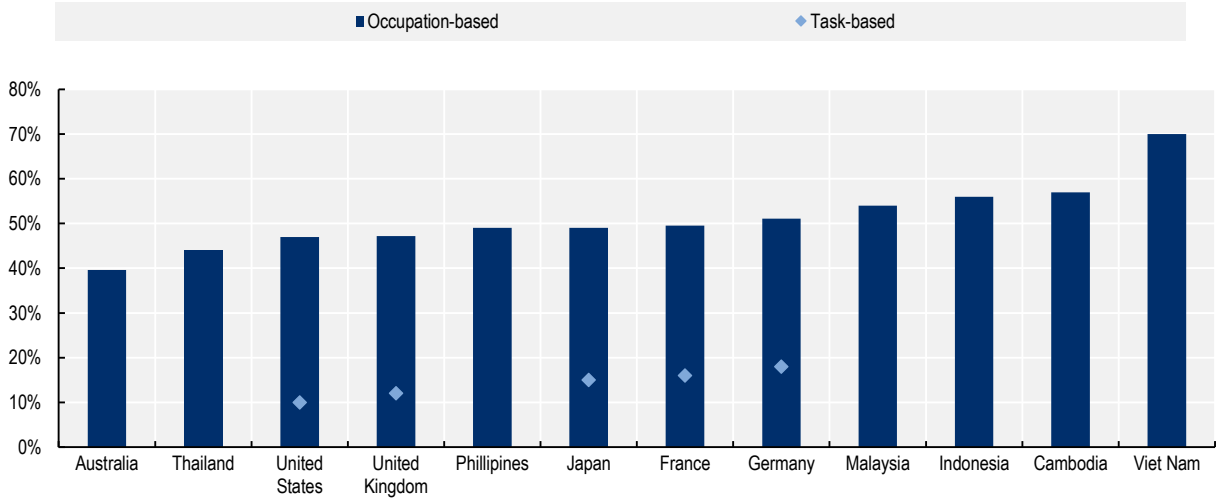
Structural changes can lead to skills imbalances

In light of structural changes that impact the demand for and the supply of skills, it is becoming increasingly important that the skills of workers are effectively aligned with the needs of the labour market. For example, technology can substitute for labour to carry out certain tasks, while complementing labour in other tasks. According to ILO estimates, three out of five jobs in five major ASEAN countries (Cambodia, Indonesia, the Philippines, Thailand, and Viet Nam) face at least a 70% probability of automation (Chang and Huynh, 2016[1]). Figures for individual countries range from 44% in Thailand to 70% in Viet Nam (see Figure 3.1). Although Thailand's share is the lowest among the ASEAN countries with available data, it is similar to what is estimated for some OECD countries like Australia (40%) and the United States (47%) (see Figure 3.1). Estimates from OECD countries that focus on tasks carried out in a job rather than the occupation, suggest that only around 14% of jobs on average across OECD countries face a high probability of automation (Nedelkoska and Quintini, 2018[2]), but also that in addition to these, 32% of jobs have a high probability to undergo significant change in the way they are carried out. Hence, the estimated 44% of jobs at high risk of automation in Thailand is likely to comprise both jobs that can be fully automated and jobs that will see significant changes in their content, but will not disappear. In addition, OECD analysis highlights that the risk of job automation is higher among low-skilled workers, women, and workers at low-wage occupations, which may further increase disparities in the labour market (Nedelkoska and Quintini, 2018[2]). However, these estimates only provide an estimate of possible automation in the next few decades, and many factors could limit technology adoption, including the relative price of technology and attitudes towards technology. The COVID-19 crisis may have encouraged some employers to automate certain tasks, as a way to avoid disruptions and uncertainty in the face of mobility restrictions. Furthermore, it is important to note that these figures only capture potential job destruction and do not account for the (potentially larger) number of new jobs that technology will create. While certain jobs may disappear, others will emerge and a sharp decline in overall employment is unlikely. That being said, the jobs created by technological progress generally require very different skills than the ones that are destroyed, and this could result in substantial skills imbalances (OECD, 2019[3]).

Likewise, demographic changes contribute to skills imbalances. Thailand is entering a new era of demographic change involving slow population growth and probable eventual decline, along with an aging population. The declining proportion of the working age population will affect economic growth and can result in labour shortages. As of 2016, 11% of the Thai population (about 7.5 million people) are 65 years or older, compared to 5% in 1995. The fertility rate fell from 6.1 in 1965 to 1.5 in 2015, as a result of rising incomes and education levels and the successful National Family Planning Programme launched in 1970 (Office of the Education Council, 2017[4]). An older population has different needs and consumption patterns, including a stronger demand for personal and health care, which changes the skill needs in the labour market.

Figure 3.1. Many jobs could potentially be partly or fully automated

Share of jobs with high probability of automation, or a probability of significant change



Note: Task-based estimates are regarded as more precise, as they do not assume that all workers in a specific occupation carry out the same type of tasks. The task-based estimates are only available for countries participating in the OECD Survey of Adult Skills (PIAAC).
Source: Adapted from OECD (2020[5]), *OECD Economic Surveys: Thailand*, https://doi.org/10.1787/ad2e50fa-en.

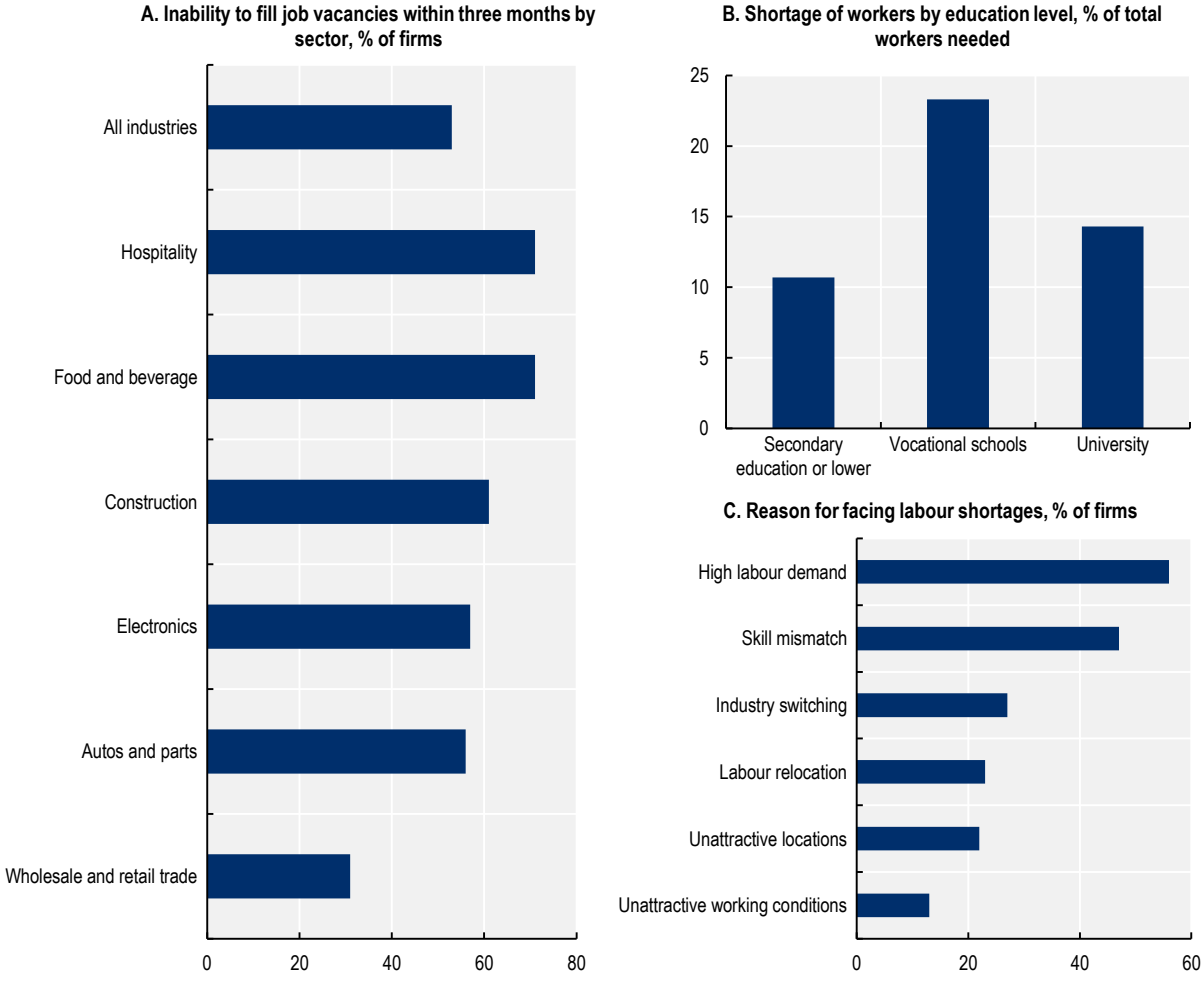
Imbalances between the supply and demand for skills can emerge in the form of 'skill shortages' – when adequate skills are hard-to-find in the current labour market – or in the form of 'skill surpluses' – when certain skills are in excess in the labour market relative to the demand (OECD, 2017[6]). In addition, imbalances also comprise skill mismatch when a workers' skills or qualifications exceed or fall short of those required for the job under current market conditions (OECD, 2017[6]; Shah and Burke, 2005[7]). Mismatch can be measured along different dimensions, including skills, qualifications and field of study. Imbalances have been found to have negative consequences for individuals, firms and the economy more broadly, through lower productivity, wages and job satisfaction.

Skills imbalances are common in Thailand

A common way to measure skills shortages is to ask employers about the difficulty they face in finding workers with the right skills to fill their vacancies. A survey conducted by SCB Economic Intelligence Centre among 222 firms in six key sectors in Thailand in 2014 showed that 53% of employers had difficulties filling job vacancies within three months (OECD, 2020[5]). These difficulties were faced by almost three in four firms in the hospitality and the food and beverage sector and around 60% of firms in the construction sector, while less than one in three firms in the wholesale and retail sector reported hiring difficulties. Moreover, the issue is most pressing for finding workers with vocational degrees. In this category, the shortfall is 23% of the total numbers of workers needed, meaning that for every 100 job openings for vocational graduates at a given time, only 77 recruits are available. This hiring gap is larger than for university graduates (14%) and for those with a high school education or less (11%). There are various reasons for why employers might not be able to fill their vacancies, with the most common reasons among Thai firms being high labour demand (56%) and mismatch between available skills and the skills they need (47%). Chalapati and Chalapati's (2020[8]) analysis of the skills system in Thailand confirms that the country does not have enough vocationally skilled workers, and that this has resulted in shortages in the labour market. The lack of relevant vocational skills was confirmed in interviews carried out by the OECD team with Thai government representatives, who highlighted shortage of skilled technicians and operators for the industrial sector that are partially the result of impractical VET programmes – despite efforts to update them.

Figure 3.2. Employers in Thailand face hiring difficulties

Based on survey responses from 222 employers in six key sectors (2014)



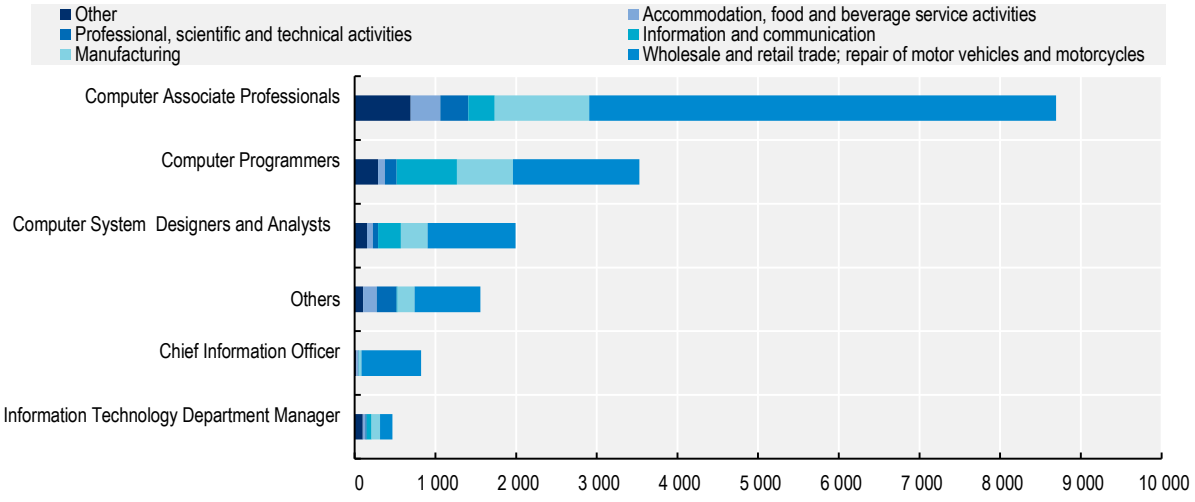
Note: Survey conducted in the first quarter of 2014.
Source: SCB Economic Intelligence Centre (2020[9]), *Insight – Bridging Thailand's Labour Gap*, https://www.scbeic.com/en/detail/file/product/1251/e22mxi3krw/ENG_labor_insight_Q1_2015.pdf.

One area in which many countries are facing shortages is digital skills, and this is also the case in Thailand. ILO (2019[10]) reports that the Thai labour market faces a shortage of highly-skilled ICT specialists, as well as semi-skilled ICT workers that provide support and maintenance for ICT services, including networks, servers, software packages and computer equipment. They attribute the shortage of semi-skilled workers largely to the low quality of vocational education available in Thailand. The 2019 establishment survey on the use of information and communication technology found that firms in Thailand had a need for just over 17 000 information and communication technology (ICT) workers (OECD, 2019[11]). The strongest demand was for ICT associate workers, accounting for just over half of positions, followed by programmers (21%). Officials from the Association of Thai ICT industry (ATCI) estimate that as many as 90% of the ICT graduates each year are unable to meet the basic qualifications for companies to even begin job-specific training, highlighting a massive problem of under-skilled graduates, and irrelevant and outdated curricula (Tan and Tang, 2016[12]). Moreover, a survey by IMC Institute in 2013 found that three quarters of the employers in the ICT sector described the lack of emerging ICT skills as the biggest challenge for the industry. Almost half of the respondents cited the lack of knowledge and training facilities as the reason

behind this skills gaps (Tan and Tang, 2016[12]). An employer survey carried out by the World Economic Forum in 2020 confirms the growing demand for ICT profiles and digital skills in Thailand (World Economic Forum, 2020[13]). The five job roles most frequently cited by Thai employers as being in high demand are: i) data analysist and scientists, ii) digital marketing and strategy specialists, and iii) big data specialists, iv) AI and machine learning specialists, and v) software and application developers. Likewise, many employers report technology-related skills as being in high demand, alongside certain transversal skills such as analytical thinking, complex problem solving and active learning. The demand for digital skills is likely to continue to grow in the coming years as employers increasingly adopt digital technologies in the workplace. The COVID-19 crisis already led to an increased demand for digital skills in the Thai labour market, resulting in shortages of such skills (see Box 3.1).

Figure 3.3. The number of openings for ICT-related roles is large

Number of workers needed by type of ICT job and industry



Source: National Statistics Office (2019[11]), The 2019 Establishment Survey on the Use of Information and Communication Technology.

Box 3.1. The impact of the COVID-19 pandemic on skills imbalances in the Thai labour market

The COVID-19 crisis had a significant impact on labour markets around the world, with certain sectors, such as the tourism and hospitality sector being strongly impacted by social distancing measures and travel restrictions. Recent analysis of job postings in OECD countries shows that the volume of job openings was still well below the pre-pandemic levels at the start of 2021, but also that there was significant heterogeneity between sectors and occupations. For example, while labour demand in accommodation and food services was 45% lower in December 2020 than the pre-pandemic level, in transport and storage services online job postings were 30% higher than in January 2020, and online job openings for hospital workers, employees of food retailers and warehouse personnel remained the same or increased compared to the pre-pandemic period.

While Thailand weathered the COVID-19 pandemic well compared to many other countries, the labour market was strongly affected. For example, the pandemic exacerbated already existing shortages in the Thai healthcare sector. At the height of the COVID-19 healthcare crisis, the Thailand Nursing and Midwifery Council called for 400 experienced nurses to take care of the growing number of patients.

According to the NESDC's Social Outlook for Thailand in the last quarter of 2020, employment in technology and digital enterprises has increased significantly during the COVID-19 crisis due to changing business models that have used more robots and artificial intelligence and the Internet. However, as the supply and upskilling/reskilling programmes for workers have not yet responded to the increased demand, this has resulted in labour shortages in high-tech and digital skills groups.

