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Thailand's Path to Economic Recovery and Advancement: Diagnostic Study on the Middle Income Trap and Prospects for Post-Covid Economic Growth

Pornthep Benyaapikul[*]
Assistant Professor
Faculty of Economics
Thammasat University
pornthep@econ.tu.ac.th

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ABSTRACT

For more than a decade before the Covid-19 pandemic and recession, Thailand was moving into a more advanced development phase. Unable to sustain growth based primarily on cheap labor and capital accumulation, the country needed to transform to a more knowledge- based, innovation-driven economy able to compete in the rapidly evolving global economy. Yet, structural transition to this new phase has been difficult and slow. Unfortunately, the current crisis will make this problem worse. Following an initial surge in growth as the economy recovers, the long-term problem of flattening productivity and slow growth will almost certainly reemerge to threaten future prosperity. Thailand needs to accelerate the pace of reforms essential to encourage industrial upgrading. A diverse set of challenges need to be addressed to restructure the Thai economy. This paper focuses on three reforms necessary for lowering the limits on future growth: 1) speeding up the pace of *innovation*, 2) removing constraints to *competition*, and 3) reducing *inequality*.

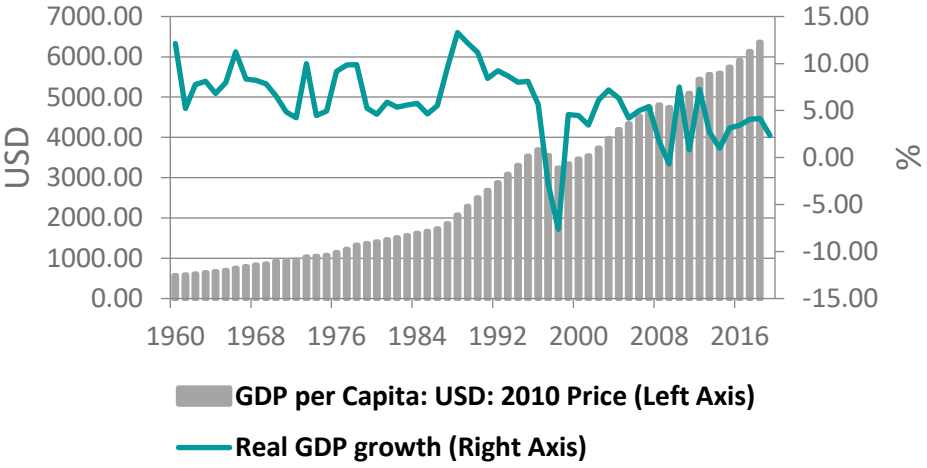
Keywords: Thailand, economic development, development policy, productivity, inequality

JEL Classification: E60, O32, O53

1. Introduction

Thailand has achieved consistently high growth during the past five decades of economic development. Industrialization started in the 1960s with an import substitution strategy under government control and intervention, and then shifted to labor-intensive export-oriented industries during the 1980s and 1990s. This strategy of export-oriented industrialization during a strong global economy and based on cheap labor and foreign direct investment, resulted in remarkable growth performance for more than a quarter century. Thailand's economy grew approximately 7.5 percent annually. Real gross domestic product (GDP) per capita more than doubled from US$570 (at year 2010 prices) just before the first economic development plan in 1960, to US$1,225 in 1977, when export orientation was promoted in the fourth economic development plan.

Figure 1. GDP Growth and GDP Per Capita



Source: CEIC Data

It was not until 1987, however, that gross national income per capita surpassed the upper threshold of the World Bank's low-income country classification, and Thailand progressed to a lower-middle income economy.

From 1985 to 1996, Thailand was the fastest growing economy of the world, with average annual growth of 8.2 percent. Despite the severe economic crisis that hit the economy in 1997, the 1980s-2010s were an exceptionally successful 30-year period for the Thai economy. Behind this success lay prudent macroeconomic management, early promotion of exports and foreign direct investment (FDI), investment in physical infrastructure, and expansion of school and university enrolments (Intarakumnerd, 2018).

Economic growth was largely driven by foreign capital and technology through FDI, as well as by labor input. Rapid investment growth and capital accumulation resulted in equally rapidly rising labor productivity, and the movements of labor input from a low productivity agricultural sector to a more productive and more capital-intensive industrial sector. Total factor productivity (TFP)[1], however, played a far lesser role, as TFP growth contributed only around 1.5 percent during 1988-1996 (World Bank, 2016).

Table 2. Growth Contribution from Inputs

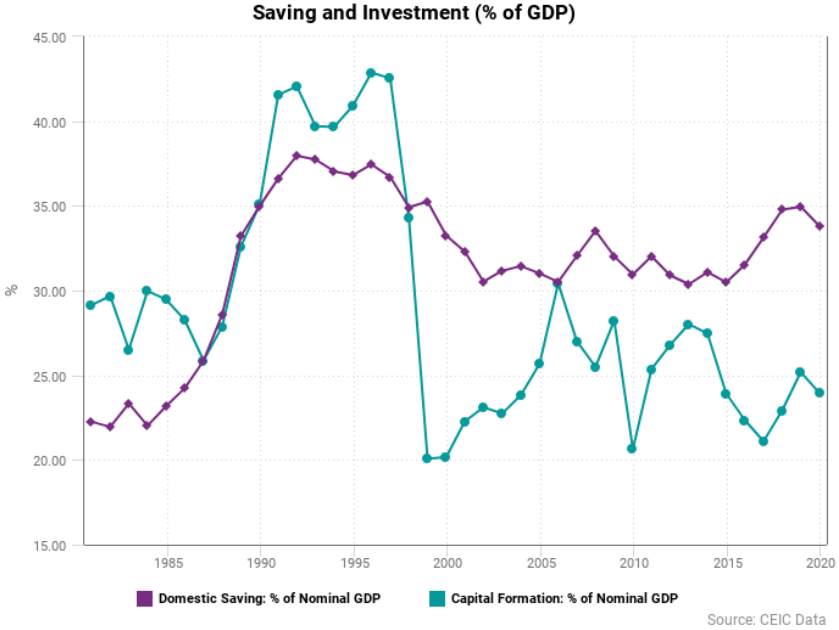
		Percentage Points Annual Contribution From:			
Period	GDP	Capital	Labor Quality	Hours	TFP
1988-2013	5.5%	3.1	0.9	0.6	0.8
1988-1996	9.4%	6.2	0.7	0.1	1.5
2000-2013	4.5%	1.4	1.0	0.6	1.5

Source: World Bank (2016)

[1] Total factor productivity (TFP) is the portion of output not explained by the amount of inputs used in production. As such, its level is determined by how efficiently and intensely the inputs are utilized in production.

It took Thailand 26 years to progress from a lower-middle income economy to an upper- middle income economy in 2011, when the World Bank upgraded the country's status. However, there have been concerns about the country's ability to progress further under a model of labor-intensive production and export development that has gone unchanged for the past two decades. Thailand has been unable to move up the value chain and break into the market for knowledge-based and innovation-based products. In addition, it has faced growing competition from low-cost producers such as China, India, Vietnam and Cambodia. In fact, decreasing competitiveness in labor-intensive manufacturing exports was one of the main causes of the economic crisis in 1997.

Figure 3. Savings and Investment (% of GDP)



The crisis fundamentally transformed the structure of the Thai economy. One of the significant structural changes was a sharp decline in investment. Gross capital formation's share of GDP tumbled during crisis, stabilizing around 25 percent, almost half of the pre-crisis ratio. The economic growth rate decreased substantially to 5 percent in 2000-2007 and decreased even further over the next dozen years: 3.9 percent per year between 2010-2014 and 3.4 percent during 2015-2019.

