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Analysis of the impact of COVID-19 on micro, small and medium-sized enterprises (MSMEs) in Thailand from competition policy and market access perspectives

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Executive summary

This report is focussed on identifying the impact of Covid-19 on Thai MSMEs using a mixed methods approach. First, empirical analysis of manufacturing sector MSMEs' technical efficiency using the 2017 Thai Industrial Census data establishing a baseline pre-Covid-19 measurement. Second, comparative local level data was collected and analysed using the 2020 UNCTAD MSME survey to provide our Covid-19 impact estimates. Fourth, in-depth interviews were undertaken with selected survey respondents to complement this analysis with qualitative insights. Finally, this research was complemented by a broad discussion of policy and environmental factors influencing opportunities and challnges for Thai MSMEs. The results indicate the major impact of Covid-19 on MSMEs has been on sales revenue and the need for temporary sources of finance. There are common threads in the evidence presented. Foreign ownership and investment in local enterprises is a potent force to rapidly upgrade firm technical efficiency (competitiveness), technology and engagement in exporting. The capital stock and technology of domestic Thai MSMEs needs to be improved, otherwise Thailand will not benefit from the effects of free trade agreements and regional economic integration in general, and inclusive growth and development, a key objective of ASEAN Economic Community (AEC), will not be achievable. It is clear from this study that Thai small businesses are aware of these developments, and by implication the opportunities arising, and the challenges they face is to ensure that they are in a good position to take advantage of these. This can occur from appropriate business support measures including that of access to finance, technology, skilled labour, and market information.

Structure of the Report

1. Chapter 1: Introduction

1.1 National overview and context

Thai MSMEs have played a significant role in the economic and social development of the country (Office of Small and Medium Enterprises Promotion (OSMEP), (OSMEP, 2020; Charoenrat and Harvie, 2017a). This contribution has been multi-dimensional in nature and includes contributions to: business numbers, employment, GDP, exports, regional development, economic inclusion and empowerment of women and minorities (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019; Harvie and Charoenrat, 2015).

From the outset it is important to be clear as to how MSMEs are defined in Thailand, as there is no standard international definition. The two most common means of defining an MSME are by number of employees or annual income. Table 1.1 displays the employment and income criteria (by sector) used by the Office of Small and Medium Enterprises Promotion (OSMEP) regulation of 7 January 2020.

Table 1.1: Summary: Definitions of Thai MSMEs by Sector

Sectors	Number of Employees (Workers)	Annual Income (THB, Million)
1. Manufacturing		
1.1 Micro enterprises	≤ 5	≤ 1.8
1.2 Small enterprises	≤ 50	≤ 100
1.3 Medium enterprises	51-200	100-500
2. Wholesale		
2.1 Micro enterprises	≤ 5	≤ 1.8
2.2 Small enterprises	≤ 30	≤ 50
2.3 Medium enterprises	30-100	50-300

Sectors	Number of Employees (Workers)	Annual Income (THB, Million)
3. Retail		
3.1 Micro enterprises	≤ 5	≤ 1.8
3.2 Small enterprises	≤ 30	≤ 50
3.3 Medium enterprises	30-100	50-300
4. Service		
3.1 Micro enterprises	≤ 5	≤ 1.8
3.2 Small enterprises	≤ 30	≤ 50
3.3 Medium enterprises	30-100	50-300

Source: OSMEP (2020)

According to available statistics from 2015 to 2019, at least 99.5% of the 3 million enterprises in Thailand were MSMEs (see Table 1.2). MSMEs employed over three-quarter of the Thai workforce and contributed approximately 40% of GDP and 30% of exports. Almost one-fifth of MSMEs were in the manufacturing sector, employing between 25 to 30% of the private sector workforce (OSMEP, 2015-2019). Based on these criteria and data according to Thailand's Office of SME Promotion (OSMEP)[1], the country currently (2016) has more than 3 million enterprises, of which 99.7 per cent are MSMEs, but only 0.3 per cent, about 9,000 firms, are large enterprises (OECD, 2018).[2]

While MSMEs are relatively evenly spread throughout the country, there is a particularly heavy concentration in Bangkok and its environs (18% and 26.7% of total MSMEs respectively), Chonburi (3.4%) and Chiang Mai (3.2%). Available research shows that there is a wide disparity of efficiency in MSMEs across the country's regions and also sub-manufacturing sectors.