Other sectors are also facing shortages linked to the COVID-19 crisis. This is the case for example for the agricultural sector, which employs a large number of migrant workers (and was facing excess supply of skills before the crisis). With the COVID-19 outbreak and ensuing border closures in Thailand, many migrant workers left Thailand, resulting in labour shortages in the agricultural sector.

Other sectors are faced with excess supply of workers due to falling demand for goods and services. This is particularly the case for the tourism and hospitality sector in Thailand, which has been heavily impacted by lockdowns and the banned entry into Thailand by foreigners. The sector accounts for 9% of employment in Thailand, with many of the workers in this sector at risk of being out of work for extended periods. The number of foreigners visiting Thailand in 2020 fell to 6.7 million, down 83% from the previous year, according to data released by Thailand's Ministry of Tourism and Sports. At least 1 million workers in the country's hospitality sector have been laid off in 2020, according to the Thai Hotels Association.

Source: OECD (2020[5]), *OECD Economic Surveys: Thailand*, https://doi.org/10.1787/ad2e50fa-en; ILO (2020[14]), *COVID-19 and employment in the tourism sector: Impact and response in Asia and the Pacific*, https://www.unwto.org/unwto-tourism-; OECD (2021[15]), "Supporting jobs and companies: A bridge to the recovery phase", *OECD Policy Responses to Coronavirus (COVID-19)*, http://www.oecd.org/coronavirus/policy-responses/supporting-jobs-and-companies-a-bridge-to-the-recovery-phase-08962553 ; NESDC (2020[16]), *NESDC News: Thailand Social's Outlook of Q4/2020*, https://www.nesdc.go.th/nesdb_en/ewt_dl_link.php?nid=4450&filename=social_dev_report; NikkeiAsia (2021[17]), *COVID wave crushes Thailand's already hobbled tourism sector*, https://asia.nikkei.com/Business/Business-trends/COVID-wave-crushes-Thailand-s-already-hobbled-tourism-sector2.

Using data from the Thai Labour Force survey, the OECD Skills for Jobs indicators measure skills imbalances in Thailand in an internationally comparable way that allows for detailed results by occupation, sector and skill type (see Box 3.2 for details on the methodology). As Table 3.1 shows, shortages can be found across the skills spectrum in Thailand, including in high-skill occupations (Health Professionals, Legal, Social, Cultural and Related Associate Professionals, Business and Administration Professionals, ICT Professionals, Health Associate Professionals, Teaching Professionals), middle-skill occupations

(Metal, Machinery and Related Trades Workers, General and Keyboard Clerks), and low-to-middle skill occupations (Food Preparation Assistants, Protective Services Workers). A similar pattern can be seen at the sector level, with the largest shortages observed in the education sector, the health and social work sector, the mining and quarrying sector, the transportation and storage sector and the manufacturing sector. These imbalances could be the results of several factors, including an inadequate supply (e.g. few university graduates with specialisation in health care, few VET graduates specialised in metal and machinery operations), skills of graduates not matching employers' requirements (e.g. VET and tertiary education graduates from business and administration fields not having the knowledge and technical and soft skills needed for business and administration jobs), and the attractiveness of working conditions (e.g. food preparation assistant job offering low salaries and difficult work schedules). It is important to note that the data refers to the period before the COVID-19 crisis, and therefore reflects structural imbalances that are unrelated to this recent labour market shock (OECD, 2020[5]).

Table 3.1. Shortages in Thailand are found across the skills spectrum

Occupations facing the strongest shortage pressure	Sectors facing the strongest shortage pressure
Health Professionals	Education
Legal, Social, Cultural and Related Associate Professionals	Human Health and Social Work Activities
Food Preparation Assistants	Mining and Quarrying
Business and Administration Professionals	Transportation and Storage
Metal, Machinery and Related Trades Workers	Manufacturing
Information and Communications Technology Professionals	Administrative and Support Service Activities
General and Keyboard Clerks	Professional, Scientific and Technical Activities
Protective Services Workers	Other Service Activities
Health Associate Professionals	Financial and Insurance Activities
Teaching Professionals	Public administration and Defence; Compulsory Social Security

Note: Refers to 2-digit occupations in the ISCO-08 classification and 1-dgit sectors in the NACE rev.2 classification. Data refer to 2018 results. See Box 3.2 for details on the methodology.
Source: OECD (2021[18]), OECD Skills for Jobs Database, using Thai Labour Force Survey data (2011-2018), http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

The shortages observed at the occupational level translate into shortages of cognitive skills, such as mathematical reasoning, writing and reading comprehension, but also certain social skills, like service orientation, and technical skills (e.g. programming and technology design). The knowledge areas found to be most in shortage in Thailand are 'computers and electronics', 'clerical knowledge' and 'customer and personal service'. As Thailand continues to be exposed to global mega-trends, such as population ageing, globalisation and automation, shortages of high-level cognitive skills and social skills are likely to become even more pronounced, as is the case in many OECD countries today. Occupations that have a relatively low probability of change due to automation, which are generally the ones requiring high-level cognitive skills and/or social skills, are already more likely to be in shortage in many OECD countries. In the United States, employment growth has been strongest in jobs requiring high levels of both cognitive skills and social skills (Deming, 2017[19]). In OECD countries, the occupations that combine high cognitive skills requirements with social skill requirements are the ones that are facing the strongest shortages (OECD, 2020[5]; OECD, 2017[6]).

Box 3.2. The OECD Skills for Jobs Indicators

Shortages and surpluses

To analyse the degree of skill shortages and surpluses in countries' labour markets, the Skills for Jobs methodology uses five sub-indicators to extract signals of occupational shortage/surplus pressure: i) employment growth, ii) hours worked growth, iii) unemployment rate,[1] iv) change in the share of underqualified workers, and v) hourly wage growth. For each occupation, the long-run trends of these indicators are measured relative to the economy-wide trends. The five indicators are aggregated into a final occupational shortage index.

To get an understanding of the actual skills that are in shortage or surplus (rather than the occupations), the occupational shortage indicator is translated into a skill need indicator by using information on skills requirements by occupation (from the United States Department of Labor's O*NET database).[2] The final skills needs indicator shows the degree of shortage or surplus for a wide range of skills, abilities and knowledge types.

Qualification and field-of-study mismatch

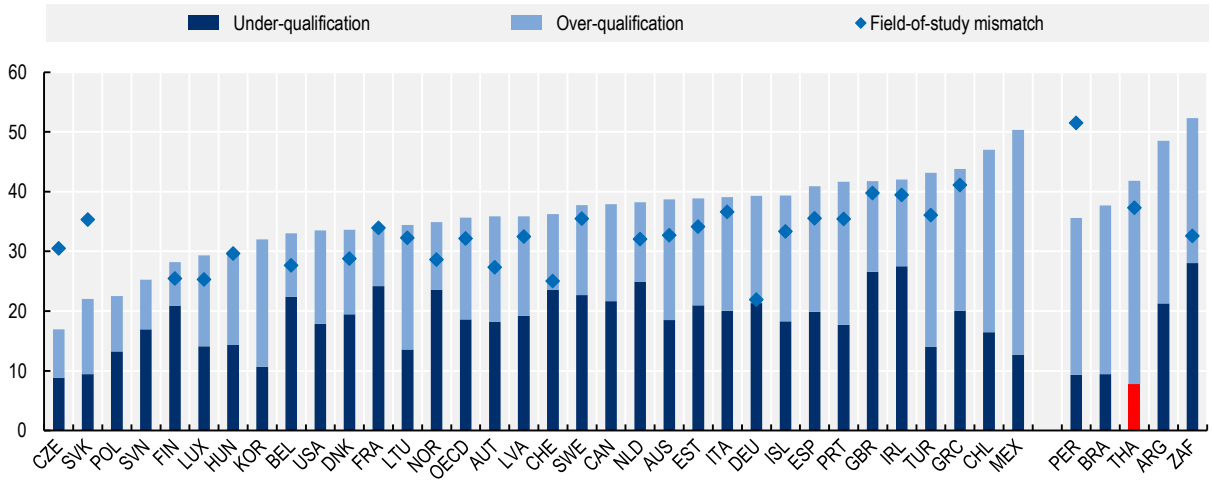
Qualification and field-of-study mismatch measure the misalignment between a workers' occupation and his/her qualification level and field of study, respectively. Workers are said to be underqualified when their highest educational attainment is below the usually observed qualification level in the worker's occupation. In the opposite case, when a worker's qualification level is above the standard qualification level in his/her occupation, this worker is overqualified. Similarly, a worker is mismatched in terms of field of study when the field of study of his/her highest attained qualification does not match with the field generally required in the worker's occupation.

1. The Thai Skills for Jobs analysis uses data from the Thai Labour Force Survey (2011-2018), and results for the occupational shortage index are based on four sub-indicators (as variations in the unemployment rate by occupation are too limited to extract meaningful signals about shortage and surplus).
2. The assumption is made that skill requirements by occupations are the same in Thailand as in the United States. While the cross-country validity of O*NET has been confirmed for a range of OECD countries, some concerns have been raised regarding the use of O*NET for lower-income countries.
Source: Adapted from OECD (2017[6]), *Getting Skills Right: Skills for Jobs Indicators*, https://dx.doi.org/10.1787/9789264277878-en.

Finally, in addition to substantial shortages, the Skills for Jobs data also show that the Thai labour market has a significant share of workers who are mismatched in their job in terms of qualification level and/or field. In 2018, 8% of workers were under-qualified for their occupation, meaning that they work in an occupation for which a higher level of qualification is normally required. An additional 34% were over-qualified, meaning that their education level is higher than what is generally required in the occupation they work in (Figure 3.4). This is quite different from the qualification mismatch pattern observed in OECD countries, where on average 19% of workers are under-qualified and 17% over-qualified. However, similar patterns as observed in Thailand can be found in Turkey, Peru and Brazil. The presence of over-qualification in the Thai workforce is consistent with the fact that employers mostly look for low to medium-skilled workers, while the education system is increasingly delivering tertiary educated graduates (see Chapter 2). Under-qualification, on the other hand, might reflect that employers have difficulties finding workers with the right qualification level and resort to hiring under-qualified workers. It should be noted, however, that under-qualified workers are not necessarily under-skilled for their jobs, as often workers acquire skills informally. As discussed in Chapter 2, a system of recognition of prior learning can help to certify these skills and make them more visible to employers (OECD, 2020[5]).

Figure 3.4. Many workers are employed in occupations that do not match their education

Share of workers mismatched by qualification level or field, 2018



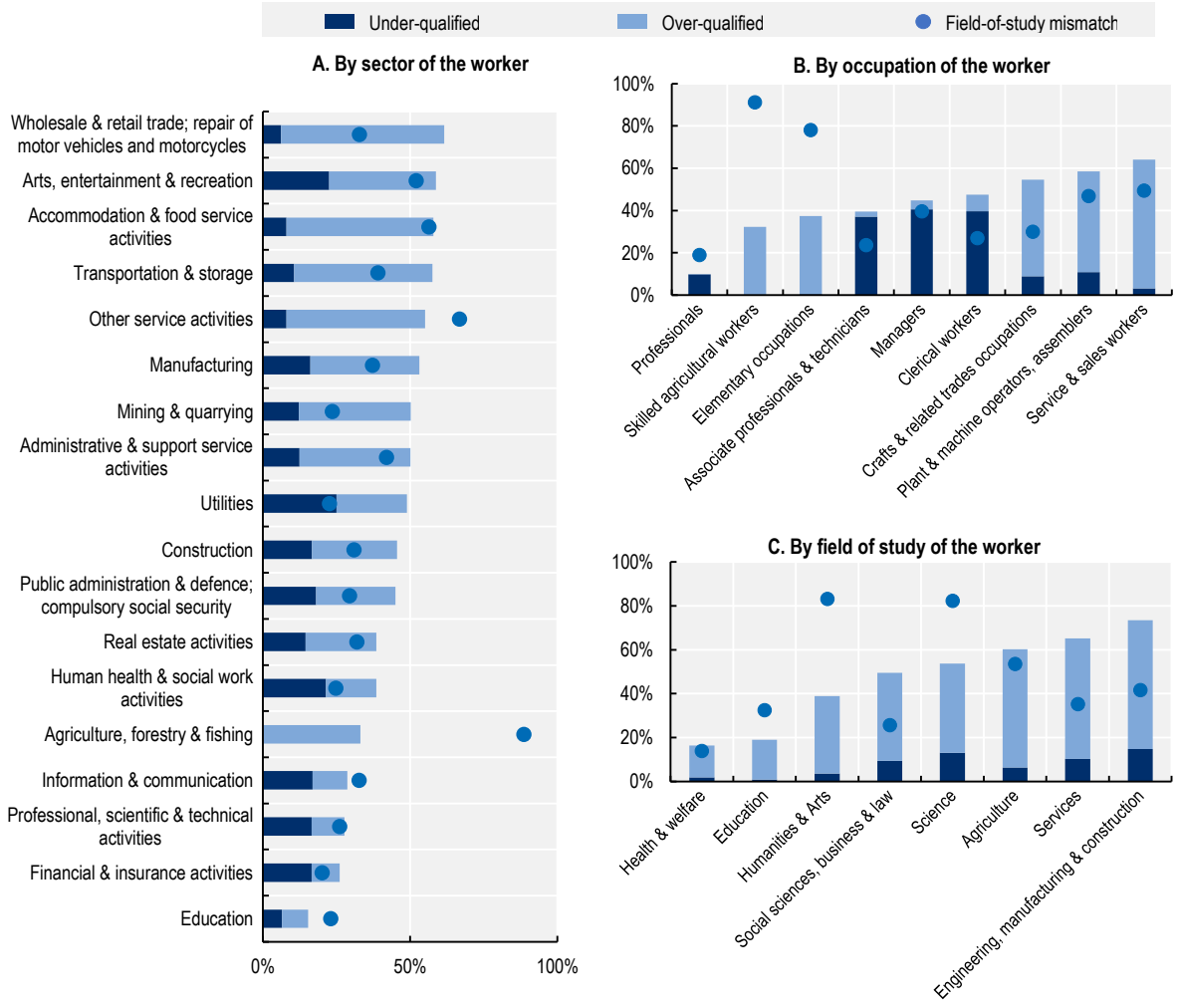
Note: Workers are mismatched by qualification level when their highest obtained qualification (primary education or below, lower-secondary education, upper secondary and post-secondary non-tertiary education, or tertiary education) is higher or lower than the one most commonly observed among workers in the occupation. Workers are mismatched by field of study when the field of their highest obtained qualification does not correspond to the field of their occupation. See Box 3.2 for details on the methodology.
Source: (OECD, 2021[18]) OECD Skills for Jobs Database, https://stats.oecd.org/Index.aspx?DataSetCode=SKILLS_2018_TOTAL; OECD (2020[5]), *OECD Economic Surveys: Thailand*, https://doi.org/10.1787/ad2e50fa-en.

Over-qualification is most common in Thailand among sales and service workers (61%), followed by Plant & Machine Operators and Assemblers (48%) and Crafts and related trades workers (46%) (see Figure 3.5). The industries with the largest shares of overqualified workers are the Wholesale and Retail industry (55%) and the Accommodation and Food Services industry (50%). By contrast, under-qualification is most common among managers (41%), clerical support workers (40%) and technicians and associate professionals (37%), and in the utilities sector (25%). Mismatch by qualification level is very uncommon in some occupations and industries: Only 10% of professionals and 15% of workers in the education sector are mismatched by qualification level. Workers who have vocational or tertiary degrees in the fields of engineering, manufacturing and construction and in services are most likely to end up working in an occupation that generally requires a lower-level qualification (59% and 55%, respectively, of workers are overqualified). Less than 20% of workers with a vocational or tertiary degree in health and welfare or in education are mismatched by qualification level.

When looking at the field of study rather than the level of education, 37% of Thai workers are mismatched, compared to 32% across OECD countries (Figure 3.4). Field-of-study mismatch is especially common among those who specialised in arts and humanities (83% not working in their field) or in science (82%), while it is least common among graduates in the area of health and welfare (14%). Workers with a vocational or tertiary degree who work in skilled agricultural jobs or in elementary occupations are mostly like to have specialised in a field unrelated to their job, while this is least likely for those working as professionals. Individuals might decide to work in a field that is unrelated to the one they studied for several reasons, including a lack of job opportunities in their own field and more attractive working conditions in other fields.