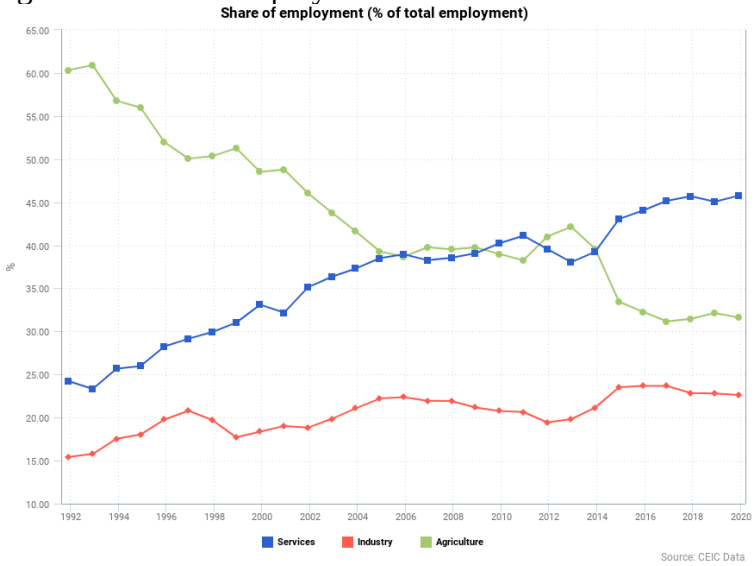
It has been suggested that Thailand faces a "middle income trap" (Jitsuchon, 2012; Warr, 2020), whereby it enjoyed rapid growth based on capital accumulation and labor-intensive exports, accompanied by productivity gains from labor movement from low productivity sectors. As income and wage rates increased, however, the return on investment in physical capital and the rate of private investment decreased, and growth slowed. With increasingly declining export competitiveness, Thailand has been unable to develop the necessary capacity to compete against advanced economies, while at the same time facing increased competition from less developed economies.

2. Constraints to Future Economic Growth and Stability

Thailand's past development model that relies on expansion of inputs, especially cheap labor, and inefficient usage of natural resources that is no longer viable. Four decades of economic development resulted in a steady movement of workers out of a low productivity agricultural sector to industrial and service sectors. Service sector employment has increased substantially over the past 20 years. However, output share of the service sector has not increased as much. This suggests a problem of low labor productivity.

As mentioned earlier, overall labor productivity growth has declined in recent years, especially in the service sector. The contribution to productivity growth from labor reallocation decreased steadily from 3.3 percent between the 1980s and the first half of the 1990s, to just 0.3 percent during 2000-2014 (Amares and Manopiyaanan, 2015). It is predicted that over the next 12 years (2020-2032), economic growth from labor input expansion will stop as Thailand becomes an "aging society" earlier than many other developing economies (Chantapong, Saovanee et al., 2015). In order to sustain long-run economic growth, many scholars have suggested that Thailand needs to find a new model of development wherein productivity improvement is driven by innovation and technology upgrades.[2]

Figure 4. Sectoral Employment Share



Source: CEIC Data

[2] See, for example, Jitsuchon (2013), Jitsuchon and Bisonyabutr (2013), Tangkijvanich et al. (2013) among others.

Figure 5. Sectoral Output Share (% of GDP)

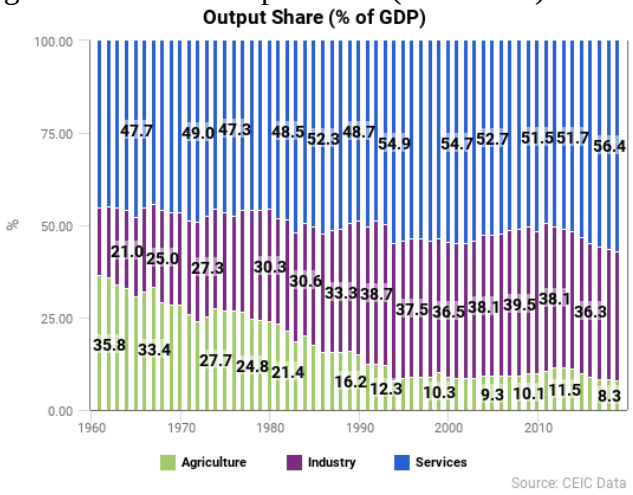
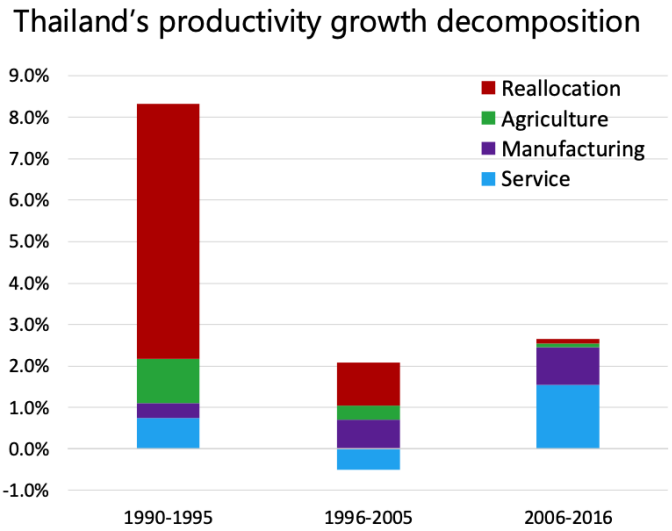


Figure 6. Sectoral Productivity Growth



Source: Apaitan et al (2017) calculated from Labor Force Survey

2.1 Innovation

The most common metric used to measure a country's level of innovative activities is the share of research and development (R&D) expenditure to GDP. For Thailand, R&D expenditure and growth have been relatively low compared to other Asian countries and the global average. Compared to the rest of the world, East Asia and Pacific countries overall have higher ratios of R&D expenditure to GDP. The global average in 2017 was 2.22 percent, while the East Asia and Pacific average was 2.40 percent. The share of R&D expenditure to GDP in Japan, Singapore, and South Korea were 3.21 percent, 2.17 percent, and 4.55 percent, respectively. There was, however, a wide gap between advanced high-income countries and ASEAN countries, with Thailand's figure at just 1 percent in 2017, and with Malaysia and Indonesia at 1.44 percent and 0.24 percent, respectively. By this measure, these figures puts the three countries a long way from transitioning to high-income economies.

Low gross domestic expenditure on R&D (GERD) in developing countries, despite vast potential in efficiency, quality, and diversification predicted by the "Schumpeterian catch-up"[3], suggests the existence of barriers to the flow of knowledge and effective governance (Cirera and Maloney, 2017). Countries further from the technological frontier should have greater potential gain from catching up to it, and hence higher rates of return on innovation. Yet, empirical evidence shows that this is realized only if the countries have a sufficiently high level of development (Goni and Maloney,

[3] Schumpeterian growth paradigm where innovation drives economic growth and prosperity explains that economy far from technological frontier can catch up to the frontier by imitating or adopting existing technologies. However, such technological catch-up requires capital accumulation, knowledge transfers from more developed economics with absorptive capacity which is frequently proxied by R&D spending.

2014; Goni and Maloney, 2017). Otherwise, moving farther from the frontier, the rate of return begins to fall and may even be negative in very poor countries; the relationship between return on R&D and the development process would follows an inverted U-shape.

Figure 7. Share of R&D Expenditure to GDP (%) (2016)

Region/Country	2000	2011	2017
Japan	2.91	3.24	3.21
Singapore	1.82	2.12	2.17*
South Korea	2.18	3.74	4.55
Malaysia	0.47	1.03	1.44*
Indonesia	0.07		0.24
Thailand	0.24	0.36	1.00
East Asia and Pacific	2.26	2.35	2.40
East Asia and Pacific (exclude high-income countries)	0.73	1.62	1.93
World	2.06	2.01	2.22

Source: World Development Indicator, World Bank.