Table 1.2: Contribution of manufacturing MSMEs[3] to the Thai economy, 2015 – 2019 (pre Covid)

Enterprises	2015	2016	2017	2018	2019
Business numbers					
MSMEs (% of total firms)	99.7	99.8	99.6	99.8	99.5
Manufacturing MSMEs (% of MSME firms)	19.2	18.9	18.7	17.8	17.7
Manufacturing MSMEs (% of total firms)	19.2	18.9	18.6	17.8	17.4

[1] Focusing only on the manufacturing sector[1] (see Table 1.2), almost one-third of MSMEs were in the manufacturing sector over the period 2015 to 2019. Manufacturing MSMEs employed around 26 per cent of the private sector workforce on average during 2015 to 2019 and their contribution to total MSME GDP was 25.10 per cent over the same period (OSMEP, 2015-2019).

[2] See Table 1.2 for manufacturing MSMEs.

MSME employment					
MSMEs (% of total employment)	76.2	78.2	77.9	83.9	80.4
Manufacturing MSMEs (% of MSME employment)	38.8	34.2	33.2	29.6	31.7
Manufacturing MSMEs (% of total employment)	29.6	26.8	25.9	24.8	25.3
GDP of MSMEs					
MSMEs (% of total GDP)	38.1	39.8	40.1	42.4	41.5
Manufacturing MSMEs (% of MSME GDP)	30.8	30.4	32.3	31.6	30.9
Manufacturing MSMEs (% of total GDP)	11.8	11.5	12.1	11.4	10.5
MSME exports					
Total exports (% of total GDP)	62.4	61.5	61.9	62.9	61.1
MSME exports (% of total exports)	27.9	28.1	28.9	28.9	28.7
MSME exports (% of MSME GDP)	48.9	45.8	44.5	51.1	48.5
MSME exports (% of total GDP)	18.6	17.3	17.9	17.2	16.1

Source: The Office of Small and Medium Enterprises Promotion (OSMEP) (2015-2019)

This is a similar business production and size structure to that of many other countries in Southeast Asia, but a number of important observations for Thailand's business structure can be made. First, there is a "missing middle"[4]. Only 15,000, or 0.5% of all enterprises, are medium sized enterprises. policies and regulations, particularly in the context of market concentration, ensuring competition and market entry, and ensuring a level playing field for all enterprises.

Second, there are more large firms in Thailand than there would be in a typical OECD and ASEAN country. There is, therefore, a dominance of large firms in the economy. Third, MSME density in Thailand (at 4.3 MSMEs per 100 people) is only slightly less than the typical density in OECD countries (5 SMSEs per 100 people). Fourthly, while MSMEs are quite evenly spread throughout the country, there is a particularly heavy concentration in Bangkok and its environs (18% and 26.7% of total MSMEs respectively), Chonburi (3.4%) and Chiang Mai (3.2%). Fifthly, studies suggest, including this one, that there is a wide disparity of efficiency in

[4] Or an under-representation of medium sized firms in the business structure. Medium sized enterprises tend to contribute disproportionately to GDP, employment, exports, and contribution to innovation, as well as participation in supply chains. They are also an important source of growth and future large firms. This under-representation could be due to barriers to growth for micro and small firms at the lower end, resulting in limited progress to being large enterprises at the top end.[5] But not in terms of employment.

MSMEs across the country's regions and sub-manufacturing sectors. Sixthly, MSMEs are mainly in the wholesale and retail trade sector (about 42% of all MSMEs), manufacturing (18%), and hospitality (40%.6%). Finally, and like many other OECD countries, MSMEs in Thailand make disproportionately smaller contributions to employment (80%), GDP (40%) and exports (28%) compared to their overall business numbers (99.7%).

In contrast, large enterprises account for less than 1% of all firms, but contribute 60 percent of GDP and 86 percent of total exports (2019) (see Table 1.3). Indeed, as mentioned previously, there are slightly more large firms in Thailand than is typical in OECD and other ASEAN countries. They dominate the economy, its key sectors and exports[5]. This lopsided business enterprise production structure is a legacy of the country's economic development strategy adopted during the 1980s and 1990s, which was based on FDI promotion combined with export driven industrialisation[6]. Emphasis was placed on attracting large multinational enterprises. This has important implications for the country's competition and market access.