Figure 3.5. Over-qualification is most common in sales-related jobs

% of workers mismatched by qualification level or by field of study



Note: Includes all workers aged 16 to 64 who are not currently studying. Field-of-study mismatch refers only to workers with vocational or tertiary degrees. Results by field of study only include workers with vocational or tertiary degrees. See Box 3.2 for details on the methodology.
Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data (2011-2018), http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

VET provision is not always well aligned with the needs of the labour market

The above data on skills shortages and mismatch in the Thai labour market show that there is room to improve the alignment of skills demand and supply. VET can play a key role in this respect, as the data show substantial shortages in occupations and sectors for which VET degrees are generally required. This subsection zooms in on the alignment between VET and labour market needs.

VET graduates have relatively strong labour market outcomes

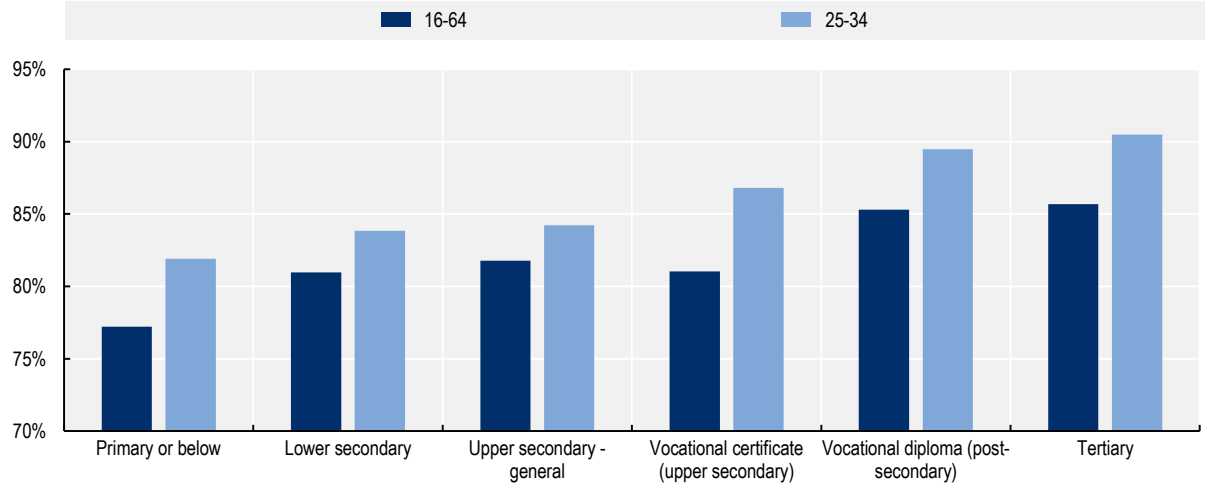
Employment rates in Thailand differ significantly between education levels (see Figure 3.6). Among adults aged 16-64 who are not in formal education, those with a tertiary education degree have an employment rate of 86%, while that of adults who completed at most primary education is only 77%. The employment

rate of adults with a vocational diploma (post-secondary) is almost as high as those with a tertiary education degree (85%). Adults with a vocational certificate (upper-secondary) have lower employment rates (81%) than those with a vocational diploma, and the employment rate of the former group is roughly equal to that of adults who have a general upper secondary education degree or only a lower secondary education degree. When looking only at the group of adults aged 25 to 34 (not in formal education), the pattern looks roughly the same, with the exception that the employment rate of those with a vocational certificate is higher than that of young adults with a general upper secondary education degree (87% vs. 84%). Hence, vocational diplomas give roughly the same access to paid employment than tertiary degree, while vocational certificates are associated with stronger employment outcomes than the general track in upper-secondary education.

When controlling for personal characteristics (age, marital status and gender) and region, the probability of being in employment is significantly higher for adults (aged 16-64 not in formal education) who have a vocational diploma (2 percentage points higher than those who completed at most at primary education) or a tertiary degree (6 percentage points) than those with lower education levels.

Figure 3.6. The employment rate of adults with a VET diploma is as high as among adults with a tertiary education qualification

Employment rate of adults not in formal education, by age (2018)



Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

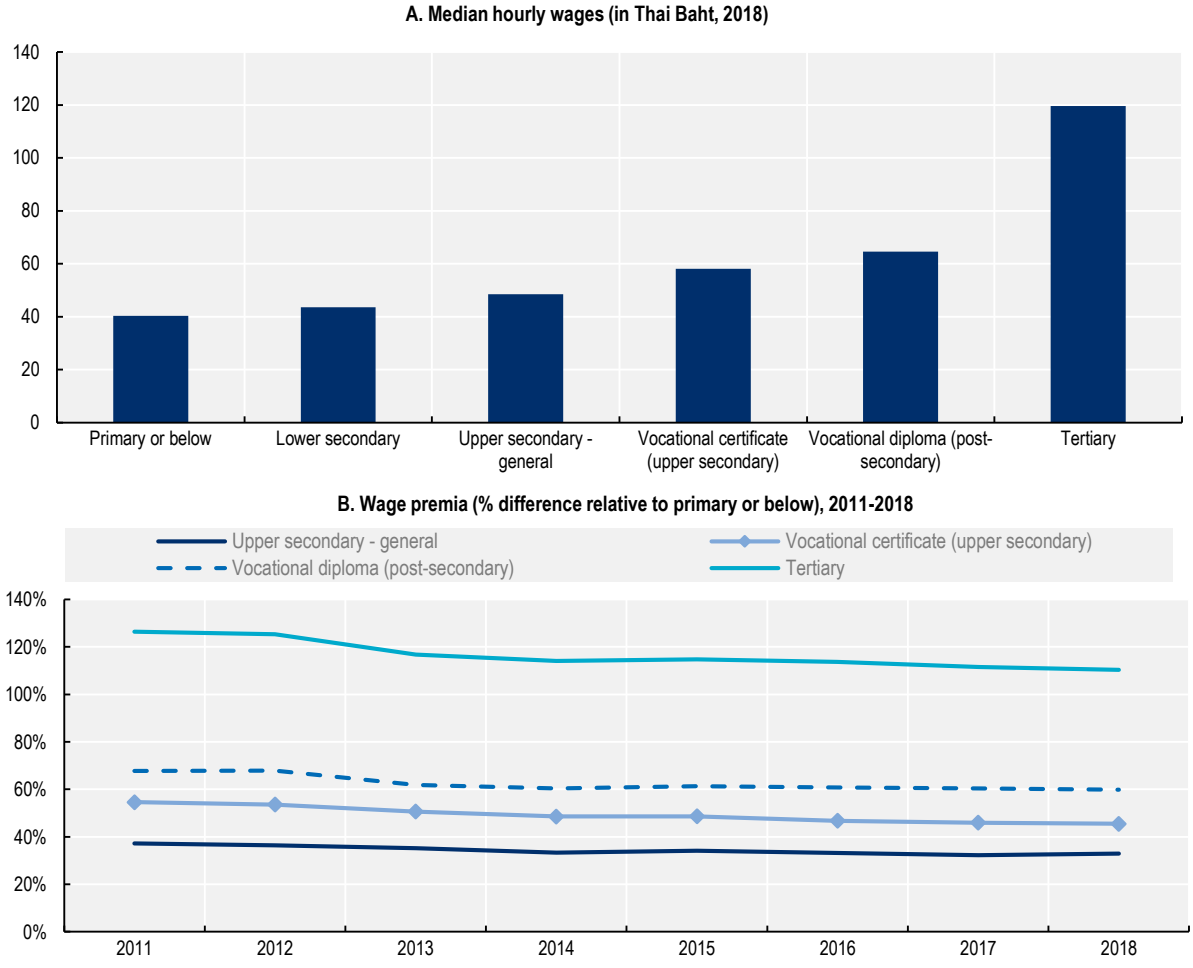
Not only the quantity of jobs matter, but also their quality. Wages are an important aspect of job quality, and data form the Thai labour force survey show that median hourly wages of workers with vocational certificates are higher than those of adults who have completed at most upper secondary general education (20% difference, see Panel A of Figure 3.7). Wages are higher for adults with a vocational diploma than those with a vocational certificate (11% difference). However, wages of tertiary educated workers are much higher, with a difference of 85% between tertiary educated workers and workers with a vocational diploma.

These raw wage differences could reflect differences in the composition of workers, for example in terms of age or gender. However, even when controlling for personal characteristics (age, gender, marital status) and region, differences remain substantial. Panel B of Figure 3.7 shows that –when accounting for these background differences- adults with a general education degree earn 33% more than adults who have completed at most elementary education. For adults with a vocational certificate and vocational diploma,

this wage premium amounts to 45% and 60%, respectively. The wage premium is even higher for tertiary educated workers, at 110%. Hence, these results show that participation in VET pays off –especially at the diploma level-, but also that the benefits are much lower than the benefits associated with obtaining a tertiary education qualification. However, when looking at the trend in wage premia, it is also evident that the gap between vocational qualifications and tertiary education has been on the decline. This is due to a falling wage premium for tertiary educated adults, which is likely a result of the oversupply of graduates – especially in certain fields-of-study for which the demand is low.

Figure 3.7. Vocationally degrees have higher wage returns than general upper secondary education, but lower than tertiary education

Median hourly wages and wage premia



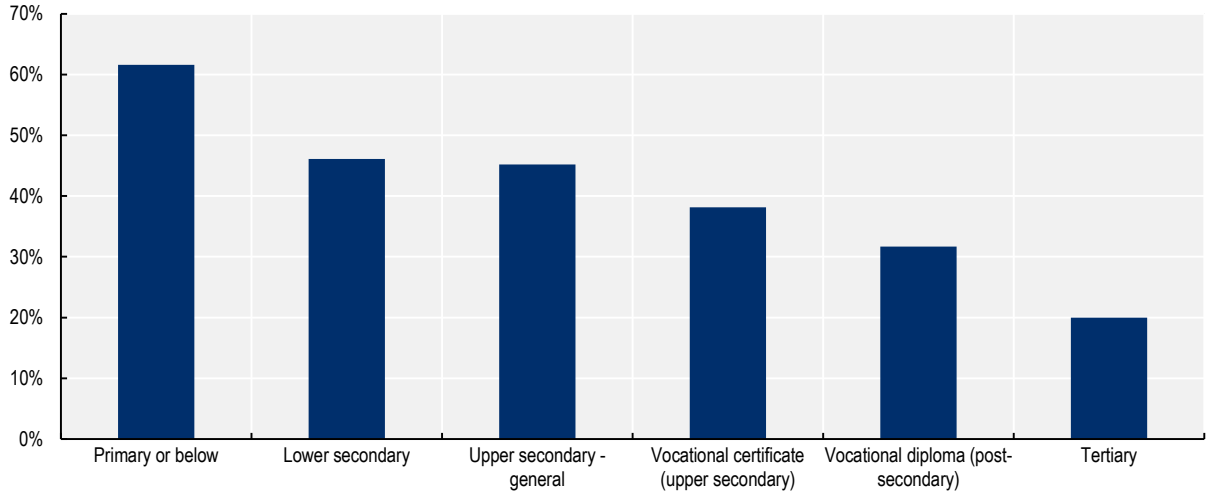
Note: The wage premia in Panel B are the coefficients of a regression of log hourly wages on education (dummies), age and age squared, gender, marital status and region (dummies). The coefficients show the percentage difference in hourly wage between workers with the respective education level and workers who have completed at most elementary education. The premium for lower secondary education is not shown here but is also statistically significant (22% in 2018). Hourly wages have been trimmed at the top and bottom 1%.
Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data (2011-2018), http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

These findings are consistent with earlier literature on wage returns to education in Thailand. Hawley (2003[21]) finds that an additional year of schooling provides an additional 11%–12% of monthly earnings for both men and women, but also that the impact of an additional year of schooling for urban residents is higher than for rural residents. Moreover, vocational secondary education is found to provide higher earnings returns than general secondary education (Hawley, 2003[21]; Moenjak and Worswick, 2003[22]). Likewise, Tangtipongkul (2015[23]) finds that that if students decide not to continue to higher education then vocational education attainment will give higher earnings than general education attainment. The results from that analysis also show that secondary vocational education attainment is about eight percentage points higher on private returns and five percentage points higher on social returns than secondary general education. However, a bachelor's degree is found to give the highest private and social returns among all education levels.

Another important aspect of job quality is whether one works in the formal or informal economy. As discussed in Chapter 1 and later in this chapter, Thailand has a relatively large informal economy. Moreover, data from the 2019 Thai informal employment survey show that the share of informal employment decreases with education, with 71% of workers who completed at most elementary education being in informal employment, compared to 54% of those with lower-secondary education, 46% of those with upper-secondary education, and 25% of those with tertiary education (Figure 3.8). While these data are not available by orientation of the programmes (i.e. vocational versus general), proxy measures allow to get a sense of the degree of informality among workers with vocational qualifications. According to data from the 2018 Thai Labour Force Survey, 38% of workers with a vocational certificate and 32% of adults with a vocational diploma are working as self-employed workers without employees or as unpaid family workers. This is lower than among workers with a general upper secondary degree (45%), but substantially higher than among tertiary educated workers (20%).

Figure 3.8. The probability of being in informal employment declines with education level

Share of workers who are self-employed without employees or unpaid family workers (2018)



Note: The Thai Labour Force Survey does not provide information on formal versus informal employment, and therefore a proxy measure had to be used. Using self-employed without employees and unpaid family work as a proxy for informal employment underestimates the true rate of informality. Data from the Survey on Informal Employment show, for example, that 71% of all workers with at most elementary education are in informal employment, compared to 62% in this chart (which only includes workers aged 15-64 who are not in formal education).
Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

VET outcomes differ by field of study

The overall labour market outcomes for adults with a vocational degree hide differences between the specialisation of their studies. As discussed in Chapter 1, the largest fields-of-study in VET in Thailand are industry and commerce/business. Data from the Thai Labour Force Survey show substantial differences in labour market outcomes between different fields of study (see Figure 3.9).[1] Employment rates are just below 80% for adults with vocational diplomas in the fields of services, while they are 90% for vocational diploma holders in engineering, manufacturing and construction and in agriculture. The employment rate of adults with a vocational certificate ranges between 73% in the field of social sciences, business and law, and 89% in the field of engineering, manufacturing and construction. Employment rates of diploma holders are very similar to those of adults with a tertiary degree in the field of engineering, manufacturing and construction, and diploma holders even have a higher employment rate than tertiary educated adults in the field of agriculture. In the field of "social sciences, business and law" –which is among the largest fields for VET students-, tertiary educated adults have better outcomes than adults with a VET degree. Certificate holders generally have lower employment rates than adults with a vocational diploma, except in services.

Likewise, wages differ between fields-of-study. The median wage of VET diploma holders specialised in the field of health and welfare is 33% higher than for those with a VET diploma in science or in services. Differences between fields are smaller for vocational certificate holders. Wages of tertiary education graduates are substantially higher in all fields. Informality also differs between fields-of-study, with workers specialised in health and welfare having the lowest share of informal employment at all education levels and workers specialised in agriculture having the highest informality rate. Informality is higher among certificate holders than diploma holders in all fields. Informality is lower for tertiary educated adults than those with a VET qualification in all fields, but the gap is largest in agriculture and services.