Three barriers are identified as reasons behind this "innovation paradox": (1) weak firm capabilities to undertake innovation, (2) missing critical innovation complementarities, and (3) weak government capabilities to manage the increased complexity and breadth of innovation policies implied by the previous two (Amares and Manopiyaanan, 2015). Low R&D spending in developing countries, Thailand included, is therefore a manifestation of an institutional problem. Innovation demands a broad set of complementarities in terms of physical and human capital. It is a rational decision by firms

in developing countries to not invest or undertake innovation activities so long as all of the underlying conditions that facilitate the accumulation of any type of capital (physical, human, or knowledge) are missing. These conditions include intellectual property rights, resolution of market failure, functioning financial and capital markets, a friendly business climate, skilled human capital, and an effective national innovation system (NIS). In the case of Thailand, institutional weaknesses are identified as the most important obstacle to productivity improvement and long-run growth (Jitsuchon, 2012; Intarakumnerd, 2018; Intarakumnerd, 2019).

2.1.1 Firm Innovation Capability

Thai firms carry out dispersed and non-systematic innovation activities. According to R&D and innovation surveys conducted by the National Science and Technological Development Agency (NTSDA), 23 percent of respondent firms carried out innovating activities in 2014. This figure is relatively low compared to more successful Asian countries. Also, only large firms have R&D capability, while small and medium-size enterprises (SMEs) engage less in R&D and innovation in terms of both activities and sophistication. According to Intarakumnerd (2018), a majority of activities is limited to quality control and testing. In 2014, only 10 percent of SMEs performed in-house R&D compared to 25 percent of large firms.

The reasons for such dispersed and non-systematic innovation activities are a lack of both absorptive capacity to transfer technology and capacity to generate knowledge and collaboration. Thai firms show a low awareness of potential benefits from innovation, while a lack of technological literacy, technological management, and productive capacity hinders adoption.

In terms of knowledge generation and collaboration capacity, there is a lack of cooperation between firms in the same or related industries. NSTDA's survey showed that respondent firms viewed this type of collaboration as rather unimportant. This is different from advanced countries such as Japan or Taiwan, where many cooperative consortiums among competing firms are established (Intarakumnerd, 2018).

Finally, industry-university collaboration in Thailand is rare. The positive benefits of industry-university linkage in technological upgrading are well established.[4] However, it has been argued that such collaboration in Thailand is ineffective (Doner et al., 2013). One of the reasons is that both parties' incentives are misaligned, as university lecturers seek to publish academic papers for academic purposes and positions rather than for engaging in R&D activities that have commercial benefits. Also, university and public research institutes are not regarded as important sources of knowledge by the firms. Most collaborations are limited to consulting and technical services (Intarakumnerd, 2018).

2.1.2 Science, Technology, and Innovation Policy

Thailand does not have a clear proactive industrial policy. Past development strategies were designed to create a stable macro-environment favorable to foreign investment, to develop public infrastructure, and to provide investment incentive toward promoting export-led industrialization based on cheap labor (Lall, 2000). This passive "market-friendly" approach is beneficial at the early stages of development when the main objective was to transfer labor from the agricultural to the manufacturing sector. However, this strategy is not suitable for later stages when labor costs start to rise, and a

[4] See, for example, Bresnahan and Gambardella (2004).

country needs to develop a more sophisticated technological capability. The Thai government has never had a proactive policy designed to sufficiently promote the transfer of technology.

Innovation cannot be supply driven. Successful knowledge accumulation through innovation requires a bidirectional relationship between suppliers of knowledge, such as universities, think-tanks, or research institutes, and those demanding it. Government plays an indispensable role in coordination, oversight, and resolution of market failure through innovation policy. This means that innovation cannot be supply-driven: there must be demand from firms with the capability to innovate and the incentive to do so. However, in the case of Thailand, firms are treated purely as users of scientific, technology, and innovation output from knowledge institutions, while policy measures to support firms' technological and innovation capabilities are minimal and ineffective (Arnold el al., 2000).

Expenditure on R&D is not the most important indicator. As mentioned, low R&D spending is symptomatic of missing complementarities or weak institutional capability. In the early steps of the 'capabilities escalator' when a country is far from the technological frontier, R&D is not usually a primary source of innovation. It is important to first develop production capability for incremental change, technological absorption capability, design, and engineering development.

2.1.3 Human Capital and Skills Mismatch

Thailand has long succeeded in expanding educational opportunity, which has resulted in increased enrolment rates in schools. However, the major problem lies in quality not quantity. Thailand's education system has proven unable to prepare graduates suitable for the labor market. Workers are

better educated than ever but still lack basic and technical skills required by many employers. As a result, the number of high-skill and high-paying jobs has not grown much over decades of development, despite increased average years of schooling (Paweenawat et al., 2019). The average worker has moved down the occupational ladder, as a larger proportion of college graduates hold middle-skill jobs and more secondary school graduates hold low-skill jobs.

Thailand's industrial sector is facing a serious labor shortage in terms of quality. The majority of laborers are employed as unskilled production labor. A survey by the National Statistical Office (NSO) in 2011 showed that unskilled production labor accounted for 73 percent of the total workforce, while 'skilled production labors' and 'manager and professional' accounted for only 13 percent and 5 percent, respectively. Also, technical staff, such as scientists, engineers, analysts, and computer technicians—the most important professions for innovation—accounted for only 4 percent of Thailand's total workforce. This shortage has caused slow productivity improvement and delayed investment in innovation (Pholpirul and Rakumnuaykit 2016).

In the age of the "Fourth Industrial Revolution", technological disruption is creating new types of businesses and jobs. Workers need a new set of skills to catch up and keep up with changing demand in the labor market, and to work with modern technologies such as robotics and automation that are increasingly replacing low-skilled workers. In the WEF's survey (WEF, 2018a), Thai business executives believe that 51 percent of their workers need to "reskill" and "up skill" in terms of technical skills involving critical and innovative thinking and human-centric skills, such as creativity, persuasion, and collaboration.

The major shortage is of workers with a vocational education. According to a Labor Demand Survey conducted

by NSO in 2013, 60 percent of jobs required a vocational certificate or a secondary level education, while 15 percent required a bachelor degree or higher. However, as shown by Chantapong and Lertpeantham (2018), on the supply side, between 2013-2018, 61 percent of graduates held a bachelor degree or higher and only 27 percent finished vocational training. Thai vocational training students accounted for only 20 percent of all students in post-secondary education, compared to Malaysia at 50 percent, Indonesia at 30 percent, and South Korea at 45 percent (Satimanon, 2017). Despite the shortage and skills mismatch problem in undergraduate education, a majority of students still prefers university degrees over vocational certificates because of the general perception that vocational graduates constitute an inferior workforce and that a university degree will lead to a higher paid job and better career. This is very different from East Asia and Newly Industrialized Economies (NIEs), where the importance of vocational education has been highly valued.

With an oversupply of workers with an undergraduate education, some workers must accept jobs that require only lower qualifications. This overeducation or "vertical mismatch" results in some workers receiving lower wages than their well-matched peers with vocational educations. It was estimated that between 1985 and 2005, Thai workers who were overeducated for their jobs on average faced an 11 percent wage penalty (Paweenawat et al., 2013).

There is also a problem of "horizontal mismatch", whereby Thai workers do not work in their field of study. According to Office of Higher Education Commission, only 23 percent of university graduates have a degree in science, technology, engineering, or mathematics (STEM), which is much lower than in many advanced economies. Despite this, between 2011-2016, only 34 percent of graduates with STEM degrees worked in STEM jobs and thus enjoyed a 26 percent

wage premium compared to their peers experiencing a horizontal mismatch (Paweenawat and Vechbanyongratana).