Table 1.3: Value and Percentage of Exports Classified by Size of Enterprise, 2015-2019

Items	2015	2016	2017	2018	2019
Exports (Thai Million Baht)					
Large Firms	5,160,426	5,218,451	5,882,947	5,640,487	6,425,237
Small Firms	1,351,507	1,477,928	1,345,475	1,448,155	717,866
Medium Firms	628,927	712,622	644,945	877,697	305,846
MSMEs	1,980,435	2,190,550	1,990,420	2,325,852	1,023,713
Total	**7,140,861**	**7,409,001**	**7,873,366**	**7,966,339**	**7,448,950**
Percentage of Exports					
Large Firms	72.27	70.43	74.72	70.80	86.26
Small Firms	18.93	19.95	17.09	18.18	9.64
Medium Firms	8.81	9.62	8.19	11.02	4.11
MSMEs	27.73	29.57	25.28	29.20	13.74

[5] But not in terms of employment.

[6] Facilitated by the country's reasonably well-developed infrastructure, its open market economy and generally pro-investment policies.[7] This became increasingly important as more policy emphasis shifted towards encouraging the growth of MSMSEs from the late 1990s. This dominance of large firms in the Thai economy suggests the need for a strong Competition policy to enable small firms to compete, survive and enter new markets, and avoid being dominated/exploited by large firms. With Covid 19 small firms are in an even weaker position now and will require a further strengthening of competition policy to ensure market access. Large firms may attempt to put up market entry barriers otherwise, and to further take advantage of the weakened position of MSMEs.

Total	**100**	**100**	**100**	**100**	**100**

Source: OSMEP (2015-2019)

It is essential to ensure that MSMEs, and entrepreneurial activity in general, can flourish, compete, set-up, survive, grow, enter new markets with the aim of encouraging innovation, productive activity and the development of new sunrise industries[7].

During the period of the 1980s and 1990s the country also engaged in, what turned out to be, ill-judged and poorly managed capital account liberalisation. While this did facilitate sizeable inflows of foreign direct investment (FDI) into the manufacturing sector by Japanese, South Korean and Taiwan multinationals[8], it also led to a rapid build-up of foreign debt. This FDI strategy enabled Thailand to become a major exporter of vehicles and vehicle parts from the 1980s. By 2016 this sector alone generated around 27 per cent of GDP, contributed massively to employment, exports and the involvement of local MSMEs in industry supply chains.

While FDI by large foreign owned firms was beneficial in building up this solid industrial base and productive capacity in targeted sectors, capital account liberalisation undid this as it also facilitated short term capital inflows, mainly in the form of debt, as domestic banks borrowed overseas at lower interest rates to on lend to local borrowers at a higher interest rate[9]. This

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[8] The growth in manufacturing in Thailand since 1970 has been especially dramatic, reflecting the large investments made by multinational firms. Although growth was initially led by the garment industry in the 1970s, electronic products took the lead in the mid-1980s, propelled by investment and transfer of production from Japan, South Korea, Taiwan, and Singapore. Since the late 1990s, Thailand has been a notable exporter of motor vehicles and, more recently, telecommunications equipment. While industrial development has been concentrated in and around Bangkok, production has also expanded along the Eastern seaboard and, more recently, into Northern, especially North-eastern, Thailand.

[9] As part of the liberalization of Thailand's financial markets in the early 1990s, the government established the Bangkok International Banking Facility (BIBF). This was an offshore banking entity that became a major conduit for accessing international capital. Originally intended as a means to establish Bangkok as a major financial centre rivalling Hong Kong and Singapore and serving all of Southeast Asia, the BIBF in essence became a channel through which foreign funds (primarily in the form of short-term loans) could enter Thailand's domestic economy.

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triggered the Asian Financial crisis of 1997-1998 as much of the domestic borrowing was invested in non-productive assets such as property and real estate stoking a property price boom, and not into productive assets and investment with longer term economic growth benefits that would enable repayment of such borrowings.