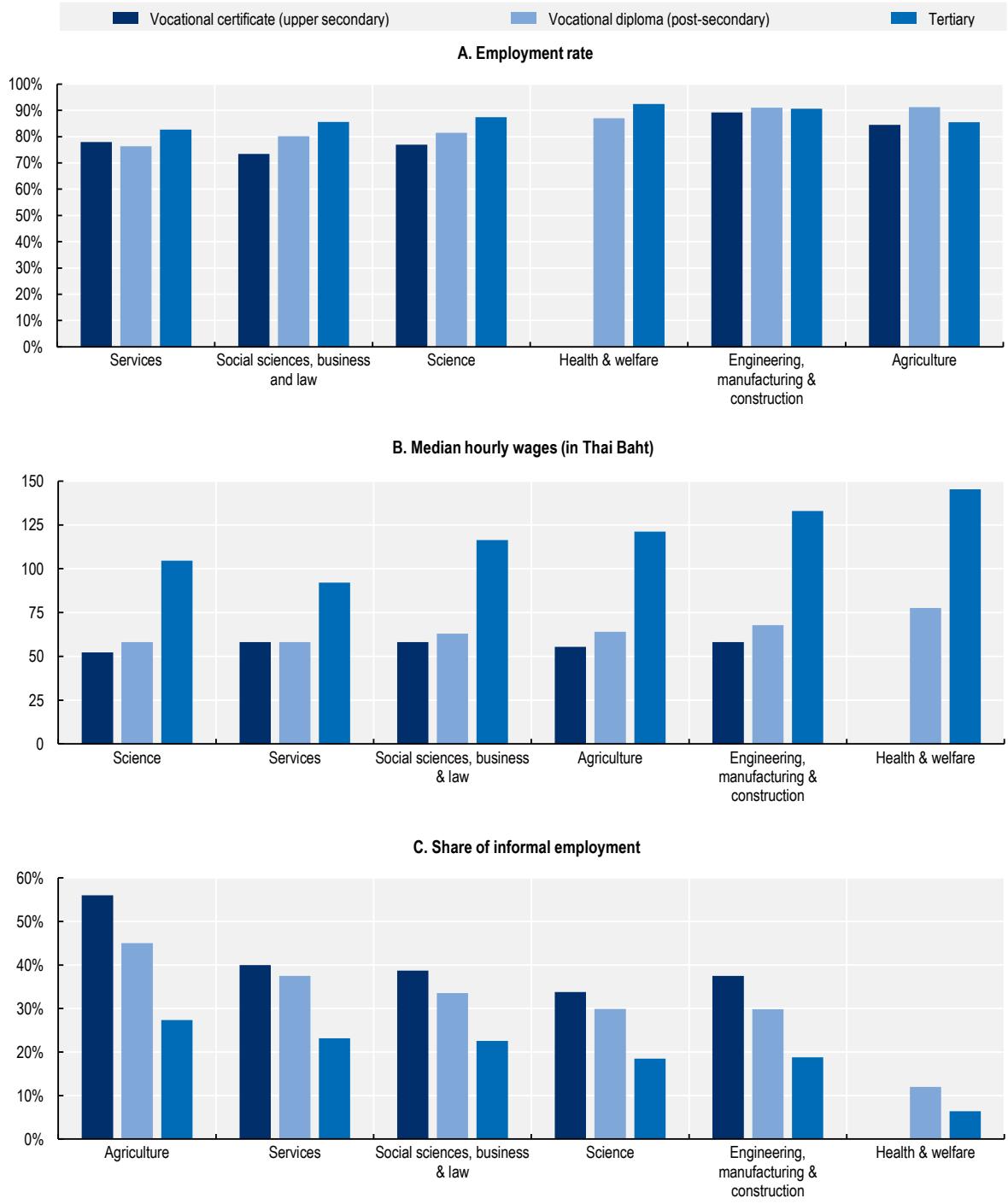
Taken together, these labour market indicators show that VET graduates in the fields of health and welfare (which is a very small VET field) and in the fields of engineering, manufacturing and construction have the best chances of securing high-quality jobs. Nonetheless, the gap between them and tertiary educated workers remains substantial, especially with respect to wages.

The mix of provision differs by region, but this does not always reflect labour market differences

As discussed in Chapter 2, participation in VET differ by region, and certain quality differences are visible, for example in terms of the availability of qualified teachers and of adequate teaching resources. Equally important as ensuring that those who want to participate in VET can do so and have access to high-quality teaching and learning, is to ensure that the types of programmes provided are aligned with the skill needs of the local area. In Thailand, the type of public VET institutions available varies by region, with especially Bangkok standing out (see Figure 3.10). While, in other regions, one in three public VET institutions are industrial and community education colleges, this is only 10% in Bangkok. By contrast, commercial, vocational and polytechnic colleges are relatively more common among public VET institutions in Bangkok than in other regions. Differences between the other regions are relatively small. The Northern and Southern region have relatively more colleges of agriculture and technology among their public VET institutions, while the Central and Northeast regions have more technical colleges in the mix. The types of institutions reflect the economic structure of the regions, with, for example, Bangkok being dominated by the service industry and certain other regions having a relatively large agricultural sector (e.g. the Southern region) (see Chapter 1). As mentioned in Chapter 2, private providers are more likely to be offering business and commerce programmes than more technical programmes.

Figure 3.9. Health and welfare and engineering, manufacturing and construction are the VET fields with the strongest labour market outcomes

Labour market outcomes of adults aged 16-64 who are not in formal education, by education level and field (2018)

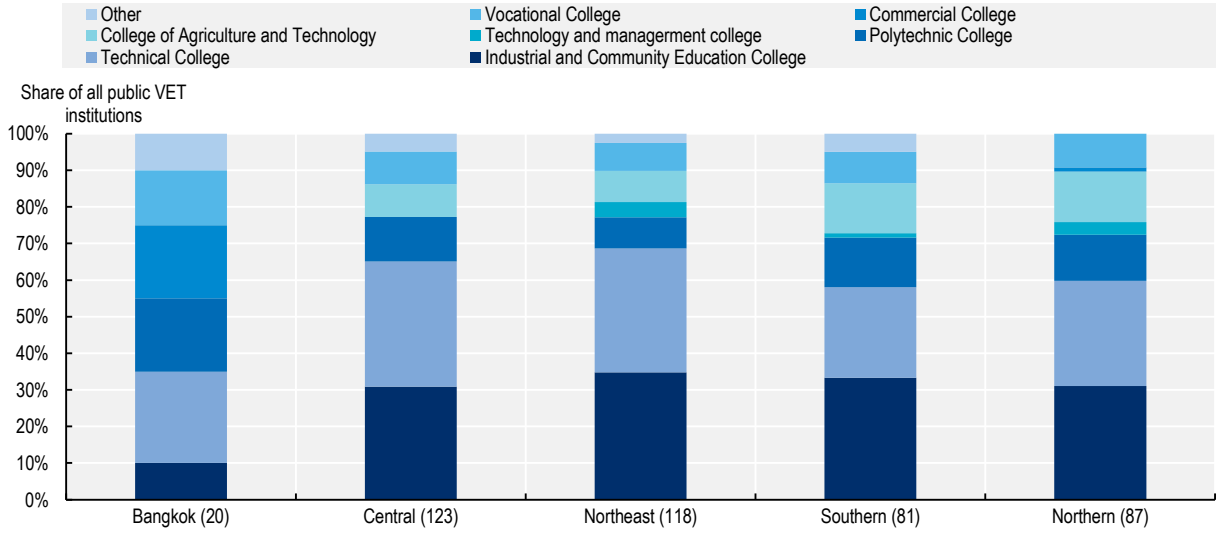


Note: Only sufficiently large fields-of-study for VET are included in these charts. Informal employment in Panel C proxied by self-employment without employees and unpaid family work, and therefore does not represent the full number of informal workers. Field of study is classified according to the 1997 ISCED classification.

Source: Authors' calculations using National Statistics Office (2020[20]), Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Figure 3.10. VET institutions in the Bangkok region have a different profile than those in other regions

Composition of public VET institutions under the responsibility of the OVEC



Note: Only includes public institutions that fall under the responsibility of the OVEC. The numbers in brackets refer to the number of public VET institutions in the region. The "Other" category includes all types of institutions for which there are less than five across the regions, i.e. Ship Building Industrial and Technology College, College of Skills Enhancement for Monks and Novices, Vocational College, College of Business Administration and Tourism, Fishery College, Arts and Crafts College, Golden Jubilee Royal Goldsmith College, Vocational Technology College of Science Database. The "College of Agriculture and Technology" category also includes the one "College of Agricultural Technology" in the Southern region.

Source: Authors' calculations based on Office of the Vocational Education Commission (2019[24]), Student data statistics for the year 2019, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2562&catid=173&Itemid=114.

Looking at fields of study of VET students in public institutions also shows some interesting regional differences (see Table 3.2). In all regions except Bangkok between 50 and 60% of students are in the industry field. In Bangkok the largest field is Commerce/Business, accounting for 45% of students. This field is also popular in other regions, accounting for between 25% and 30% of students. Bangkok also has a relatively large share of students in fine arts programmes (16%), while this is negligible in other regions. Difference between the other regions are relatively small, with the exception of the tourism field that is substantially larger in the Southern region (and the Central region to a lesser extent) and the home economics field that is larger in the Northern and Southern regions than in the Northeast and the Central region. The IT field is very small in all regions, in spite of the strong demand for ICT skills (as discussed above). Industry and commerce/business programmes are offered by the large majority of institutions in all regions (except for industry in the Bangkok region). For certain other fields the number of institutions providing them is relatively low, e.g. the tourism field in the Southern region (which has a large tourism sector) and the ICT field across all regions (for which there are many shortages, see above).

Table 3.2. The industry field attracts most students in all regions except Bangkok

Share of VET students and number of public VET institutions

	Northern	Southern	Northeast	Central region	Bangkok
A. share of students per field (%)					
Industry	58.5	51.6	58.9	58.0	28.3
Commerce/business	25.5	26.7	29.3	27.8	44.6
Fine Arts	1.6	1.1	0.8	2.2	15.8
Home Economics	4.6	5.7	2.3	2.9	4.3
Agriculture	5.4	3.5	4.7	2.5	0.0
Fishery	0.0	0.9	0.1	0.2	0.0
Tourism	2.5	8.3	2.3	4.8	6.3
ICT	1.9	2.1	1.6	1.5	0.7
B. Number of institutions offering certain fields					
Industry	69	61	102	101	9
Commerce/business	75	73	116	113	16
Fine Arts	10	6	14	25	6
Home Economics	25	25	31	28	4
Agriculture	12	13	14	14	0
Fishery	4	13	9	9	0
Tourism	25	38	44	61	8
ICT	26	20	39	31	6

Note: Only includes public institutions that fall under the responsibility of the OVEC. Fine arts also includes Entertainment and Music Industry.
Source: Authors' calculation based on Office of the Vocational Education Commission (2019[24]), Student data statistics for the year 2019, http://www.mis.moe.go.th/index.php?option=com_content&view=article&id=657:%E0%B8%9B%E0%B8%A3%E0%B8%B0%E0%B8%88%E0%B8%B3%E0%B8%9B%E0%B8%B5-2562&catid=173&Itemid=114.

Labour market outcomes of VET students also differ strongly between regions, reflecting the different economic structure of the regions (see Chapter 1) and potentially the mismatch between the programmes on offer (and their quality) and the needs of the labour market. Data from the Thai labour force survey show that employment rates are higher in all regions for adults with a vocational diploma than for adults with a vocational certificate (see Figure 3.11). The difference is particularly large in Bangkok (8 percentage points) and in the Northeast (5 percentage points). By contrast, in the South and North employment rates differ only by a few percentage points between these two types of vocational degrees. The Central region is the only region where adults with a vocational diploma have a higher employment rate than tertiary educated adults. Differences between general and vocational upper-secondary education are small in all regions except Bangkok, where the employment rate of adults with a general upper-secondary degree is almost 5 percentage points higher than that of adults with a vocational certificate.

Likewise, in all regions median wages of vocational diploma holders are higher than those of vocational certificate holders, with the gap ranging between 11% in the Southern region and 20% in Bangkok and the North. In all regions the median wage of adults with a general upper-secondary degree is lower than that of adults with a vocational degree at the same level (i.e. vocational certificate), and the difference is largest in Bangkok and the Central region. The wage gap between vocational qualifications and tertiary education is large in all regions, and especially so in the Northeast where the wages of adults with a tertiary degree are more than twice as high as wages of vocational diploma holders.

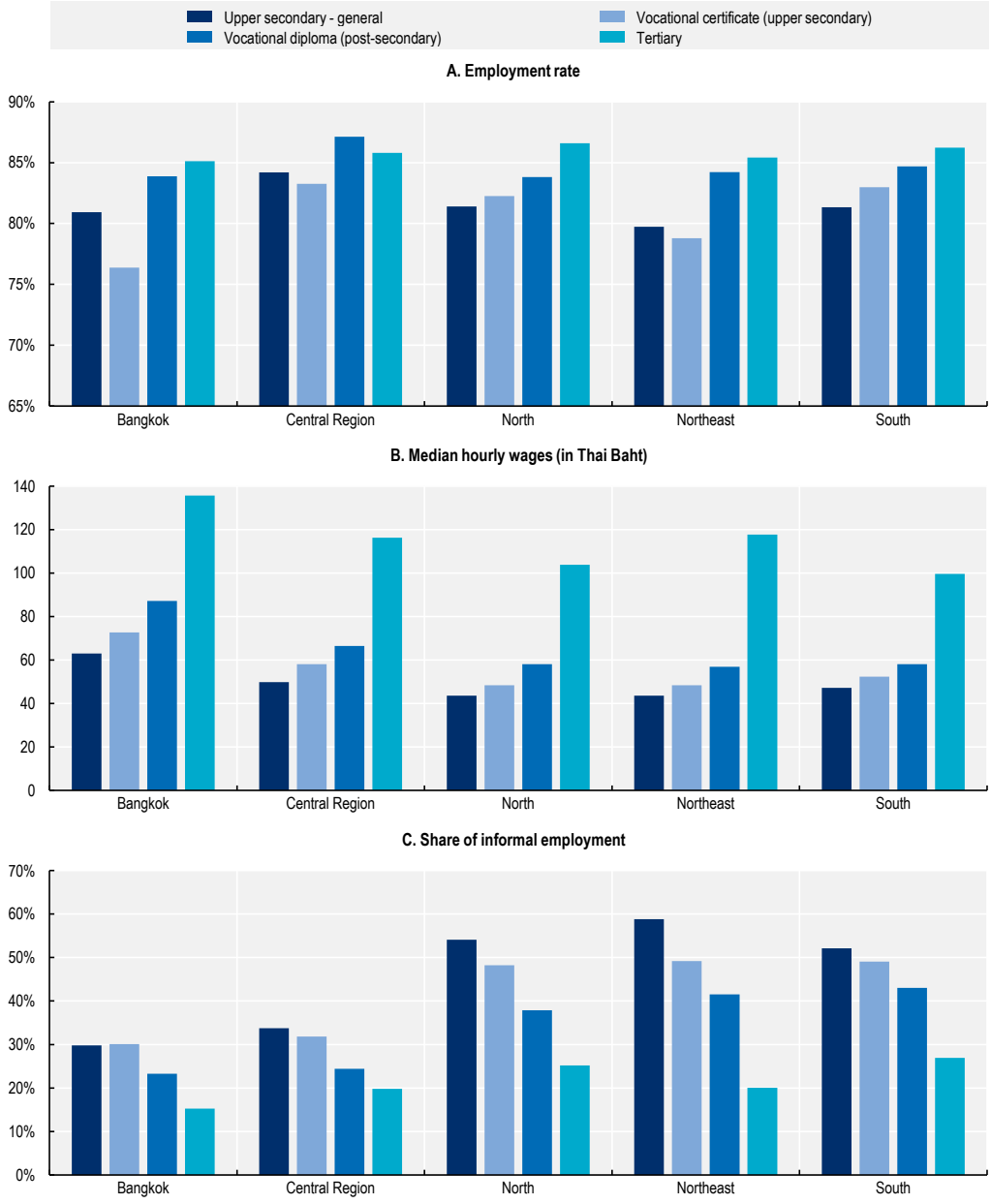
Finally, similar patterns are observed for informality. In all regions except Bangkok, adults with general upper-secondary education are more likely to be in informal employment than those with a vocational certificate. Informal employment is less common for vocational diploma holders than for those with a vocational certificate, with the difference being largest in the Northern region. Adults with tertiary

qualifications are even less likely to be in informal employment in all regions, and in the Northeast the gap between tertiary education and vocational diplomas amounts to 21 percentage points.

Overall, these results show that VET graduates do particularly well in the Central Region, and in Bangkok – albeit only for vocational diplomas. However, even in these regions the wages of adults with VET degrees are substantially lower than those of tertiary educated adults.