To address the problem of a skills mismatch, both private and public institutions for labor skill upgrading have been established following the Skills Development Promotion Act B.E. 2545 (A.D. 2002). The Department of Skills Development is the main public agency with a mission "to promote and develop skills and potential of the labor force and entrepreneurs for Thailand 4.0". There are training centers in 25 provinces offering training and skills-upgrading programs. In 2017, the majority of training programs, around 40 percent, aimed to improve skills for mechanics or technicians in the manufacturing sector; especially electrical, electronics, and computer technicians. Seventeen percent were for the hotel and restaurant sector (Chantapong and Pornpatanapaisankul, 2019).

Many large private companies have tried to develop their employees' skills through training, both within the company, such as the Siam Cement Group's Taksapipat (Developed Skills) School, CPALL's, Panyatara ("Wisdom Flow"), and Michelin Thailand. Data from the Ministry of Labor shows that 10,952 private companies offer in-house training programs which train about 4.3 million workers annually. According to the Productivity Investment Climate Survey 2007, larger Thai companies allocate larger resources and do more training than smaller companies: 93 percent of large companies (more than 200 employees) have in-house training programs, compared with 72 percent for medium-size companies (50-200 employees), and only 29 percent for small companies. In the coming years, this will have further implications on firm competitiveness and market power, as well as on the competitive structure of industry.

Human resources is considered the largest obstacle to productivity improvement in Thailand, preventing it from

escaping the middle-income trap. Despite large investment in education and continuous improvement in coverage and educational attainment, a sizable share of Thailand's workforce—especially older workers—still suffers from low education and lacks sufficient skills applicable to high technology jobs. According to the Labor Force Survey 2012-2017, the average years of schooling for workers older than 60 is 5.1 (primary education), while average schooling years for the 40-59 and 15-39 age groups are 8.1 and 10.8 (secondary education), respectively.

Figure 8. Average Years of Schooling of Labor by Age, 2012 and 2017

Age group	**2012**	**2017**
15-39	10.4	10.8
40-59	7.2	8.1
60+	4.5	5.1

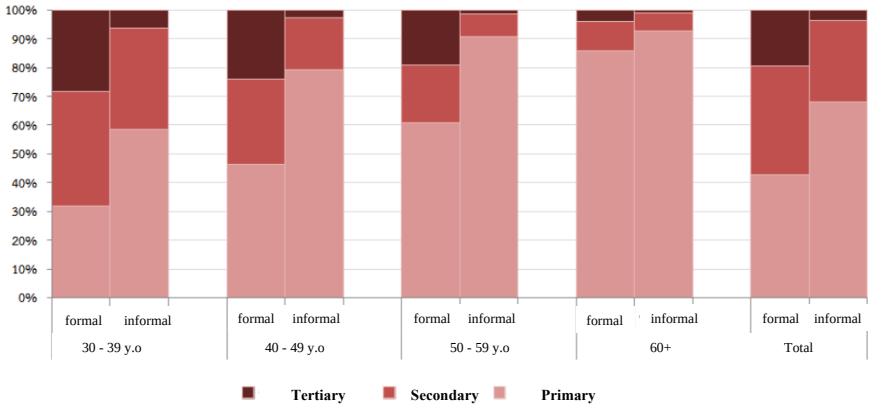
Source: Labor Force Survey

Between 2005-2012, more than 40 percent of Thailand's workers in the formal sector completed no more than primary school. The figure in informal sector was even higher: nearly 70 percent. About half of formal workers between 40-49 years of age received a primary education or less, and only about 20 percent had a university degree. This group was in their mid-career or in management-level positions and would urgently need a skills upgrade. The younger group of 30-39 year had the highest percentage of university graduates (almost 30 percent), but still occupied a relatively high proportion of the labor force with only a primary education or less. This indicates that the Thai labor force is not well equipped with

the necessary skills for working with high technology machines or sophisticated management systems.

Workers in Thailand's informal sector generally have less education than those in the formal sector in every age category. The majority of workers in the informal sector—including some 90 percent of workers over 50—receive a primary education or less. These workers do not receive social protection or security, while lower education implies lower productivity and thus lower income. They are likely to be disproportionately hit by technological disruption or technologically-induced job displacement.

Figure 9. Workers in the Formal and Informal Sectors by Age and Education



Source: NSO calculated by Bank of Thailand (2019)

Thailand needs to focus on training to reskill or upskill workers in their 30s and 40s, especially those working in SMEs. The Department of Skills Development has been criticized for offering programs not required by firms or workers. Training programs are shifting towards a more demand-driven approach. Cooperation with the private sector, such as Toyota Motors, industrial estates, and the Federation

of Thai Industries have been established. However, such demand-driven cooperation has usually involved large companies that already have high training capacity, has taken place on a small scale, and/or has been limited to a specific geographical area. Training programs are available only to Thai workers, even though Thailand relies heavily on foreign workers, only 0.4 percent of whom are skilled[5].

2.1.4 Startup Ecosystem Development

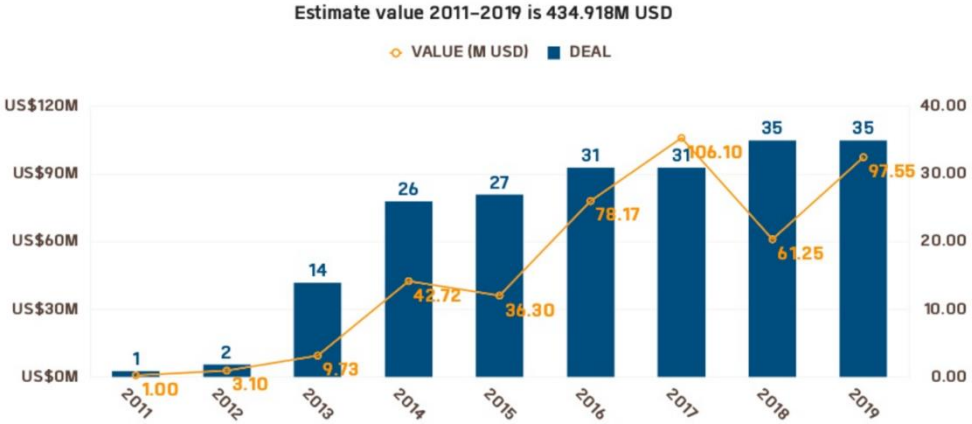
As the second largest economy in ASEAN and despite recent efforts by both government and large firms, it was not until June 2021 that the first Thai startup reached the "unicorn" status or US$1 billion valuation. And its startup ecosystem is still relatively fledgling compared to regional competitors Singapore and Indonesia, which have each produced several unicorns of their own.