Table 1.4 documents the regulators and policymakers concerning MSMEs in Thailand. Table 1.5 also shows finance and nonfinance regulations relating to MSMEs in Thailand during 1992-2020.

Table 1.4: Regulators and policymakers in relation MSMEs in Thailand

Regulators and Policymakers	Responsibilities
1. Office of National Economic and Social Development Board (NESDB)	Formulating national long-term strategies and MSME policies.
2. National Board of SMEs Promotion	Stipulating MSME promotion policies and plans, and supervising the OSMEP's operations.
3. Office of Small and Medium Enterprises Promotion (OSMEP)	Formulating plan and coordinating MSMEs promotion policies.
4. Fiscal Policy Office, Ministry of Finance (FPO)	Formulating national fiscal and economic policies, and supervising provincial-level microfinance (Pico) finance lenders.
5. Bank of Thailand (BOT)	Monetary policy, financial stability, regulating and supervising commercial banks, specialized financial institutions, some nonbank finance institutions, and payment service providers.
6. Securities and Exchange Commission (SEC)	Regulating and supervising capital markets, including Stock Exchange of Thailand (SET) and Mai.

Source: Asian Development Bank (2020)

Table 1.5 : Finance and nonfinance regulations relating to MSMEs in Thailand during 1990-2020.

Finance Regulations	Outline
Small Industry Credit Guarantee Corporation Acts: 1991 and 2017	Regulating on credit guarantee operations for banks, providing SME loans. The 2017 amendment added guarantees for nonbanks and factoring and hire-purchase leasing.

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Finance Regulations	Outline
Credit Information Business Acts: 2002, 2006 and 2008	Regulating on credit information business.
Small and Medium Enterprise Development Bank of Thailand Act 2002	Establishing Small and Medium Enterprise Development Bank of Thailand.
Business Collateral Act 2015	Range of eligible collateral for loans expanded to movable assets.
Royal Decree on Tax Exemption and Support for the Implementation of Taxes under the Revenue Code 2015	Requiring the financial statements submitted to the Revenue Department as an evidence in applying for a loan with a financial institution.
Payment Systems Act 2017	Regulating on national payment system.
Bank of Thailand Notification on the Determination of Rules, Procedures, and Conditions for Peer-to-Peer Lending Businesses and Platforms 2019	Regulating on peer-to-peer (P2P) lending platforms.
Securities and Exchange Commission Notification on the Offering of Securities for Sale through Crowdfunding Portals 2019	Regulating on equity crowdfunding portals and investor protection.
Securities and Exchange Commission Rules on Digital Asset Exchange 2019	Regulating on digital asset companies that trade in an online exchange platform.
Community-based Financial Institutions Act 2019	Regulating on the operational structure and rules on community-based finance businesses.
Bank of Thailand Notification on Rules, Procedures, and Conditions for Undertaking of Personal Loan Business	Regulating on personal loan business.
Bank of Thailand Notification on Rules, Procedures, and Conditions for Undertaking of Nano Finance Business	Regulating on nano finance business.

Nonfinance Regulations	Outline
SMEs Promotion Acts: 2000, 2018 and Ministerial Regulation on SME Definition 2019	Formulating SME promotion policies. Establishing Office of Small and Medium Enterprises Promotion. Ministerial Regulation on SME Definition in 2019 for the new definition of MSMEs.
Electronic Transactions Act 2001	Regulating on electronic transaction service providers and consumer protection.
Bankruptcy Act 2016	Regulating on business rehabilitation.

Source: Asian Development Bank (2020)

1.2 MSME policy context

By the late 1990s, and with recovery from the Asian Financial Crisis put in place, MSME policy became centre stage in the national policy agenda. A number of reforms and measures were implemented consistent with this. The MSME policy environment in Thailand is determined within the context of MSME promotion plans[10]. To date there have been four promotion plans since the Asian Financial Crisis in 1997.

Initially, Thailand's policy makers saw the need to diversify and establish a broader base for growth, with MSMEs playing a critical role in this process. A "service delivery" approach to MSME policy was broadly adopted, providing services to help MSMEs increase their competitiveness. Second, there was encouragement of internationalisation and MSME productivity, and, third, innovative activities were stimulated with the overall objective of reducing Thailand's exposure to large enterprises operating in "sunset industries".