Figure 3.11. Labour market outcomes for VET are strongest in Bangkok and the Central Region

Labour market outcomes of adults aged 16-64 who are not in formal education, by education level and region (2018)



Note: Informal employment in Panel C proxied by self-employment without employees and unpaid family work, and therefore does not represent the full number of informal workers.
Source: Authors' calculations using National Statistics Office Thailand (2020[20]), Thai Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

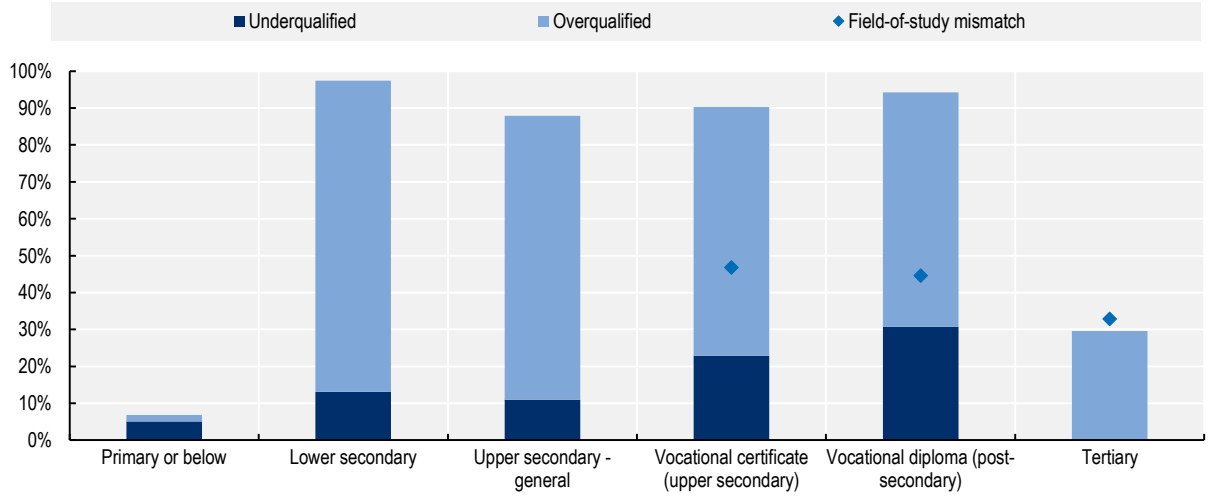
Many VET graduates end up in jobs unrelated to their field of study

As discussed above, mismatch is very common among Thai workers, both in terms of their education level and their education field. Looking at this specifically for adults with a VET degree, Figure 3.12 shows that adults who have a VET degree are more likely than those with a tertiary degree to be over-qualified for their job. While only 30% of workers with a tertiary degree work in occupations that generally require a lower level of education, this is the case for 63% of workers with a vocational diploma and 67% of workers with a vocational certificate. Compared to adults with an upper-secondary degree with general orientation and those with a lower secondary degree, those with a VET degree are less likely to be overqualified and more likely to be under-qualified. This shows that VET does help adults into higher-skilled jobs than general education at the upper-secondary level and lower levels of education, albeit it to a much more limited extent than tertiary education.

Workers with a VET degree are also more likely than those with a tertiary education degree to work in an occupation that is unrelated to their field of study: 45% and 47% of workers with a vocational certificate or a vocational diploma, respectively, are mismatched by field of study, compared to only 33% of workers with a tertiary education degree. This result is surprising, given that VET is mostly designed to immediately prepare students for the labour market.

Figure 3.12. Many adults with VET degrees are mismatched in their job

Percentage of workers mismatched by education level or field, by educational attainment (2018)



Note: Includes all workers aged 16 to 64 who are not currently studying. See Box 3.2 for details on the methodology.
Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

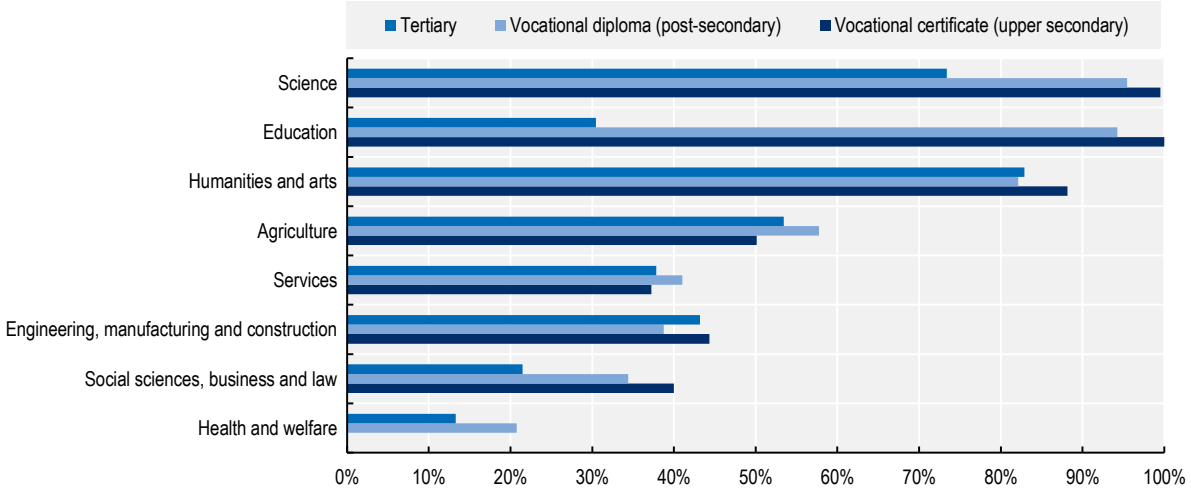
The likelihood of working in an occupation that does not match one's field of study is larger for some programmes than for others (see Figure 3.13). For example, in Thailand almost all adults with a VET degree in education and science work in occupations unrelated to those fields of study. For the field of education this reflects that it is a very small field in the VET sector and this field is mostly delivered at the tertiary level. Adults specialised in education at the tertiary level are relatively unlikely to work in jobs unrelated to the education field, with only 31% of them being mismatched by field of study. For science fields the picture looks different, as this is a relatively large field for VET – at least following the definition used in the Thai Labour Force Survey-, especially at the short cycle tertiary level, and also adults with a tertiary level science degree are likely to be mismatched by field of study (73%). This is surprising given

that the science field also includes computer sciences, and there is strong demand for ICT profiles in the Thai labour market. This could reflect that the skills of the computer science graduates –especially from VET programmes- do not match the needs of employers and/or that careers in ICT jobs are less attractive than other careers.

While having relatively low incidence of field-of-study mismatch, adults with a VET degree in social sciences, business or law are much more likely to be mismatched than adults with a tertiary degree in these fields. The same is true for the field of health and welfare, but this is a very small field in the VET sector.

Figure 3.13. Adults with VET degrees in education or science are very unlikely to end up working in jobs related to their field of study

Percentage of workers with field-of-study mismatch, by field of the highest degree of the worker

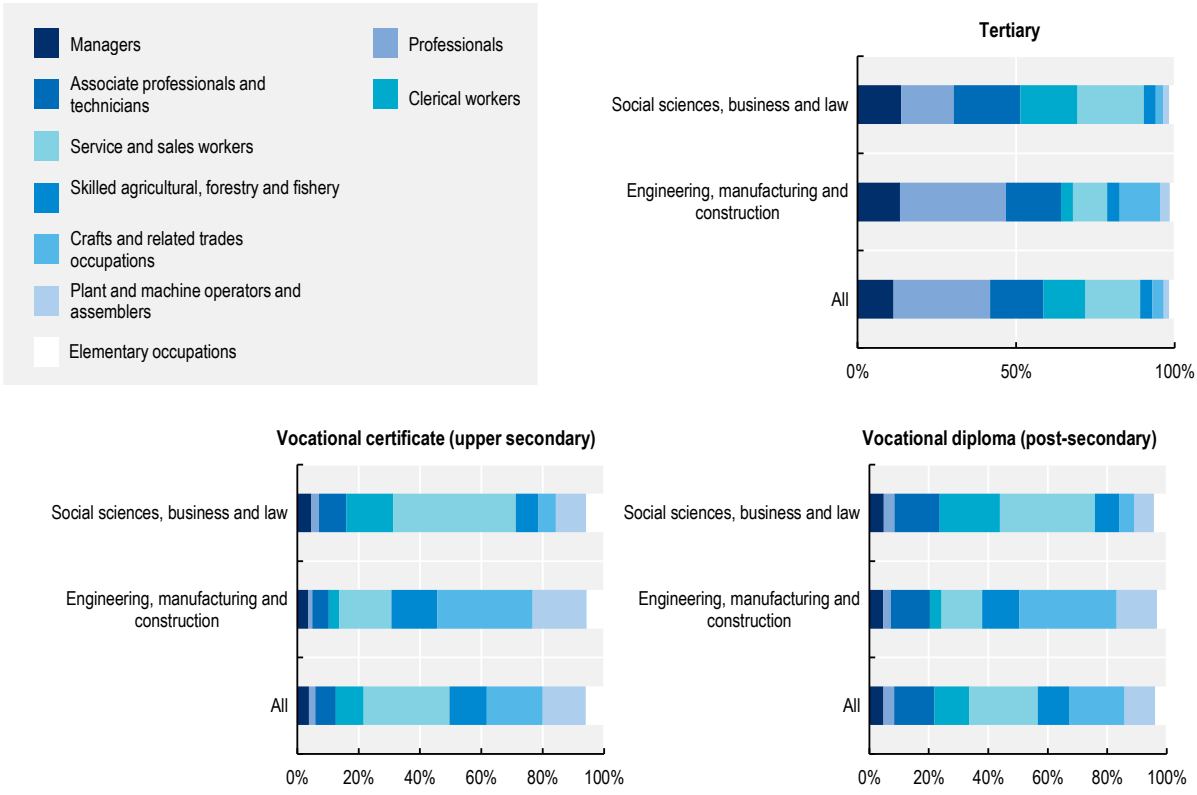


Note: Includes all workers aged 16 to 64 who are not currently studying. See Box 3.2 for details on the methodology. Field of study is classified according to the 1997 ISCED classification.
Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

To better understand where adults with a VET degree in a particular field end up, Figure 3.14 shows the distribution of workers over occupations for the two largest fields of study in VET. Almost half of adults with a VET degree (at both levels) with a specialisation in engineering, manufacturing and construction end up in crafts and related trades jobs or as plant and machine operators or assemblers, i.e. medium-skill technical occupations. Only 5% and 13% of adults with an upper secondary or short-cycle tertiary VET degree, respectively, work as associate professionals or technicians, i.e. the higher-skilled occupations often targeted by VET programmes. Around one-fifth of adults with VET degrees in engineering, manufacturing and construction work as clerical or sales and service workers. For the fields of social sciences, business and law, just over half of adults with a VET degree work in clerical or sales and service jobs. Given that this field encompasses many specialisations and sales and services jobs refer to a broad range of occupations, it is hard to assess to what extent these workers are mismatched or not.

Figure 3.14. Many adults with VET degrees work in sales and services jobs

Distribution of workers with a particular education level and field over occupations



Note: Includes all workers aged 16 to 64 who are not currently studying. See Box 3.2 f for details on the methodology. Field of study is classified according to the 1997 ISCED classification.
Source: Authors' calculations using National Statistics Office (2020[20]), Thai Labour Force Survey data, http://www.nso.go.th/sites/2014en/Pages/Statistical%20Themes/Population-Society/Labour/Labour-Force.aspx.

Using skills intelligence to inform VET policies

High-quality information on skills demand and supply can help designing responsive VET policies and programmes that support the Thai economy in getting access to workers with the right skills. This type of information can contribute to avoiding and tackling skills imbalances and to improving labour market outcomes of VET students. Countries differ widely in terms of methods used to identify their skill needs, but also in terms of the level at which these exercises are conducted and stakeholder involvement (OECD, 2016[25]). In general, an assessment of skill needs should build on a wide range information, including quantitative information from a variety of sources (e.g. labour force survey, employer surveys, vacancy data, graduate tracer surveys) and qualitative information gather from key stakeholders in the skills system. In Malaysia and South Africa, a broad set of indicators using data from a variety of sources is used to measure which occupations are in shortage or high demand (see Box 3.3). Regions and sectors can differ strongly in their skills needs, and therefore it can be useful to carry out assessment by region and/or by sector.

Box 3.3. Understanding occupational shortages

Malaysia

Since 2016, the Malaysian Critical Skills Monitoring Committee, comprised of the Institute for Labour Market Information and Analysis (part of the Ministry of Human Resources) and TalentCorp, publishes annually a list of Malaysian critical occupations. The occupations on the list are considered to face significant labour market shortages that could be alleviated through government interventions. The criteria for being included in the list are that the occupations are skilled, in high demand and are of strategic importance to economic development. To identify the occupational shortages, the Critical Skills Monitoring Committee combines a top-down quantitative analysis with bottom-up qualitative evidence from stakeholders. For the 2019/20 list, a set of 14 indicators were used looking at information on employment, wages, working hours, education levels, and vacancies. The bottom-up approach comprised a Call-for-Evidence survey of employers as well as focus group discussions and consultations with employers and industry associations. In addition to this, findings from sector-based Environmental Scan and other talents studies as well as examination of administrative data are also incorporated in qualitative analysis.

South Africa

In South Africa, the Department for Higher Education and Training publishes every other year a List of Occupations in High Demand. The list includes occupations that experience strong employment growth and/or face shortages in the labour market. To compile the list, a bottom-up quantitative component and a top-down qualitative component are combined. The quantitative part of the exercise uses nine indicators to measure employment pressure, wage pressure, vacancy pressure, and strategic demand by occupation. The quantitative evidence was cross-checked with qualitative inputs, such as for example the sectors skills plans developed by the Sector Education and Training Alliances. The 2020 List of Occupations in High Demand includes a total of 345 detailed occupations.

Source: DNA Economics (2020[26]), *The 2020 List of Occupations in High Demand: A Technical Report*. Critical Skills Monitoring Committee (2020[27]) *Critical Occupations List 2019/2020: Technical Report*, https://www.talentcorp.com.my/clients/TalentCorp_2016_7A6571AE-D9D0-4175-B35D-99EC514F2D24/contentms/img/TalentCorp_CriticalOccupationsList_TechReport_2019-2020_Final.pdf. OECD (2019[28]), *OECD Economic Surveys: Malaysia 2019*, https://dx.doi.org/10.1787/eaaa4190-en.

In countries, results from skills assessment and anticipation exercise have mainly been used by governments to update occupational standards; design or revise training policies for workers or the unemployed; design, revise or decide on the allocation of courses provided in formal education (especially VET programmes and apprenticeships, see Box 3.4 for examples from Australia and South Africa). In addition, some governments use this information to guide migration policy, as well as their transition to a digital or green economy. Social partners (employer organisations and trade unions) also use this information to lobby governments on education and employment policy, develop training programmes, or provide advice to their members on skill development. Both social partners and governments use the information for broad dissemination purposes to inform workers and students about trends in current or future skill demand and supply (OECD, 2016[25]). Despite some good practices in the use of skill assessment and anticipation information in countries, governments and social partners still face several barriers when it comes to using the available information. In general, the identified barriers are twofold: i) involving and co-ordinating with stakeholders; and ii) bringing the skills assessment and anticipation exercises closer to the needs and requirements of policy-makers (OECD, 2016[25]).

Box 3.4. Using skills intelligence to inform VET policies

Australia

In recognition that understanding where the jobs in demand are, and what skills are needed to do those jobs, is of crucial importance for building a strong economy for the future, Australia set up National Skills Commission in July 2020 to monitor, research and analyse employment dynamics across different demographic groups, industries, occupations and regions. The focus of the commission is on three long-term outcomes:

- To make an enduring and relevant contribution to labour market information.
- To improve the quality, accessibility and relevance of VET.
- To contribute to a labour market that effectively aligns skills needs with education and training.

The Commission's analyses provide students, industry and governments with more information than ever before about how effective courses – and the VET system overall – are at leading students into quality jobs in areas of skill demand. This information will help students make better choices about what to study and guide government decisions about where to invest public funds.

South Africa

The South African List of Occupations in High Demand (see Box 3.3) is designed to be used for enrolment planning at universities, TVET colleges and other education and training institutions; for the development of new qualifications, especially to respond to new and emerging occupations and skills needs; for resource allocation processes; and for career guidance for learners and jobseekers. For example, one of the objectives of the South African National Skills Fund is to fund 190 000 learners for education and training towards occupations featuring on the list of occupations in high demand over the period 2020-2025.

Source: Australian Government (2020[29]), *National Skills Commission*, https://www.nationalskillscommission.gov.au/. National Skills Fund (2020[30]), *National Skills Fund: Annual Performance Plan for 2020/21*, https://static.pmg.org.za/DHET_Addendum_to_the_NSF_AnnualPerformancePlan_2020-2021.pdf. Republic of South Africa (2020[31]), "National List of Occupations in High Demand: 2020", *Government Gazette*, Vol. Government Notices/No. 1272, https://www.dhet.gov.za/SiteAssets/Latest%20News/November%202020/Gazette-%202020%20National%20List%20of%20Occupations%20in%20High%20Demand.pdf.

In Thailand, a data-driven analysis of skill needs does not seem to be carried out in a regular and holistic way. Several analyses have been done for specific sectors or regions (e.g. for the new S-curve industries and for the Eastern Economic Corridor). Every few years, the National Statistics office carries out an employer survey to understand labour demand (the latest one dates back to 2013). Finally, on a monthly basis, information is provided about vacancies and jobs fulfilled by industry, occupation and province. Taking stock of these exercises and facilitating knowledge sharing between the actors involved, could foster better collection and use of skill needs information in Thailand, including for VET policy-making (OECD, 2020[5]).

As discussed above, information about labour market outcomes of VET students provide interesting insights that can be used in VET policy-making. To gather more detailed information on the labour market outcomes of VET students, a tracer study can be put into place. Such a tracer study allows following VET graduates in the labour market or further education at different points after graduation. Information can be collected on the time needed to find a job, characteristics of the jobs (e.g. occupation, tasks, wages, working time arrangements), reasons for working in jobs outside of one's field etc. Moreover, if these tracer studies collect detailed information about the type of VET training the graduate went through (e.g. dual programmes, other forms of work-based learning, detailed field of study, private versus public institutions), it is also possible to compare outcomes by types of VET provision. This type of information can be used to improve the quality of VET and to align programmes better with the needs of the labour market (OECD, 2020[5]). Box 3.5 provides more details and examples of tracer surveys.