Funded Thai startups have increased significantly in recent years. Through 2018, there have been 102 funded Thai startups compared to 3 in 2012. In term of investment value, in 2019, Thai startups raised fund of at least US$ 97.55 million compared to US$ 3.1 million in 2012. These figures are, however, accounted for just 2% of total ASEAN startup capital investment.[6] Indonesia continued to capture the majority of capital invested in Southeast Asia (US$ 2.38 billion in 2019) while Vietnam accounted for a much larger share of capital invested (US$ 741 million in 2019)

[5] https://www.bot.or.th/Thai/ResearchAndPublications/articles/Pages/Article_30Oct2018.aspx

[6] https://www.cento.vc/wp-content/uploads/2020/02/Cento-Ventures-SE-Asia-Tech-Investment-FY2019.pdf

Figure 10. Thai Startup Funding 2011-2019



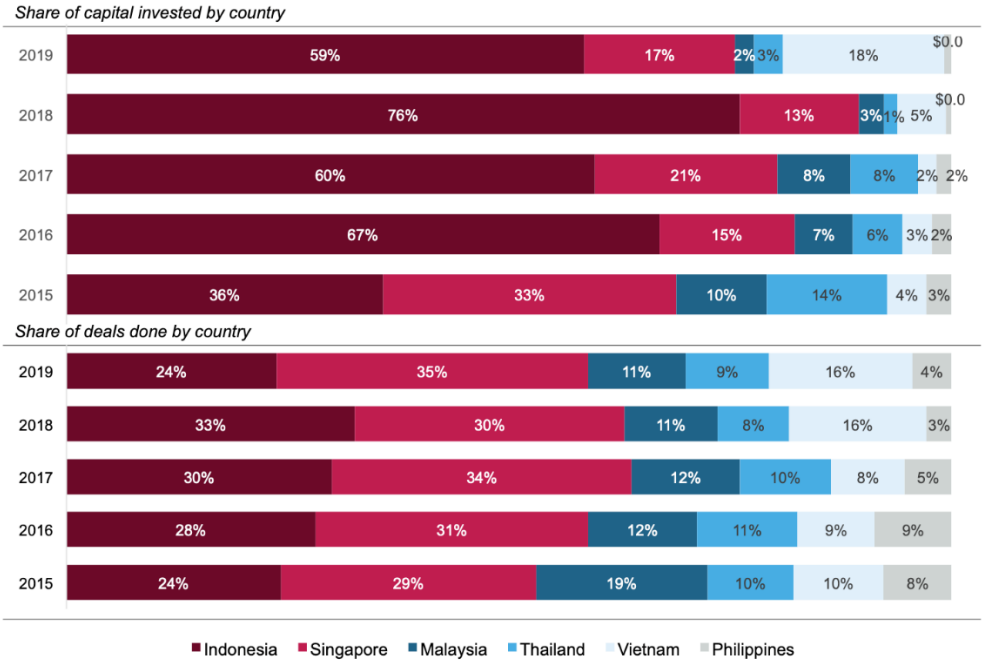
Source: Techsauce (2019)[7]

Thailand's current policy and regulatory environment create clear disincentives for start-up businesses. Promising companies that start in Thailand usually "migrate" to other countries once they start to take-off. There are several examples of firms that began in Thailand, but eventually registered in Singapore or other countries, due to a much more conducive policy environment, and attractive government incentives. The Thai government recognized that both legal framework and investment incentive are not conductive to startup ecosystem development. However, response has been slow. Thai law does not recognize the full spectrum of equity and debt relationships that exist in other legal systems such as Singapore, Europe, or the US. Legal instruments such as warrants and call options, future equity grants, employee stock option (ESOP) agreements, convertible notes, and hybrid debt instruments, which offer investors a possible future equity

[7] https://techsauce.co/report/thailand-tech-startup-report-2019-by-techsauce

position in exchange for early-stage financing, while preserving the management structure of the existing start-up as much as possible, are not allowed. Private companies in Thailand are prohibited from issuing convertible notes or bonds, effectively eliminating the key investment structure that VC firms use in their investments.

Figure 11. Startup Capital Investment in South East Asia



Source: Cento Research

Also, the government does not have a significant role in promoting investment in tech startups. Instruments such as matching fund which allows government to co-invest and leverage private investment in young startups, capital gain tax

exemption and vesting have been proposed to the government by the startup community for years without progress.

2.2 Market Concentration and Competition

In addition to boosting innovation, Thailand needs to enhance competition to address the problem of inefficient resource allocation and to climb the value chain. Despite these well-known benefits, Thailand still has a market concentration problem in many areas.

There is large and increasing concentration of the corporate sector. In 2016, the top fifth percentile of Thai firms accounted for approximately 90 percent of total revenue of all Thai firms; increasing from 85 percent in 2006 (Banternghansa et al., 2019). In term of ownership, Samphantarak (2020) reported that the top 0.1 percent of shareholders account for 44 percent of the aggregate equity in 2017.

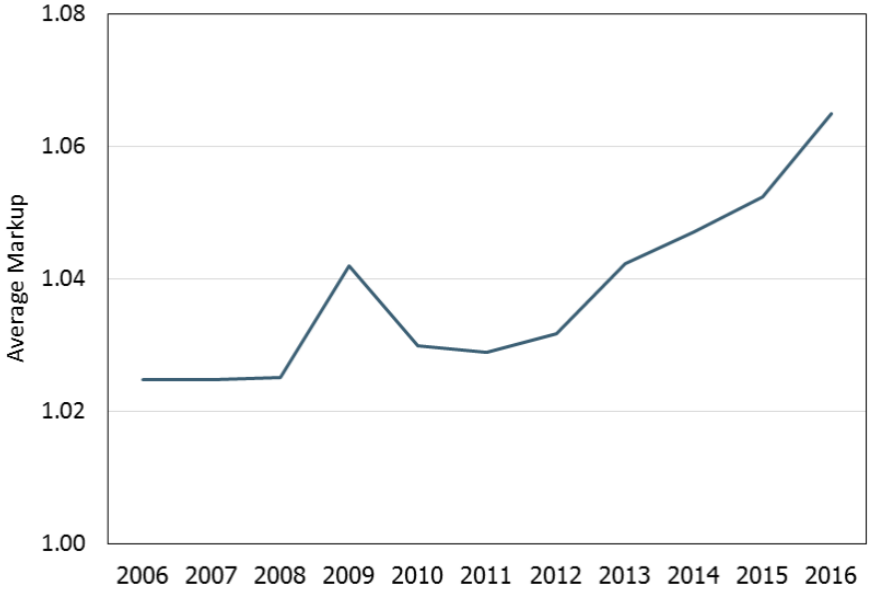
In term of size distribution, although large corporations account for the majority of Thailand's total output, over 98 percent of the total number of business enterprises in the country are classified as small- and medium-size enterprises (SMEs).[8] These SMEs hire 42 percent of total employment in the formal sector (Paweenawat et al., 2019). Increasing concentration and a size disparity have important implications on inequality. This because there are several constraints faced by SMEs, such as access to financial credit and disadvantage from scale economies, which limit them from adopting certain technologies or accessing certain markets. Moreover, the gap is likely to be widen as SMEs cannot grow as fast as large firms. The situation is worsened further considering the fact that large companies usually belong to conglomerate networks where companies 'cross-sharehold' between each other,

[8] A business entity is considered a SME if its employees are less than 200.

which in turn makes them even more concentrated. About 90 percent of these networks consist of five firms or fewer, but the biggest network consists of more than 400 firms, and over 1,000 belong to the five biggest networks (Banternghansa and Samphantharak, 2019).

Concentration of ownership networks increases a firm's market power and ability to raise markup; in the manufacturing sector, markup has been increasing during recent years (Apaitan et al., 2019). Increasing markup is an indication of greater market power. Markets in which incumbent enterprises have high market power tend to discourage new entrants. Excessive market power also tends to lower innovation and aggregate investment, which in turn, can lead to lower productivity growth.

Figure 12. Average Markup of Thai Registered Firms



Source: Apaitan et al. (2019)

Thailand's export sector is also extremely concentrated. Exports have been Thailand's most important engine of growth for more than four decades, accounting for 70 percent of GDP in 2015. However, only 5.7 percent of registered firms in Thailand are exporters, while the top 5 percent of largest exporting firms are responsible for no less than 88.3 percent of export value. Only 15 percent of exporting firms are considered high complexity firms and only 20 percent export new products (Apaitan et al, 2016; 2017).