The First SME Promotion Plan (2002-2006) aimed to: enhance the efficiency and capacity of SMEs by means of creating a business environment in which they could prosper; improve firm efficiency and competitiveness; promote grassroots businesses to facilitate income distribution and prosperity in regional economies. The plan incorporated seven strategies: 1) managerial and technological upgrading; 2) human resource development; 3) expanding markets; 4) strengthening financial capabilities; 5) improving the business environment; 6) cultivating microenterprises and grassroots community business; and 7) establishing comprehensive linkages between enterprises (SMEs and large enterprises). To achieve the objective of the plan the government focused upon investment promotion, financial assistance to SMEs, and the provision of technical and management consultancy services. During this period Thailand's SME policy was more interventionist in nature and also involved the targeting of certain sectors (e.g. food processing, the fashion industries, automotive parts, electrical and electronics components) (OSMEP, 2003).

The Second SME Promotion Plan (2007-2011) aimed to achieve three economic targets: raise the share of SMEs in GDP to 42 percent; achieve higher SME export shares than total export growth; increase the total factor productivity of SMEs by an average 3 percent annually, including a minimum of 5 percent labour productivity growth per annum. The second plan targeted sectors such as auto and electronic parts, software, logistics, healthcare, education, tourism related industry, health foods, and rubber products. Measures specifically targeting

[10] The plans are forward looking, based on the key challenges/priorities as viewed by policy makers and what they wish to see achieved over 5 years duration of each plan.

manufacturing SMEs included: 1) improving product quality; 2) establishing business incubator centres in regional and local areas; 3) establishing trade fairs; 4) setting up exhibition centres for SME products throughout the country; 5) improving logistics or distribution channels; 6) and establishing industrial clustering and networks (OSMEP, 2008).

The Third SME Promotion Plan (2012-2016) aimed to enhance SME high growth sectors to grow and lead in the industrial groups and rapidly create linkages and enter the international market. SME high growth sectors included, 1) construction; 2) electronic part; 3) automobile and part; 4) food and beverage; 5) education service; 6) energy; 7) agriculture; 8) transport and logistics; 9) tourism; 10) health service; and 11) creative, information technology (IT) and information communication technology (ICT). The plan incorporated five promotion strategies: 1) strengthening capacity (fit) eliminating weak points regarding finance, personnel resource, procedures, cost reduction; 2) creating long-term stability to business (firm) creating added value and innovation, emphasizing the responding to customers' needs and offering amenities to customers; 3) highlighting fastness and flexibility of operation (fast and flexible) and enhancing flexibility according to the needs of customers or changing technology; 4) creating business network and having alliance both in and outside the country (friends) creating an alliance in business categories and building a social network with customers and trade partners in businesses; 5) creating brands for Thai SMEs to become international brands (favorite and famous) and pushing forward Thai SMEs to become a world leader in the international market (OSMEP, 2013).

The Fourth and current plan (2017-2022) aimed at enabling MSMEs to grow with continuity, strength, and sustainability in terms of knowledge and skills. Consistent with the first, second and third plans it aims to achieve the following key economic targets: raise the share of MSMEs in GDP to more than 40 percent; achieve higher MSME export shares; increase the total factor productivity of MSMEs by an average of 5 percent annually, including a minimum of 5 percent labour productivity growth per annum (OSMEP, 2018). The fourth promotion plan has a vision to facilitate MSMEs to be the leaders in driving and enhancing MSME competency towards prosperity with sustainability[11]. Measures specifically targeting manufacturing MSMEs for the period 2017 to 2022 include: 1) improving product quality; 2) establishing business incubator centres in regional and local areas; 3) establishing trade fairs; 4) setting up exhibition centres for MSME products throughout the nation; 5) improving the

[11] As well as contributing the country to escaping its middle income trap.

logistics or distribution channels; 6) and establishing industrial clustering and networks (OSMEP, 2018). Table 1.6 exhibits a summary of the four MSME Promotion Plans during 2002-2022. Furthermore, Table 1.7 presents national policies and responsible agencies in relation to the development of Thai MSMEs.