Box 3.5. Tracer surveys in VET

The purpose and design of tracer surveys

Tracer studies are widespread in higher education but also often employed in the VET sector. Research from the European Commission shows that 19 member states (out of a total of 28 member states at the time of the analysis) have implemented at least one tracer study on a regular basis. Moreover, tracking is a legal obligation in Estonia, Finland, Portugal and Sweden. Tracer studies can be the responsibility of national-level institutions or of VET providers.

Programmes or projects seeking reform of VET, which try to improve skills match and the transition from school to work, use data from tracer studies to measure their effectiveness. Education institutions are also increasingly interested in feedback from their former students to improve their study programmes, and to show new applicants how their graduates have managed the transition to employment. Graduates are usually invited to provide feedback about their experiences on the labour market one to two years after graduation. The information required from the graduates commonly includes:

- duration of search for the first job; methods of job search
- employment status at the time of the survey (about one to two years after graduation)
- income level
- working time; type of contract
- job title; economic sector (private or public); economic branch
- required knowledge and skills (competencies)
- relationships between study and work (horizontal and vertical match)
- further education and training
- regional and international mobility
- personal background characteristics.

Sometimes this core information from graduates is supplemented with aspects of educational experiences before and during the course of study/training, such as the knowledge and skills gained, practical and work experience, evaluation of the study conditions and provisions. Such information is especially useful if the tracer study is to allow conclusions about the relevance of elements of education/training (such as the curriculum) to the labour market.

The Study on the Employment of VET Graduates in the Philippines

In the Philippines, the Technical Education and Skills Development Authority (TESDA) runs annually a study on the employment of VET graduates, which is a tracer survey of recent VET graduates. The survey includes questions on the profile of the graduate; training, competency assessment and certification; and employment status of graduate before training, after training and at the time of the survey. The survey intends to assess the efficiency and effectiveness of VET provisions based on the employment outcomes of its graduates. Results of the study also serve as a feedback mechanism on the implementation of VET programmes and policies. Likewise, findings from the study are important inputs in the formulation of new policies or in the review or amendment of existing ones.

Source: ETF, ILO and Cefefop (2016[32]) Carrying out tracer studies: Guide to anticipating and matching skills and jobs - Volume 6, https://www.etf.europa.eu/sites/default/files/m/45A4CE81F3398029C1258048005BEFB8_Vol.%206%20Carrying%20out%20tracer%20studies.pdf. TESDA (2019[33]) *Study on the Employment of TVET Graduates - full report*, https://tesda.gov.ph/Uploads/File/Researches/2019_SETG_Final%20Report.pdf ; European Commission (2018[34]) *Mapping of VET graduate tracking measures in EU Member States*, https://op.europa.eu/en/publication-detail/-/publication/00d61a86-48fc-11e8-be1d-01aa75ed71a1#document-info.

Engaging stakeholders in the design and delivery of VET

All VET systems need mechanisms to make sure that the number of people trained in different occupations matches labour market needs– and, within each field, that the mix of specific and general skills is aligned with skill requirements in the related sectors and occupations in the labour market. One important strategy for creating responsive VET systems that contribute to aligning the demand and supply of skills is to involve employers and trade unions in different aspects of VET (OECD, 2010[35]). Thailand's VET system, as in many other countries, suffers from weak partnership with labour market actors – employers more specifically. This leaves the vocational system less equipped to respond to the requirements of the economy and less able to support the transition of young people into good jobs by equipping them with relevant skills. Ensuring a strong involvement of social partners in determining VET policy and provision, either through consultation or directly within decision-making processes, characterises effective VET because it helps ensure that the design and delivery of provision reflects both labour market demand and the competing needs to be attractive to employers, prospective learners and to society (OECD, 2010[35]; OECD, 2014[36]). Countries should construct effective mechanisms to involve social partners at each governance level where VET policy is being determined (Bergseng, 2019[37]).

Complex governance arrangements in VET hinder social partner involvement

The governance of the VET system is complex and fragmented

The governance of a VET system relates to the structure of VET, how it is operated and financed, as well as the system of quality assurance which underpins it. Governance is defined as the formal and informal arrangements that determine how decisions relating to provision are made, who makes them and on what basis. Effective VET systems are based upon governance mechanisms that carefully balance multiple interests. There is not one right form of governance model for education or for VET that can be implemented across all countries. Successful models can be substantially different and still lead to good outcomes (Bergseng, 2019[37]).

As discussed in Chapter 1, the Ministry of Education is responsible for formal VET programmes in Thailand. VET institutions are managed by the Office of the Vocational Education Commission (OVEC) – under the Ministry of Education (UNESCO-UNEVOC, 2015[38]). In addition, the OVEC shares these responsibilities with many different actors, such as Ministry of Higher Education, Science, Research and Innovation (MHESI), Department of Skill Development (DSD), Ministry of Labour (MoL), Thailand Professional Qualification Institute (TPQI), Office of National Education Standards and Quality Assessment (ONESQA), but also actors from the industrial and business sector, such as Federation of Thai Industries, Thai Chamber of Commerce, and Tourism Council of Thailand (Office of the Educational Council, 2020[39]). For example, the Ministry of Transport has its own VET programmes in the field of logistics and transport; and the Ministry of Tourism and Sports designs and delivers VET programmes for tour guides and hotel and hospitality personnel (Ministry of Labour, 2020[40]). Such a division of responsibilities for VET leads to uncoordinated governance and a system that is difficult to navigate for students and inhibits social partner engagement, with implications for the quality and attractiveness of the provision (as also discussed in Chapter 2). In many countries, there are some steering structures to support the governance of the VET system (see Box 3.6 for an example of stakeholder engagement in Switzerland).

Box 3.6. Stakeholder engagement in Switzerland

The involvement of professional organisations in VET policy making is required by law in Switzerland. The term "professional organisations" in Switzerland refers to trade associations, employer associations and trade unions, and includes both companies and business professionals.

Professional organisations have the leading role in the content and examination process of both secondary and postsecondary VET programmes (in Switzerland postsecondary VET is referred to as "professional education and training", PET). Professional organisations in postsecondary VET, as in secondary level VET, draft core curricula for PET college degree programmes, which are then approved by the Swiss authorities (Confederation). National examinations leading to a federal diploma are also led by professional organisations. They ensure those federal PET diplomas are relevant to the needs of the profession and the labour market. Professional organisations draft examination rules, which cover admission requirements, occupational profiles, the knowledge and skills to be acquired, qualification procedures and the legally protected title. They also conduct examinations. The role of Swiss authorities (at Confederation level) includes approving examination rules, supervising examinations and issuing federal diplomas.

Source: Fazekas and Field (2013[41]) *A Skills beyond School Review of Switzerland*, https://dx.doi.org/10.1787/9789264062665-en.

There has been a trend in Thailand, as in many other countries, to increase local autonomy in the organisation of the education system, including in VET. OVEC has recently decentralised governance arrangement by establishing the centre for promotion and development of vocational education in five regions, to promote the academic development, and the Provincial Vocational Education Service Area in five regions, to link with the groups of vocational schools at the provincial level (Office of the Vocational Education Commission, 2020[42]).There are also 77 provincial VET committees organised by the colleges. But it seems that this might have contributed to a lack of coherence and cooperation in VET policies, especially since it did not always go hand-in-hand with capacity building. In such cases, an overarching steering body for the VET system would enhance the coherency, and consequently the quality, of the VET provision.

Efforts are being made to strengthen collaboration with private sector stakeholders

Stakeholders and observers of the Thai VET system have shared concerns about the lack of industry involvement in the design and the steering of VET programmes, and in its funding. Some companies, such as 7 Eleven, prefer to set up their own education and training facilities (Chalapati and Chalapati, 2020[8]).

Recent efforts in Thailand have aimed at strengthening cooperation with industry for a better matching of VET provision with labour market needs. The TPQI (Thailand Professional Qualification Institute) has developed occupational standards in 52 sectors and 835 occupations, accounting for 2 174 qualifications, together with the Ministry of Education, OVEC, TPQI (Thailand Professional Qualification Institute), DSD (Department of Skills Development) and the Office of the Education Council, and in link with the ASEAN Qualifications referencing Framework. Those standards typically include skill sets in digital literacy, English proficiency and e-commerce and production management. OVEC is working with TPQI to integrate those standards into existing VET curriculum. By the end of 2021, it is expected that at least 25 areas of occupational curriculum offered in 120 colleges will have been reviewed and revised according occupational standards of TPQI and DSD. Moreover, twenty-five networks of colleges that offer programmes in the same fields were created, to share resources and develop learning communities and to better collaborate with the industry (TPQI, 2021[43]).

The Ministry of Education and the Ministry of Labour each have their own system to engage stakeholders, which in itself reflects the issues regarding lack of co-ordination and fragmentation. Within the Ministry of Education, a national Joint Public and Private Committee for Vocational Education (PPC for VE) was established in 2014. PPC for VE committees comprise industrial representatives, education leaders, teachers, and representatives from related agencies and organisations (skills standards agencies, universities, employer associations such as the Federation of Thai Industry and the Chamber of Commerce). Together 33 occupational cluster steering committees were created, chaired by an industry representative, in sectors such as automotive, electronics and electricity, ICT, logistics, food moulding, tourism, petroleum and petrochemical (see Box 3.7 for a description of the main objectives of these subcommittees).

Box 3.7. Sectoral committees in Thailand

Joint Public and Private Committee for Vocational Education (PPC for VE) were established in 2014. PPC for VE committees comprise industrial representatives, education leaders, teachers, and representatives from related agencies and organisations. Together 33 occupational cluster steering committees were created, chaired by an industry representative, in sectors such as automotive, electronics and electricity, ICT, logistics, food moulding, tourism, petroleum and petrochemical.

The main objectives of the clusters are to develop twelve operational frameworks:

1. analysis of VET labour demand
2. analysis of VET labour supply
3. identifying competency standards
4. curriculum improvement
5. selection and implementation of competency-based curricula in pilot institutions and provision of dual vocational education or apprenticeships
6. training of teachers and trainers in companies
7. development of learning and teaching media and equipment
8. improvement of the learning environment
9. strengthening, testing and assessing the system
10. monitoring and evaluation
11. testing occupational standards
12. promotion of work placement and career path development.

The committees contributed to improve the quality of VET, especially in terms of identification of demand, competency standards for curriculum development, workplace learning experience of teachers, and apprenticeship programmes. However, PPC for VE committees are not involved in budget decisions.

Source: Goncalves (2019[44]), *Financing TVET: A Comparative Analysis in Six Asian Countries*, Agence Française de Développement, https://www.afd.fr/en/ressources/financing-tvet-comparative-analysis-six-asian-countries.

Within the Ministry of Labour, DSD has put its effort in extending skill development networks through the memorandum of understandings in various fields with its potential partners, both public and private. At the national level, there is a National Skill Development and Vocational Training Coordination Board (NVBTC) which is a national bipartite mechanism consisting of representatives from both public and private sector, having the deputy prime minister as a chair of the board. The main function of this Board is to provide recommendations on human resource development at the national level and to set up a master plan on

skill development. At the regional level, there is a similar board to the NVBTC known as Provincial Skill Development and Vocational Training Coordination Sub-committee (PBVTC) whose primary roles are to regulate and carry out workforce development activities at provincial level and to give advice to other related agencies in the province on human resource development (Ministry of Labour, 2020[40]). However, neither provinces nor vocational institutions enjoy particular freedom in adapting the content of VET programmes to the local economy – with few exceptions (OECD, 2019[11]).

A balanced VET system should reflect the interest of all the stakeholders

In responsive VET systems, vocational provision rests on a systematic assessment of employer needs, now and in the future. However, if provision is determined exclusively on the basis of employers' views, some risks emerge. Employers may want very narrow skills in occupational niches, or skills for declining industries and for low quality jobs, or they may want an oversupply of skills to drive down wages in the associated occupations. Industries in structural decline may also complain of skills shortages because they cannot attract workers into low wage positions with few obvious career prospects. In the latter case, adjustments to the vocational training system will not solve these problems. Therefore employer demands need to be kept in balance with the interests of society at large, including the interests of the student (OECD, 2010[35]). Negotiating VET provision with both employers and unions provides valuable information to governments seeking to ensure the design of VET qualifications meets labour market needs while remaining attractive to learners. Effective engagement will ensure that the interests of a professional sector outweigh those of individual employers. The role of the trade unions is also important, because they can balance, for example, the tendency of employers to focus too much on short-term firm-specific skills and excessively long apprenticeships which reduce employer costs (Bergseng, 2019[37]; OECD, 2010[35]; OECD, 2018[45]). Across the OECD countries, the engagement of social partners varies from purely advisory to decision making. For example in some countries with apprenticeship systems, such as Denmark and Norway, social partners can decide on the content of the programmes (Kuczera and Jeon, 2019[46]).

Achieving the ideal balance of responsibilities between actors from the education system and actors from the employment system on decisions related to all processes of VET, from curriculum design through application and updating, can be challenging. The skills provided by VET programmes benefit employers directly. The distribution of benefits will depend on the mix of skills being learnt – for example skills specific to an industrial sector yield benefits to that sector. The distribution of benefits should ideally be reflected in the distribution of funding responsibilities so as to provide the right incentives for optimal skills provision. In response to these shared benefits, a variety of funding models have emerged, involving some sharing of the costs of provision between government, student, and employer. Some contributions will be in kind, for example in terms of the time and facilities contributed by employers to workplace training (OECD, 2010[35]). However, there is an asymmetry in the information and resources available to educators and employers (Renold et al., 2018[47]), which complicates setting up fair funding mechanisms.

A study of governance systems in relatively high-performing VET systems in Germany, Switzerland, Denmark, the Netherlands and Austria, Emmenegger, Graf and Trampusch (2018[48]) identified six core areas of decision-making in VET: i) system development, ii) content definition, iii) matching the demand and supply, iv) organisation of the training, v) financing, and vi) monitoring, examination and certification. Understanding who does what in these areas and which stakeholders to involve and how to do that, can guide Thailand in reviewing its governance arrangement.

Responsiveness at the regional and local level is important

Bodies involving social partners to steer the system can be established nationally, regionally, according to economic sectors, or even at the level of individual institutions (OECD, 2010[35]). In Thailand, although sectoral co-operation is possible, for example through the occupational cluster steering committees

mentioned before, decentralised co-operation between social partners and authorities is very limited. This is a matter of concern, as the demands of different economic sectors for skills vary significantly across regions (see Chapter 1 and above). Co-operation between social partners and VET schools is not institutionalised and varies considerably. While schools and employers collaborate on work-based placements for students, and schools are expected to have a good understanding of employer needs, provision is distorted by the dominant role of large employers. In Thailand, there is scope to strengthen co-operation with social partners, especially employers, at the regional level. This could take the form for example of VET-specific advisory bodies, who could also ensure a close contact between the labour market and institutions. Such regional committees, representing the diversity of the regional economy in terms of firm size and sector of activity, could allow the provision to reflect and be relevant to the breadth of the related labour market.

Collaboration between VET institutions and other stakeholders is crucial for getting the offer in line with demand. At the local level, provincial authorities, local private sectors and schools should join forces to tailor the content of curricula to regional needs, as they differ across the country. They are indeed best positioned to incorporate current and future needs into the content of VET programmes.

Funding incentives can also be used for steering partnerships between VET institutions and employers. In Sweden, for example, to launch a programme, an education provider has to show that there is labour market demand for the skills provided by the programme, and that it has a framework to engage employers. This means that institutions are eligible for public funds when they can form a partnership with employers willing to offer the workplace training (OECD, 2014[36]). But it should be noted that research in financial and non-financial incentives for VET programmes in general, and apprenticeships in particular, showed only a relatively small proportion of employers will increase the provision of education and training places in response to financial incentives. Such schemes usually involve substantial deadweight. A further risk is that financial incentives may succeed in engaging employers who are primarily interested in the subsidy, rather than training students (Kuczera, 2017[49]). While involvement at national level allows for broad advice on VET policy, employer engagement at local level can help to improve the links and partnerships between the workplace and individual VET institutions (OECD, 2010[35]). Consultations bodies can also be created at the institutional level, to decide for example on the number of VET school admissions by programme of study. Collaboration with social partners locally can enable greater co-operation between local schools and employers in relation to the sourcing of work placements (see Box 3.8 for an example from Denmark).