There is also a high level of regional concentration and disparity in Thailand. Thai provinces that boast a high degree of diversification and sophistication of their products not only have higher income levels but also tend to grow faster. This leads to a large and widening gap between leading and lagging provinces. A high concentration in product innovation activity across firms and provinces reflects a concentration of capabilities within those firms and regions. Even though some firms are succeeding in expanding into higher value-added products and industries, inequality and limited diffusion could be factors constraining growth below its potential.

Concentration, abuse of market power, and other anticompetitive conduct could be addressed by implementation of the Trade Competition Act, Thailand's competition law, to ensure a competitive market structure and an efficient allocation of resources. The revised law was enacted in 2017 in an attempt to improve the autonomy of the Office of the Trade Competition Commission of Thailand (OTCC), the regulatory authority under the act. However, enforcement has been notable ineffective. Despite being the first ASEAN country to enact such a law in 1999, there have been no prosecutions brought against a business entity. This lack of enforcement has left SMEs and consumers at the mercy of large incumbents with market power. The inability

to control mergers and market concentration has led to competition concerns, as merged entities with market power are able to abuse their market dominance and fend off competition. This has deep implications on social welfare and innovation. OTCC needs the right structure and resources to effectively investigate anticompetitive practices, conduct complex market and economic analysis, and make informed and objective decisions. This included capable staff with suitable experience and a diversity of skills in competition economics, law, finance, and business.

The task of competition regulation becomes even more challenging in the age of disruptive innovation. Innovation can result not only in improvements of existing products, but also in new technologies that displace earlier technology and create new markets. These bring unique challenges to OTCC as they create tension between regulation and competition policy. OTCC must therefore strike a balance between promoting public policy objectives (e.g. consumer protection) and enabling entry and expansion of disruptive firms.

Thailand's large service sector would also benefit greatly from enhanced competition and liberalization. The service sector has the largest and most rapidly increasing share of employment (around 45 percent), and its share of GDP has been relatively stable for a long period. Labor productivity in the service sector, however, has not notably improved. Thailand is unlikely to escape the middle-income trap unless the share of service output to GDP increases to levels comparable to those in high-income countries, such as the US, Japan, and Singapore (around 70-80 percent of GDP) (Charoenporn, 2017).

This because the service sector is highly protected. Thailand's Foreign Business Act (FBA) is the most protective service investment law in ASEAN and governs most investment activity by non-Thai nationals. The FBA

prescribes a wide range of business that may not be conducted by foreigners unless a relevant license has been obtained or an exemption applies. Various other Thai laws set forth foreign ownership restrictions in certain sectors, primarily in banking, insurance, and telecommunications. The FBA also details the types of business activity reserved for Thai nationals; foreign investment in those businesses must comprise less than 50 percent of share capital unless specially permitted or otherwise exempt. These high entry barriers have resulted in limited FDI and technology transfers in the service sector.

2.3 Economic Inequality and Poverty

Thailand has made substantial progress in reducing poverty and improving standards of living over the last four decades, as it transitioned from a low-income to an upper-middle income country. Despite this, the country remains extremely unequal in many dimensions.

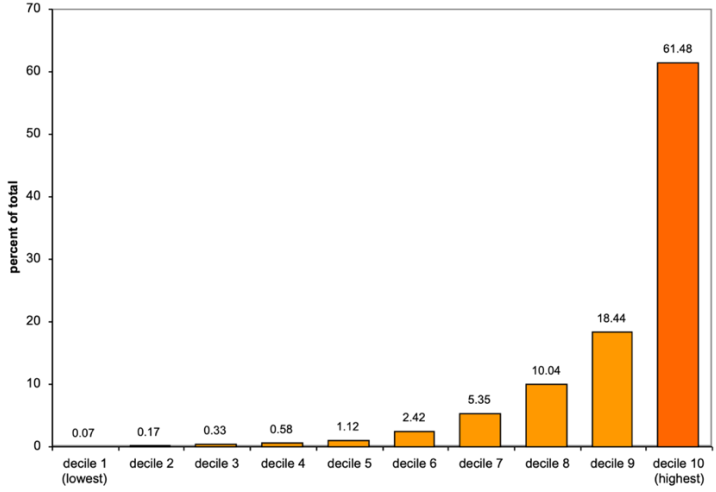
The income of Thailand's richest 1 percent grew 2.8 times faster than the average rate between 1988-2011 (Pootrakul, 2013). In terms of wealth, according to a 2018 recent report by Credit Suisse (2018), Thailand has the largest wealth gap in the world, with the richest 1 percent controlling almost 67 percent of the country's wealth. The poorest 50 percent of Thais hold 1.7 percent, while richest 10 percent command a massive 85.7 percent. Land ownership is a prime example of wealth inequality, with the distribution of titled land extremely skewed and a Gini index[9] as high as 0.89 percent.

[9] Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure or wealth) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line.

The Gini index measures the extent to which the distribution of income (or in some cases consumption or wealth) among individuals or households within an economy deviates from a perfectly equal distribution. In 2012, Thailand's richest 10 percent owned 61.5 percent of land (Laowakul, 2016).

Thailand has also seen here is a sharp rise of poverty in recent years. Between 2015 and 2018, Thailand's poverty incidence increased from 7.2 percent to 9.8 percent despite moderate economic growth (Wang et al., 2020). This has raised concerns of chronic poverty in some segments of the population, which would make inequality much more difficult to improve (Jitsuchon, 2020).

Figure 13. Land Ownership by Decile, 2012



Source: Laowakul (2016)

Thailand's centralized state and an urban bias in development has also contributed to regional inequality in a

Thus, a Gini index of 0 represents perfect equality, while an index of 1 implies perfect inequality.

variety of ways. First is bias in the provision of public goods. Thailand's expenditure of public funds is heavily distorted towards Bangkok, where economic activity is most concentrated. On the other hand, the administration of public goods and services by Local Administrative Authorities (LAOs) has been ineffective, despite significant increases in LAOs' share of public revenues from 8 percent in 1999 to 29 percent in 2017.[10] The main reason is that the process of decentralization has not given effective decision-making autonomy to LAOs; the central government continues its traditional command and control functions. The centralized operation of public services such as education and health has created public institutions that are not accountable to local populations. The structure is therefore ineffective in responding to local interests.

Second, education quality and outcomes in Thailand vary by both region and household income. Students from rural areas and poorer household tend to receive the lowest-quality education. The result of OECD's assessment of Thai students' learning outcomes in 2012 suggests that the poorest 40 percent are functionally illiterate; that is, lacking critical skills indispensable for jobs in a modern economy (World Bank, 2016). This has important implications on earning power and the persistence of inequality, as workers entering the market with needed skills can earn higher wages at a young age and realize higher wage growth over their work life.

The repercussions of inequality on social, political, and economic stability have been well documented. In Thailand, inequality has been identified as one of the underlying factors

[10] Data from Office of the Decentralization to the Local Government Organization Committee

contributing to class conflict and political turmoil over the past decade.[11]

Inequality often persists across generations as well. Better educated parents and richer households spend more money and resources on their children's education (Phongpaichit and Benyaapikul, 2013). As data from a socio-economic survey in 2008 suggests (Lathapipat, 2011), the average household income of students enrolled in college was 1.7 times higher than that of students enrolled in high school. Thailand did not have an inheritance tax until 2016, and it has not proven effective as a measure to reduce wealth inequality (Phongpaichit, 2016).

2.3.1 Taxation System and Reform

To tackle poverty and inequality, many have recommended that Thailand extend the coverage of its social welfare programs to provide a wider social safety net and greater equality of opportunity. This would require not only efficient management of spending but increasing public revenue as well. However, the ratio of government revenue to GDP, about 18 percent over the past two decades, is relatively low compared to developed countries (30%-50%) and even similar middle-income countries (e.g. 25% for Venezuela and 32.5% for Turkey) (Phongpaichit, 2011).