Box 3.8. Formalised local co-operation between VET institutions and employers in Denmark

Each vocational college (providing school-based education and training) in Denmark works with at least one local training committee. Training committees include representatives of local employers and employees appointed by national trade committees, and representatives of staff, management and students appointed by colleges.

Local training committees work closely with colleges to adapt the content of VET programmes to local needs, strengthen contacts between the college and local employers, and support colleges with the delivery of programmes, for example by securing work placements for students. They also serve as a link between local and national levels, ensuring that national committees have a good overview of local circumstances and that local policy is aligned with the national objectives. For example, they assist and advise national trade committees in approving local enterprises as qualified training establishments and in mediating conflicts between apprentices and enterprises. National committees can hand over obligations to the local trade committees if they are better taken care of at the local level.

Source: Kuczera and Jeon (2019[46]), *Vocational Education and Training in Sweden*, https://dx.doi.org/10.1787/g2g9fac5-en.

The VET system does not cater to some parts of the Thai economy

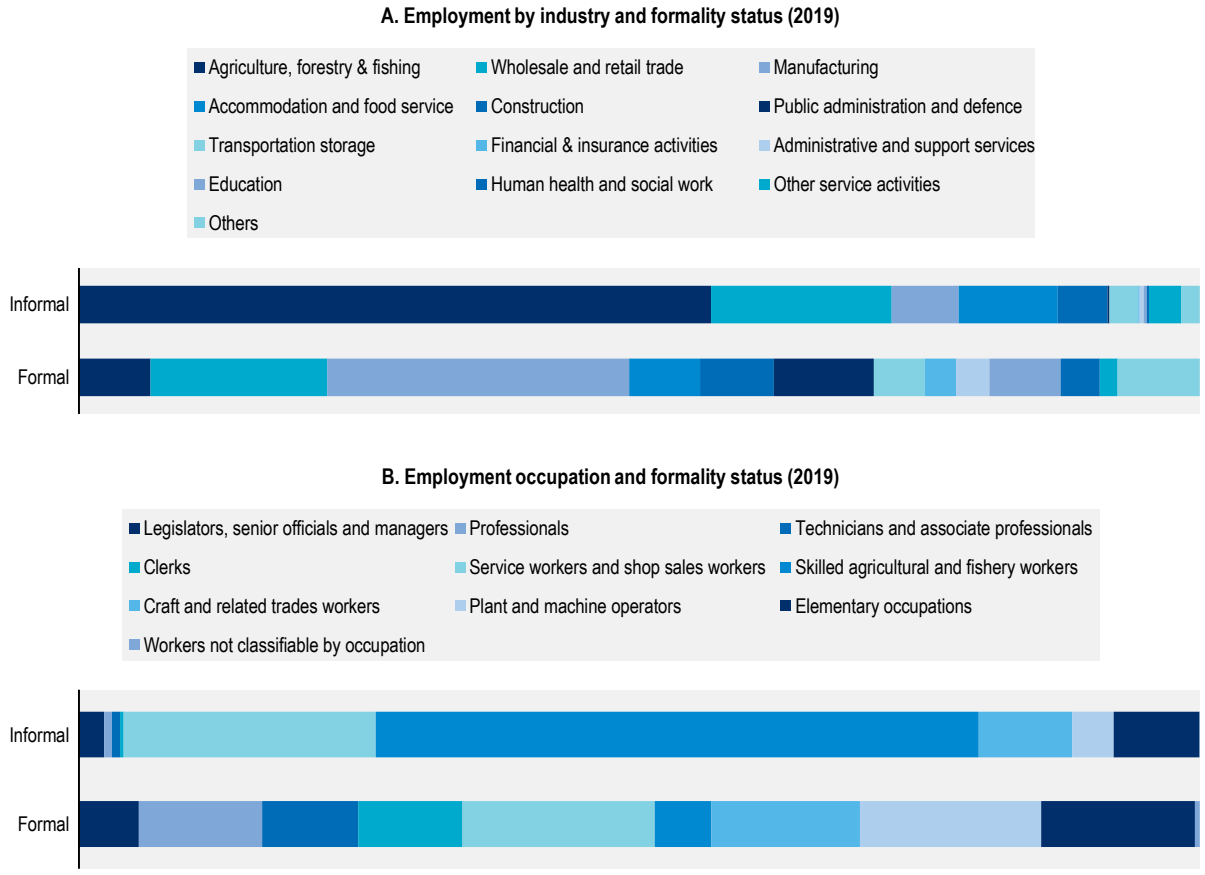
The current strategy for stakeholder engagement in the Thai VET system focuses on getting large employers on board. As such, one of the main concerns in the VET sector is that it mostly caters to the needs of big companies. However, in 2016, there were approximately 3.01 million SMEs in Thailand, which constituted more than 99% of all enterprises. They altogether contributed to 42% of the country's GDP and accounted for 79% of total private sector employment (OECD, 2020[50]). The value added created by small-sized enterprises grew faster than that of other firms in recent years. This implies that SMEs are an important source of economic growth in Thailand (OECD, 2020[5]).In spite of their important role in the Thai economy and labour market, SMEs are only involved to a limited extent in the VET system, and especially those operating in the informal sector. As a result, their skill needs are not sufficiently taken into account in the design and delivery of VET.

There are more than 1 million unregistered SMEs, most of them engaging in agriculture-related activities (OECD, 2011[51]). As discussed in Chapter 1, almost one in two workers are employed in informal jobs in Thailand. The informal economy is heterogeneous and is made up of increasingly diverse group of workers and enterprises in both rural and urban areas operating with no work-based social protection. Many informal economy workers engage in multiple informal and sometimes formal activities, usually multiple part-time activities, that might vary according to the time of year or season (OECD/ILO, 2019[52]).

Informality can be found in different sectors, to varying extend. In 2019, out of almost 6 million jobs in the retail and trade sector, more than 3.2 million were informal (55%) (see Figure 3.15). Accommodation and food services jobs also remain highly informal, with an informality rate of 62%. Other sectors, such as construction and manufacturing, also show a large share of informal jobs (45% and 21% respectively). Informality is most common in low- and middle-skill jobs, but interestingly, even a non-negligible proportion of professionals, technicians and individuals in managerial positions work under informal arrangements. In 2019, 7% of professionals, 9% of technicians and 33% of workers in managerial positions in Thailand had informal jobs (see Figure 3.15, Panel B).

Efforts have to be made to ensure that smaller companies are consulted and get to have a say in the design and steering of the VET system, to make sure that the system works for the different sectors of the labour market. Involving also the informal sector is important, alongside policies to reduce the informality rate. One of the policy concern with informal enterprises is how to retain its employment-generating potential while making them economically more profitable as well as compliant with regulations (Bhattacharya, 2019[53]). Box 3.9 describes how digital technologies can contribute to the formalisation of the economy, and also help certify the skills of workers in informal sectors. More training and better skills in informal sector companies, could help to raise their productivity, stimulate the overall economy and support socio-economic development. VET can provide opportunities for training to informal sector business owners and workers, but it needs to be flexible and adult-friendly, as described in Chapter 2. Informal sector employers often lack the financial resources to provide training opportunities for their workers and worry about workers leaving the informal sector once trained. Additional support might therefore be needed to ensure that informal sector employers provide training.

Figure 3.15. Informality is most common in agricultural and sales jobs



Source: National Statistical Office, Ministry of Digital Economy and Society (2020[54]), The Informal Employment Survey 2019, http://www.nso.go.th/sites/2014en/Survey/social/labour/informalEmployment/2019/2562_Full_Report.pdf.

Box 3.9. ICT to recognise the skills of informal workers and reduce informality

While a section of people who run informal businesses voluntarily do so in search of profit and growth, a large section is "forced" to earn livelihoods as entrepreneurs due to unavailability of decent jobs in the formal sector. Scaling up may not be a goal for the owners of informal businesses, because they are unwilling to accept the risks associated with the larger scale of operation (Banerjee and Duflo, 2011[55]).

Reducing costs of formalisation is one policy lever to reduce the level of informality. The platform economy may constitute an opportunity for many workers to formalise, since it can reduce the costs of formalisation and improve monitoring of economic activity through the digitalisation of transactions. For example in Indonesia, a country where almost 60% of the workforce is working in the informal sector and where at least a third of formal jobs are of poor quality (OECD, 2019[3]), platform work for motorcycle taxi drivers facilitated access to social protection for workers. For example, GoJek offers help to its drivers to subscribe to the government health insurance programme, while at Grab Bike workers are automatically enrolled in the government's professional insurance programme (Fanggidae, Sagala and Ningrum, 2016[56]). Of course, platform work is not a panacea for the problem of informality, if anything because the sector is still very small. The OECD has recommended that policy makers

mandate platforms to collect personal income taxes and social security contributions on behalf of the workers (OECD, 2019[3]). While digital platforms may indeed open new markets for some, the sector is heterogeneous and in some cases it also bears the risk of informalising formal employment (Bhattacharya, 2019[53]; OECD/ILO, 2019[52]).

Another policy lever to curb informality is to increase the perceived benefits of formality (e.g. by improving service delivery, and linking social security contributions to the benefits received) and improve enforcement mechanisms (OECD, 2015[57]). Digital labour platforms, using mobile internet technology, can link informal workers to customers. For example, an online platform in Kenya, Lynk, connects thousands of customers to informal sector workers, from artisans and carpenters to chefs and hairdressers. Many of these platforms also offer built-in skills training and certification, signalling credibility to employers (see Chapter 2 on certifying skills of adults and RPL mechanisms) (OECD, 2020[58]).

Source: Banerjee and Duflo (2011[55]), "Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty", *Population and Development Review*, Vol. 37/4, pp. 796-797, http://dx.doi.org/10.1111/j.1728-4457.2011.00462.x ;OECD (2019[3]), *OECD Employment Outlook 2019: The Future of Work*, https://dx.doi.org/10.1787/9ee00155-en; Bhattacharya (2019[53]), "ICT solutions for the informal sector in developing economies: What can one expect?", *The Electronic Journal of Information Systems in Developing Countries*, Vol. 85/3, p. e12075, http://dx.doi.org/10.1002/isd2.12075; Fanggidae, Sagala and Ningrum (2016[56]), *On-Demand Transport Workers in indonesia:Toward understanding the sharing economy in emerging markets*, http://www.justjobsnetwork.org; OECD (2020[58]), *OECD Employment Outlook 2020: Worker Security and the COVID-19 Crisis*, https://dx.doi.org/10.1787/1686c758-en.

Work-based learning to support VET students in developing the right skills

Not all VET students have access to quality work-based learning

In theory, students in VET in Thailand have an opportunity to take part in work-based learning (WBL) in companies, for at least one semester in the case of school-based VET programmes (i.e. all programmes excluding the dual programmes). WBL typically takes place during the fifth and/or sixth semesters for upper secondary students, and third and/or fourth semesters for postsecondary ones, with each institutions deciding. WBL is credit-bearing and typically lasts 18 weeks. VET institutions collaborate directly with enterprises and set goals for students. The placements are graded according to the curriculum (Office of the Education Council, 2017[4]). In practice, the length and the quality depends of the willingness of employers to offer high-quality placements to students. Recent programmes, such as the Factory-in-School initiative from the Ministry of Education, push for the inclusion of more WBL in the vocational school programmes.

The workplace provides a strong learning environment, and facilitates recruitment; while trainees contribute to output. Work-based learning opportunities are also a direct expression of employer needs. Expanding opportunities for work-based learning should go hand in hand with strong quality assurance mechanisms, to ensure that these work-based learning opportunities indeed allow students to develop the skills related to their field of study. To realise the benefits of work-based learning, it should be made an integrated element of the vocational programmes, rather than an add-on. This means that the learning outcomes expected from the work-based learning component need to be defined, so that what the student has learnt can be assessed. Quality standards for work-based learning help to avoid the allocation of students to unskilled tasks and ensure they acquire useful occupational skills. Such standards may cover the content and duration of training, the assessment of training outcomes and the competences of those who supervise trainees (see Box 3.10 for an example from Denmark) (OECD, 2014[36]).

Box 3.10. Quality framework for WBL in Denmark

All postsecondary VET programmes in Denmark include a minimum of three months of work-based learning, and six months in professional bachelors' programmes. Following their placement, students report back to their training provider and they are assessed to see if they have met their learning objectives. In-company supervisors need to have a solid knowledge of the theoretical content of the student's course and have sufficient time and resources to offer guidance. Quality assurance has three key features:

- Quality assurance is built into the work placement arrangements, and plays a decisive role in the accreditation of new programmes.
- Attention is given to making these placements as useful as possible for both vocational programmes and employers, and the analysis of those links forms part of the accreditation process.
- The work placements are closely linked to learning outcomes. Students apply concepts learnt in the study programme at the workplace, linking theory to practice.

Source: OECD (2014[36]), *Skills beyond School: Synthesis Report*, https://dx.doi.org/10.1787/9789264214682-en.

The dual system is a promising evolution

One widely-known form of work-based learning is apprenticeships, also called in some national contexts the dual system. Such programmes combine learning in the workplace with school-based learning in a structured way. In most cases, dual programmes last several years. Most often the apprentice is considered an employee, and has a work contract and a salary (OECD, 2019[11]).

The concept of dual programmes has been around in Thailand for many years, but was only formally established as part of the Vocational Education Act in 2008, with the goal of linking the VET curriculum courses in colleges with internships in the workplace (Burapharat and Chupradit, 2009[59]). Every programme in both secondary and post-secondary vocational education can be delivered under the dual education mode. This is a strength of the Thai VET system and it is echoes the situation in some OECD countries, where the same qualifications can be pursued either as a school-based qualification or a work based ones. There are important benefits as it allows to adapt to the characteristics of students and the different employers, while also opening-up dual training in non-traditional trades, such as ICT or business (OECD, 2018[45]).

In dual programmes, students spend more than half of the time in the workplace, combining 3-4 days in the workplace and 1-2 days in the VET institutions. But the exact organisation of the learning periods in VET institutions and in the workplace depends on the agreement between the industry and the training institutions, as well as students and parents: students might alternate on a weekly or monthly basis (Office of the Education Council, 2017[4]; Goncalves, 2019[44]). Across countries, how on-the-job and off-the-job components alternate varies: in Austria, Germany and Switzerland, they are typically alternated within a week, in Ireland in blocks of several weeks. In Norway, a two-year long school-based component is followed by two years spent in the workplace (OECD, 2018[45]).

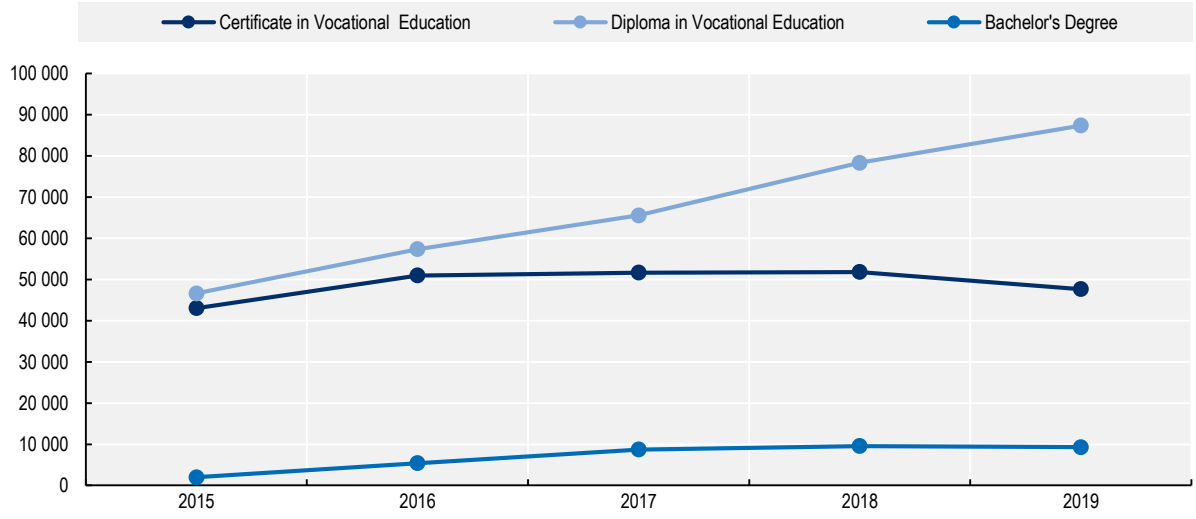
The number of students enrolled in dual programmes depends on the availability of work placements. The number of students in the dual VET system increased steadily in recent years, especially in diploma programmes. In 2019, around 87 000 diploma students and 47 000 certificate students were in the dual system. These numbers increased by 87% and 11%, respectively, in the period 2015-2019. 19 300 employers provided training places for these dual VET students in 2019. To encourage employers

to participate in the system, the Thai government implemented a 100% tax exemption for expenditure incurred because of the apprenticeship. In addition, the Department of Skills Development provides subsidies for expenses of training, transportation of apprentices and accommodation, uniform and safety equipment, as well as equipment for training and insurance.