Therefore, reform of the taxation system to increase both revenue and fairness within the system should be considered. The structure of personal income tax is insufficiently progressive, while Thailand's base is very narrow: about 10 percent of the labor force, or about 3 million workers, pay income tax. There are also a long list of exemptions and loopholes in tax code, and no provisions for taxation on assets

[11] See also Satitniramai (2020) and Pitidol and Techasunthornwat (2017).

or capital gains. And inheritance tax was enacted in 2016 but its tax-free threshold of 50 million baht has meant limited applicability and thus limited revenue. A new Land and Buildings Tax[12] is taking effect in 2020 with the aim of encouraging land use and increasing LAOs' revenue. It remains to be seen if it will lessen ownership inequality.

2.3.2 Technological Disruption and the Labor Market

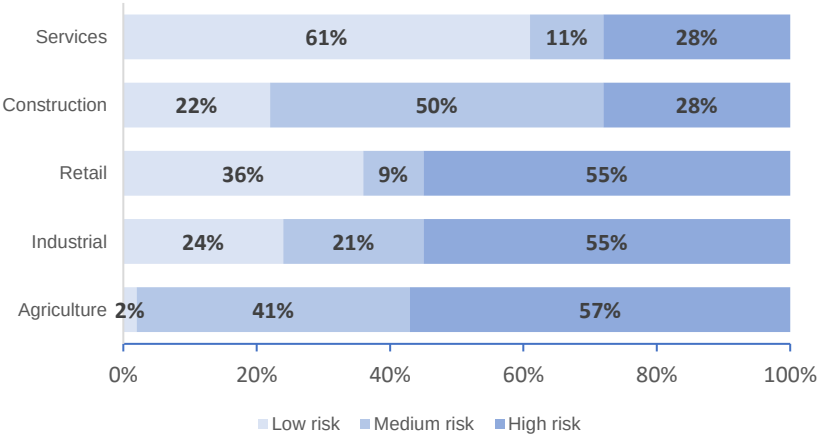
With the advent of the Fourth Industrial Revolution, production is on the cusp of a paradigm shift driven by three key technology megatrends: connectivity, intelligence, and flexible automation (WEF, 2018b). Yet there have been growing concerns about the potential impacts on the manufacturing sector and labor market of this technological disruption. On the one hand, labor-saving technology, such as robotics and factory automation, may provide an opportunity for Thailand—with its reasonable market size and high digital literacy—to 'leapfrog' productivity improvement and attract FDI in the face of labor shortages, rising wages, and an aging population (Lee et al., 2018). This scenario rests on the assumption that the work force has the skills necessary to work with advanced automation technology, and that required institutional factors are present, such as investment incentives.

On the other hand, some types of jobs will be replaced. In the US, it is estimated that 47 percent of jobs are potentially at risk of being rendered obsolete by automation (Frey and Osborne, 2013). Similar estimates have been carried out for Thailand by Leepipatpaiboon and Thongsri (2018), the results suggesting that, in 10-20 years, if the structure of the labor market remains unchanged, 55 percent of labor in the industrial sector (about 3 million workers) are at high risk of being replaced. Groups at the highest risk are low- and

[12] http://web.krisdika.go.th/data/document/ext848/848343_0001.pdf

middle-skilled white collar workers who receive hourly wages and hold degrees in the social sciences.[13] Even though the impact will not be sudden or immediate,[14] skills development policies will become increasingly urgent.

Figure 14. Proportion of Work Force at Risk by Sector



Source: Leepipatpaiboon and Thongsri (2018)

3. Economic Impact and Implications of COVID-19

3.1 Immediate Disruption

While Thailand was relatively successful in limiting the tide of Covid-19 infections in 2020, the impact of the

[13] ILO (2016) also estimated that about 44 percent of Thailand's workforce are at risk of replacement by automation.
[14] This because i) firms take time to adapt, ii) robots and automation will first fill the jobs left vacant by aging society, iii) firms and labors will adjust, and iv) technology will bring about new type of jobs.

pandemic on the economy has been severe, with negative effects felt at the macro-economic level, in disruption to key industries, and ultimately in severe impact on the poor and middle class. The short-term effect has been dramatic, with the economy contracting by 6.5 percent in 2020. World Bank research done over the past year provides a useful assessment of the crisis and potential paths to recovery.11 The financial sector appears to have weathered the crisis, but Thailand has the second-highest level of household debt in East Asia (80 percent of GDP in March 2020) and non-performing loans are especially high for small and medium-size enterprises (SMEs). Efforts have been made to track the struggle of Thai businesses, especially micro, small, and medium firms (many of which have closed permanently), and the devasting effects this is having on communities and households as jobs have been lost and lives disrupted. An additional 1.5 million Thais may have already fallen below the poverty line. On May 16, 2021, Thailand's National Economic and Social Development Council revised its growth forecast for the Thai economy in 2021 to only 1.5 percent. It is clear that only an efficient and rapid roll-out of vaccines can stop the current contraction, which will require robust recovery in the tourism and export sectors by late 2021.

3.2 Heightened Urgency of Structural Reforms

Beyond the immediate economic impact and plans for recovery, it is important to consider how the pandemic has affected the urgency for addressing the trend of faltering productivity growth and declining export values. Despite the difficulties facing the export manufacturing sector discussed earlier, Thailand's economy remains heavily dependent on exports. In 2020, the global economy and trade volumes fell sharply. The near-term impact in early 2020 included both an

immediate global supply chain disruption and a sharp reduction of external final demand. Manufacturing in Thailand is highly reliant on the import of intermediate goods from China, Japan, and the Republic of Korea. The spread of the virus in those countries and subsequent factory and transportation shutdowns severely disrupted Thailand's supply chains. According to the Ministry of Commerce, Thailand's exports in the first half of 2020 contracted by 7.1 percent.12 Manufacturing exports, which contribute approximately 80 percent of total Thai exports, decreased by 7.5 percent in the first half of 2020. Automobile exports dropped sharply by 20.5 percent, electrical appliances by 11.2 percent. As a result of supply chain disruption and reduced global demand, combined with measures taken within Thailand to contain the spread of the virus, Thai exports fell roughly 6 percent in 2020. The government expects exports to rebound by 4 percent in 2021 as the global economy regains its footing and external demand for Thai goods improves.

While this is good news, it is vitally important to recognize that "recovery" to pre-pandemic levels means returning to Thailand's long-term negative trend of flattening total exports and declining export values. The increasing structural constraints to future growth that the country faced at the beginning of 2020 remain in place. Moreover, at least over the next few years, two of the mitigating developments that had been holding off a major economic slowdown—tourism and inflow of low-cost migrant labor—have been hit especially hard by the pandemic.

Tourism: Covid-19 has caused a drastic fall in international visitors and tourism income. Arrivals in 2020 are likely to have fallen to 8 million, an 80 percent decline from 40 million visitors in 2019. The negative impact on the Thai economy in 2020 was devastating, especially on workers in micro, small,

and medium enterprises—61 percent of whom are self-employed in the informal economy. In mid-2020, the Thai government approved a substantial domestic tourism stimulus package intended to spur domestic spending and help keep the tourist industry afloat. International arrivals may partially recover in late 2021 assuming vaccines become widely available by then, but full recovery of the sector is unlikely for at least several years.

Foreign Migrant Workers: Though Thailand has allowed foreign workers to remain in Thailand, the formal requirements can be difficult for many low-wage workers, especially under current circumstances. Moreover, with the economy stalled, finding jobs has become more difficult. For these reasons, there are indications that many low-skilled workers from Myanmar, Laos, and Cambodia have returned home at least until economic opportunities improve in Thailand. This will definitely have a negative impact on the economy, though how much and for how long is difficult to predict.