Dual programmes must be of high quality to compete with alternative pathways. Beyond the immediate financial implications of different pathways, individual choices, linked often to parental preferences, depend on the prospects that people feel they offer. If apprenticeships are of high quality, employment outcomes for apprenticeship graduates will be higher. Evidence for France shows that employment outcomes are higher for graduate apprentices than for students with equivalent school-based qualifications (Couppié and Gasquet, 2021[60]). But when apprenticeships are poor quality, apprenticeship becomes a second choice and those who can will pursue other options. With apprenticeships of poor quality, employers cannot rely on them as a proof of strong occupational skills, so it makes sense for them to prefer graduates of school-based programmes or those with a postsecondary or tertiary qualification (OECD, 2018[45]). In Thailand, there have been recent efforts to strengthen the quality of the dual programmes: OVEC provides guidelines and related documents to training institutions to help them work collaboratively with industry. Trainers in industries must be qualified according to the standards of the apprenticeship programme (Goncalves, 2019[44]). But stakeholders have also pointed that there are quality issues regarding the training received in the workplace, with students something doing unqualified and irrelevant tasks.

Figure 3.16. Dual vocational education is on the rise in Thailand

Number of students participating in dual vocational education (2015-2019)



Sources: Office of the Vocational Education Commission (2020[61]), Number of Dual Vocational Students Academic Year 2015-2017 by Grade, http://techno.vec.go.th/ประชาสัมพันธ์/รายละเอียดข่าว/tabid/766/ArticleId/21080/language/th-TH/2558-2560.aspx; Office of the Vocational Education Commission (2021[62]), Number of Dual Vocational Students Academic Year 2018 by Region, Province, Name of Institution, Program, and Grade, http://techno.vec.go.th/ประชาสัมพันธ์/รายละเอียดข่าว/tabid/766/ArticleId/20713/language/th-TH/20173.aspx; Dual Vocational Education Center (2021[63]), Report on the Number of Companies participating in Dual Vocational Education, https://dve.vec.go.th/index.php?app/report/ajax&m.

Principles to continue strengthening apprenticeships in Thailand

Differences in the design of schemes affect how attractive apprenticeships will be for potential apprentices and employers, as well as how it will affect public finances. Building apprenticeships in countries where apprenticeships are uncommon or creating new programmes in economic sectors that typically rely on other forms of training is challenging. Some simple principles underpin effective provision (OECD, 2018[45]):

- Social partners should be involved in the design and implementation of apprenticeship schemes. This is essential to encourage their engagement with apprenticeship and ensure that programmes are suited to their needs and capacity to provide placements.
- Competition between apprenticeships and alternative learning pathways (e.g. school-based programmes, postsecondary or tertiary education) needs to be fair.
- Apprenticeships are easier to implement where formal qualifications bring substantial benefits to the learner.

Box 3.11 gives some indications on how design features can have an impact on the policy aim.

Box 3.11. Adjusting the parameters of apprenticeship schemes, depending on the policy objectives

An OECD study on apprenticeships (OECD, 2018[45]) used cost-benefits analysis to discuss how different design features influence the provision of apprenticeships :

- **Apprenticeship duration**: During the initial stages of apprenticeships, apprentices tend to contribute little to productive work, and often cost more than they produce. At the final stages, apprentices can contribute to production with their skills but are still cheaper than skilled workers, which can allow employers to reap net benefits.
- **How apprenticeship is organised**: While apprentices are learning off-the-job they develop job-relevant skills, but do not contribute to production. What exactly apprentices do while on-the-job is also important: productive work always benefits employers, whereas learning activities bring benefits later when apprentices use their newly learnt skills to work. With care, learning can often be integrated into productive work, yielding higher benefits for firms.
- **Incentives**: Firms may receive subsidies or benefit from tax breaks when they take on an apprentice. Some incentives may be non-financial, like linking the award of public procurement contracts to the provision of apprenticeship.
- **Apprentice wages:** Representing the largest share of costs to employers, how apprentice wages are set and their amount have a strong impact on the cost-benefit balance. While policy makers typically do not set apprentice wages, policy tools can influence them.
- **Apprentice characteristics**: Apprentices with stronger skills will be more productive throughout the apprenticeship than those with weaker skills, and will generate higher benefits for the employer.

Other elements to take into account are part of the broader country context.

- **Wage context**: Apprenticeships will be a financially more appealing for employers if there is a large difference between the wages of apprentices and those of skilled workers. Minimum wage laws and collective bargaining agreements are often important as they affect the wage costs of workers and apprentices.

- **Labour market features**: There will be more room to reap "recruitment benefits" when hiring in the external labour market is hard and expensive. This is the case when the labour market is tight, so jobs are abundant and relatively few are in search of a job. Informality also has an impact.
- **Occupation**: How long it takes for an apprentice to become proficient at a job varies across occupations, as does the cost of equipment involved, so the cost-benefit balance during apprenticeship varies. Potential "recruitment benefits" also vary: hiring costs tend to be higher in jobs that require sophisticated technical skills.
- **Firm size**: The cost-benefit balance during apprenticeship varies with firm size: larger firms exploit economies of scale (e.g. training several apprentices on the same equipment), and sometimes have better opportunities to train apprentices while involving them in production. On the other hand, larger firms tend to train more in technical occupations (with higher training costs) than smaller firms, which often hire apprentices in the crafts sector. Larger firms are more likely to realise "recruitment benefits", as they tend to face higher hiring costs and recruit more often their apprentices as skilled workers.

The apprentice wage and labour market prospects affect the attractiveness of apprenticeship to young people or adults considering training options. When apprenticeships are more attractive, employers will have a greater pool of better prepared, skilled applicants and a lower risk of costly drop-out.

Source: OECD (2018[45]), *Seven Questions about Apprenticeships: Answers from International Experience*, https://dx.doi.org/10.1787/9789264306486-en.

Across countries, the popular image of an apprentice is often of working in a skilled trade or craft, like construction or manufacturing. This accurately reflects the apprenticeship landscape in many countries, where apprenticeships are most common in manufacturing and construction. But this constrains apprenticeships to a small part of the labour market. Over the past decades, OECD economies have seen a shift in employment away from manufacturing and towards services, and in some countries the apprenticeship offer has evolved in the same direction. In Switzerland for example, the three most popular apprenticeship occupations are commercial employee, retail clerk and healthcare worker. In Germany, the three most popular apprenticeship occupations are in management and retail sectors (OECD, 2018[45]). Various countries have created apprenticeships in the IT sector, at different education levels, in response to the strong demand for IT-related skills in the labour market (see Box 3.12 for examples).

Box 3.12. Apprenticeships in IT

IT apprenticeships in Switzerland

In Switzerland, students in the VET system can pursue an IT apprenticeship. This IT vocational training programme takes four years to complete. Apprentices spend one to two days per week in a vocational training school and have the choice of three specialisations, namely application development, business informatics and systems administration/ engineering. More than 90% of IT degrees are based on apprenticeships and vocational training. The number of IT apprenticeships is on the rise, increasing with almost 50% in the period 2006-2017. In 2017, IT featured among the top five fields that welcomed the most VET students.

ICT Associate Apprenticeship programmes in Ireland

In Ireland, new apprenticeship programmes were introduced in 2018 in the fields of software development, network engineering, and cybersecurity. These 2-year apprenticeship training programmes lead to a level-6 qualification (i.e. ISCED-4). In the first 6 months, students attend full-time off-the-job training and development. In months 7 to 18, they combine 3 days at work with 2-days off-the- job training, while in the last 6 months they spend 4 days in work and only one day in off-the-job training.

Source: Vandeweyer and Verhagen (2020[64]), "The changing labour market for graduates from medium-level vocational education and training", *OECD Social, Employment and Migration Working Papers*, No. 244, https://dx.doi.org/10.1787/503bcecb-en.

International evidence suggests that small firms are less likely than large ones to offer apprenticeships. In Switzerland, for example, around 25% of companies with fewer than 10 employees provide apprenticeships, compared to 80% of large firms employing 100 people or more (Muehlemann, 2016[65]). Small firms may lack the capacity to plan and determine training needs. They will be less efficient in offering training: large firms can train several apprentices using one instructor and for them bearing the fixed costs of dealing with administrative requirements will be easier to handle. Small firms may also be unable to train for the full range of skills required by a particular apprenticeship qualification (OECD, 2018[45]). Also, the bigger the employer, the more likely it is to retain apprenticeship graduates as skilled workers. This might happen either because small firms cannot offer a job to their qualified apprentice as a skilled worker or because their apprenticeship graduates prefer to work for larger employers with better career prospects. In the absence of long-term benefits from recruitment, many small firms will only provide apprenticeships if they can recoup their investment by the end of the training period. Despite these hurdles, across OECD countries SMEs are major providers of apprenticeships. In countries with available data from the Survey of Adult Skills, a product of the Programme for the International Assessment of Adult Competencies (PIAAC) (i.e. Austria, Australia, Canada, Denmark, Netherlands), over half of all apprentices work in firms with 50 or fewer employees (OECD, 2018[45]).

To support SMEs to take on apprentices, countries can establish external bodies take over some of the tasks generated by the provision of apprenticeship, e.g. searching for a suitable apprentice or dealing with administrative tasks, and they can also organise the sharing of apprentices between several employers. Such bodies can be run and managed by employers themselves or by a third party (OECD, 2018[45]) (see Box 3.13). Inter-company bodies or networks can also allow pooling of resources, sharing information and exchanging knowledge. For example, a lead company may bear the overall responsibility for training, while specific training modules may be delivered by partner companies. Larger firms may offer periods of training in their training workshops to apprentices of their supply chain partners, usually SMEs. In Switzerland for example, host company networks (*Lehrbetriebsverbünde*) group together enterprises to share the responsibilities of apprenticeship training. This arrangement is especially aimed at maximising the training potential of those companies that are too small and/or specialised to cover all the competencies specified in a defined VET curriculum as a singular entity, but may be able to offer the full spectrum by joining forces to train apprentices as a group. Usually, one enterprise or a separate organisation takes the role of coordinator and organizes the coaching, training and rotation of apprentices between various companies during their apprenticeship (ILO, 2017[66]).

Some of the most promising non-financial incentives aim to support employers in getting the best out of apprentices – for example by providing assistance with the administrative aspects of setting up an apprenticeships, or by offering training for workplace trainers (Kuczera, 2017[49]). Owing to their limited size and resources, SMEs often find it difficult to train qualified workers to supervise apprentices. Evidence suggests that better prepared apprentice supervisors underpin high-quality training (BIBB, 2009[67]). But to meet these requirement, SMEs need targeted support focused on flexible and customised training

provision for trainers. For example in Norway training for apprentice supervisors is free to participants, and delivered by counties, schools or training offices, but optional. Counties provide the course, learning materials, subsistence and travel expenses, while firms pay supervisors during the course (OECD, 2018[45]).

Box 3.13. Bodies to support SMEs with apprenticeships

Australia

Group training organisations (GTOs) are not-for-profit organisations supported by public authorities, with some charges to host employers. GTOs employ apprentices and hire them out to host employers, sometimes focusing on a particular industry or region. Their tasks include selecting apprentices adapted to the needs of employers; arranging and monitoring training both on- and-off-the job; taking care of administrative duties; and ensuring that apprentices receive a broad range of training experience, sometimes by rotating them to different firms.

Norway

Training offices (*opplæringskontor*) are owned by companies and funded through state grants (firms typically pay half of the apprenticeship subsidy they receive to training agencies). They aim to establish new apprenticeship places, supervise training firms, train apprentice supervisors and deal with administrative tasks. Many training offices organise the theoretical part of training and sign the apprenticeship contracts on behalf of firms. About 70-80% of firms with apprentices are associated with training offices. They played an important role supporting apprenticeships and ensuring their quality.

Source: OECD (2018[45]), *Seven Questions about Apprenticeships: Answers from International Experience*, https://dx.doi.org/10.1787/9789264306486-en.

Conclusion

There are unbalances in Thailand between the skills taught in the education and training system and those needed by the labour market, in which VET plays an essential role. VET graduates have relatively strong labour market outcomes, but they differ strongly between regions, reflecting the differences in the economic structures, and between fields-of-study. Employers report hiring difficulties for certain VET profiles and a mismatch between the skills of VET graduates and their needs. In addition, a significant share of workers with VET qualifications are employed in jobs that do not match their qualification level and/or field. These findings suggest misalignment between the VET programmes on offer (and their content and quality) and the needs of the labour market.

Aligning VET provision with the needs of the labour market, at the national but also at the local and sectoral levels, means using high-quality information on skills demand and supply. Responsive VET programmes can use quantitative information from a variety of sources (e.g. labour force survey, employer surveys, vacancy data, graduate tracer surveys). Such measures have to be complement with mechanisms that engage relevant stakeholders in the design and delivery of VET, at each level where VET policy is being determined. The complex VET system in Thailand complicates such stakeholder engagement. Currently, employer engagement in Thailand is mostly focussed on large companies, and the needs of SMEs and the informal economy are not sufficiently reflected. Quality work-based learning in all VET programmes and the development of apprenticeships is a strong policy tool to build a more responsive system that fosters strong labour marker outcomes for students. The recent efforts to further develop the Thai dual system are a step in the right direction, but more can be done to ensure that work-based learning is of high quality.

Key recommendations

Using skills intelligence in VET

- Develop robust tools to regularly assess skill needs at the national, regional and sectoral level, using a variety of quantitative and qualitative information. One of the tools should allow for a detailed analysis of labour market outcomes of VET graduates, possibly using tracer surveys.
- Create a knowledge-sharing platform to bring together the different skill needs assessment exercises carried out by different actors, and use the results from these exercises to inform VET policies and curricula.

Engaging stakeholders in the design and delivery of VET

Facilitating the engagement of stakeholders in VET

- Overcome silos between the different Ministries and agencies involved in VET, especially between the Ministry of Education and Ministry of Labour.
- Review governance mechanisms in VET to enable relevant stakeholders to be sufficiently engaged to make sure that the content of the programmes, and their size, meets the needs of the labour market and workers.
- Design mechanisms to also involve smaller employers and the informal economy, to ensure their needs are also reflected in the design and delivery of VET programmes.
- Allow for a regional and local flexibility in VET, engaging employers at that level too. Make sure that VET institutions can also collaborate with employers directly, for example through the inclusion of employers on boards.

Strengthening work-based learning

- Ensure that the students in school-based programmes have access to quality placements. To strengthen the quality of work-based learning, put in place quality standards that help ensure the students develop the necessary skills at the workplace. Provide training to in-company supervisors so they have the capacity to effectively support students.
- Collect data on dual programmes, that alternate learning at school and in the workplace, to see how and where these programmes are used. This includes information on the types of programmes and fields in which the students are enrolled, student characteristics, and details on the employers providing dual programmes. This information will help monitor the system, fill gaps in dual VET provision, and ensure equal access for a diverse group of students and employers.
- To strengthen dual programmes, review financial and non-financial incentives for employers, and ensure that the provision is not distorted by them. Such incentives can also help such programmes more attractive for SMEs.
- Make sure the dual system can also meet the needs of SMEs. This can be done by setting up external bodies to support employers in taking on VET students or by encouraging large employers and SMEs to jointly provide dual programmes. As a starting point, analyse the barriers that SMEs currently face to provide work-based learning, so that any support measure can be designed to overcome such barriers.

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Note

[1] Fields-of-study in the Thai labour force survey are classified according to ISCED 1997. These fields are different from the categories used by OVEC in their reporting.

OECD Reviews of Vocational Education and Training

Vocational Education and Training in Thailand

One of a series of studies on vocational education and training, this review assesses vocational education and training (VET) in Thailand and provides policy recommendations. VET has the potential to provide relevant education and training opportunities to young people and adults in Thailand, especially as the demand for technical skills is high. This can be achieved by building on the strengths of the system, including a strong postsecondary vocational system and a small but dynamic dual system. However, it remains an unattractive option for many students in Thailand, because of a poor image among students and parents, quality issues, a hard-to-navigate system and limited progression pathways. Additional efforts are therefore needed to align the mix of provision with the needs of the Thai labour market. This review provides recommendations on how to improve access to programmes, reduce inequalities in access to high-quality institutions and programmes, make better use of skills intelligence to inform education and training policies, and engage employers in the design and delivery of vocational education and training, including work-based learning.

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