All of these conditions suggest that it will be very difficult for Thailand to simply recover to the economy it had pre-pandemic. The only viable and sustainable path forward is to embrace the need for significant productivity-enhancing reforms across a broad front that are essential for moving the economy toward more innovation-based growth.

4. Conclusions and Discussions

On Innovation

Thailand's best chance of promoting rapid innovation and productivity improvements will come from small start-up companies, rather than large incumbent firms. While other

economies in Southeast Asia have produced dozens of *unicorns* (i.e., start-up firms that have reach a US$1 billion valuation), Thailand has produced just a few until very recently. Yet, Thailand has the second largest domestic economy in ASEAN, and is seen as a highly attractive place to live by digital economy workers. While Thailand's shortage of high-skilled workers is a constraint, there are several viable strategies for addressing this problem. First, Thailand already has a large population of "gig workers" (high-skilled professionals doing short-term contract assignments virtually for clients around the world) but many of them have difficulty working for a Thai company because of their immigration status. Furthermore, start-up firms do not necessarily require engineers and high-skilled workers to be physically based in Thailand. Many of these key skills areas could be met through virtual employees working abroad.

One of the principal constraints for Thailand to escape middle income is the shortage of high-skilled labor, particularly skills in digital technology, engineering, and the creative economy. For Thailand to move up the value chain, Thai firms must have greater access to highly valued skill sets. Furthermore, Thailand's competitiveness in high tech start-ups has lagged other regions, in part due to difficulties associated with technical and creative high-skilled labor.

Thailand's education system is struggling to meet the demand for high-skilled labor. While some of the Kingdom's leading universities and technical colleges are producing graduates, they tend to have outdated skillsets, that require employers to retrain or invest in professional development.

Other countries have addressed this challenge by allowing high-skilled foreign workers to more easily work in the country. This approach allows for short-term rapid increases in the pool of high-skilled labor, and technology transfer over time to local professionals over time. However, Thailand's

antiquated work permit and visa system make it extremely difficult for firms to draw on foreign high-skilled workers. Furthermore, despite the fact that many high-skilled workers are present in the country, a large proportion of them are working without legal status, and usually servicing clients or employers remotely in other countries. If they were able to work for Thai companies legally, it is likely that there would be a short-term surge in the high-skilled labor pool.

The shortage of foreign high skilled workers, and the stagnant technology start-up sector is also inhibiting the growth of domestic high skilled workers. With relatively few jobs, and few opportunities for technology transfer, many aspiring Thai high skilled workers are having difficulty in improving their skills and finding permanent jobs.

While the reforms to attract and keep foreign high skilled workers in Thailand would be beneficial to the economy, the main opposition will come from government agencies focused on national security, immigration and labor. It will be essential to address the objections of national security agencies who are focused on restricting all immigration, and objections from labor-oriented agencies who are focused on minimizing the space for foreign workers in the Thai economy. Furthermore, the lack of coordination and overly bureaucratic procedures among the various agencies involved in oversight and regulation of work permits and visas to streamline and expedite reforms.

One of the most important obstacles to industry upgrades and productivity improvements is human capital. Enhancing productivity of Thailand's current work force through reskilling and upskilling is required. The government plays a key role in preparing the work force with both "lifelong learning skills" and "employability skills" required by the labor market, including those required to operate, maintain, or work with automated machines and digital platforms.

Despite significant investment and promotion of "upskilling" by the Thai Government, there has been very little progress to close the skills gap between graduates and demand from the private sector. Furthermore, given the rapidly changes in fields like artificial intelligence and robotics – often described as the "Future of Work" – most of the skills currently taught in public universities, technical and vocational colleges, and secondary schools will be irrelevant for the jobs of the future. Given the rapid pace of change, it is very unlikely that public educational institutions will be able to provide the upskilling and reskilling that the private sector needs.

The private sector must drive the process of skills development in Thailand, with support and incentives from Government. Skills development must be demand-driven in order to ensure alignment between private sector needs and work force skills. Private firms will be far more effective at training their own employees, or creating feeder systems of promising young talent who may be eligible for future employment. Government should shift investment into supporting private sector led skills development, including through tax incentives, and systems to provide official skills credit/recognition for private sector provided training. Furthermore, collaborations between educational institutions and private firms to support skills training should be facilitated by government.

On Market Concentration and Competition

In 1999, Thailand became the first nation in Southeast Asia to implement an effective competition law, when such laws were unfamiliar to most developing countries. But after two decades, no prosecutions have been brought. Market dominance and abuse of market power are well-known

problems among the general public in Thailand, and result in a distortion of resource allocation and losses to consumers and to the economy. Yet the issue has received little attention from the government. Free and open competition benefits consumers by ensuring lower prices and new and better products. Competition and the profit opportunities it brings also stimulate businesses to find new, innovative, and more efficient methods of production.

This market consolidation has undermined Thailand's ability to move towards high income status by:

- Reducing investment in research and development – Thailand has one of the lowest levels of investment in R&D, as companies have are generally not threatened by new competition. This means that Thai companies are not developing higher value-added products at a sufficient level.
- Stifling domestic innovation – With so many sectors locked up by protected monopolies or oligopolies, Thai entrepreneurs are limited in their ability to break into new markets, stifling competition and economic growth.
- Vertical integration suppressing competition and distorting prices – Large conglomerates often control distribution channels, which limits the retail options for smaller companies to distribute their products. This suppresses competition across a broad range of consumer products/services. It also gives large companies the ability to eliminate competition unfairly.

Full implementation of the Trade Competition Act B.E. 2560 (2017) would be a significant step forward for Thailand's progress towards high income statues. The OTCC is in the unique position of having new sweeping – but largely untested

– authority to monitor competitive practices, and enforce anti-trust laws. They also have the ability to advise government on competition policy, and promote more robust and effective anti-trust measures. OTCC has tremendous potential to transform the competition landscape in Thailand, but they require support to further develop their expertise and staff experience.

On Economic Inequality and Poverty

Thailand is one of the most inequal societies in the world. Decades of development have improved the standard of living substantially but inequality has risen even more drastically. The current system and distribution of wealth, income, and educational opportunities in Thailand also indicate that inequality could prove persistent inter-generationally and obstruct long-term growth and stability. For Thailand to advance to the next stage of development, these problems must be overcome.

Outside of Bangkok and the Eastern Economic Corridor, Thailand has extensive regions with great promise, but under-utilized assets. For example, large cities in the North, Northeast, and South have the potential to be centers of dynamic service industries, or start-up incubators. Recent evidence shows that for many young people Bangkok and the Central region has grown too expensive to justify migration to find employment. Increasingly, bright young graduates are looking to set up new businesses in their home provinces, or secondary cities nearby.

In many of the fastest growing Asian economies, economic growth has taken off in secondary cities where local officials are given the autonomy, authority, and incentive to improve the business enabling environment. In countries like Vietnam and China, this led to intense competitions between

rising political leaders to transform their cities into growth centers, and cultivate new businesses. The competition led to innovations in local governance, and investment in the infrastructure necessary to support start-up businesses.

In order to replicate that type of competition, Thailand must first give officials at the municipality or province level more autonomy and authority to be able to shape their local business environment. In Thailand's highly centralized system, the incentives for local officials are not currently aligned to enable this competition for dynamic, business-friendly cities. In particular, local officials must have more control over fiscal revenue raising, to fund their initiatives, and more control of local regulations and infrastructure development. Many of these changes will require devolution of authority from central government ministries that current control the resources and policy at the local level.

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