Table 1.6: Summary of the Four MSME Promotion Plans for 2002-2022

MSME Promotion Plan	Summary
The First SMEs Promotion Plan (2002-2006)	1) Reinvigorating SMEs as the major economic and social mechanism. 2) Building and improving infrastructure 3) Reducing obstacles in business operations. 4) Reinforcing SMEs to obtain sustainable growth. 5) Capacity building for SMEs 6) Creating and developing new entrepreneurs. 7) Promoting the role of community enterprises.
The Second SMEs Promotion Plan (2007-2011)	1) Creating new entrepreneurs and providing capacity building among existing entrepreneurs. 2) Improving efficiency and productivity and innovation in manufacturing sector. 3) Reducing modern trade effects in trade sector. 4) Supporting value creation and value added. 5) Promoting SMEs in regional and local areas.
The Third SMEs Promotion Plan (2012-2016)	1) Develop enabling factors and a conducive business environment for SMEs. 2) Building and strengthening competitiveness of SMEs. 3) Promoting a balanced growth for regional SMEs. 4) Strengthening business capability for international economic integration.
The Fourth SMEs Promotion Plan (2017-2021)	1) Elevating innovation, technology, and productivity. 2) Providing a capital access. 3) Supporting market access and internationalization. 4) Developing entrepreneurial society. 5) Developing tools for efficient implementation. 6) Revising laws, regulation, and privileges supportive to SMEs. 7) Creating and promoting high value-added startups. 8) Promoting and helping SME clusters. 9) Strengthening fundamental enterprises.

Asian Development Bank (2020)

Table 1.7 National policies and responsible agencies concerning the development of Thai MSMEs.

Policy	Agency	Summary
National Strategy 2018-2037 and Master Plan (2019)	NESDB	1) Creating national security for public contentment. 2) Enhancing different capacities to promote constant economic development. 3) Promoting human capital development for righteous, skillful, and quality citizens. 4) Broadening opportunities and promote equality in society. 5) Improving a quality of life based on green growth. 6) Reforming government administration with a focus on public interest.
Thailand 4.0 (2016)		1) Preparing Thailand becoming a first world nation. 2) Developing technology cluster and future industries. 3) Incubating entrepreneurs and developing networks of innovation-driven enterprise. 4) Strengthening an internal economy through the mechanism of 18 provincial clusters and 76 provinces. 5) Integrating with ASEAN and connecting Thailand to the global community.
The Twelfth National Economic and Social Development Plan (2017-2021)	NESDB	1) Strengthening and realizing the potential of human capital. 2) Reducing inequality. 3) Strengthening the economy, and underpinning sustainable competitiveness. 4) Promoting a friendly growth for sustainable development. 5) Reinforcing national security for the country's progress towards prosperity and sustainability. 6) Promoting public administration, corruption prevention, and good governance. 7) Providing advance infrastructure and logistics. 8) Developing science, technology, research and innovation. 9) Supporting regional, urban, and economic zone development. 10) Promoting international cooperation for development.
The Bank of Thailand's 3-Year Strategic Plan (2017-2019)	BOT	1) Monetary stability. 2) Financial stability. 3) Financial institutions stability. 4) Payments system stability. 5) Financial system development. 6) Connectivity. 7) Financial inclusion, market conduct, and sustainability. 8) Data systems and analytics. 9) Research excellence. 10) Human resource. 11) Organizational capability.

Policy	Agency		Summary
		12)	Stakeholders engagement.
Financial Sector Master Plan Phase III (2016-2020)	BOT	1)	Facilitating access to alternative funding channels (e.g., P2P lending, crowdfunding, and venture capital) and promote e-financial transactions (e.g., e-factoring and e-claims) which aim to reduce existing gaps in the credit and financing market for SMEs.
		2)	Promoting development of digital solutions that could address SMEs pain points, increase efficiency, and reduce costs, e.g., standardized QR code and prompt pay (low cost fund transfer service).
		3)	Supporting Thai Credit Guarantee Corporation (TCG) in the development of effective credit guarantee mechanisms to mitigate risks for SMEs.
		4)	Encouraging the National Credit Bureau (NCB) to expand its coverage to include more types and a larger number of members, and to offer bureau scoring services both for individuals and juristic persons; promote the usage of alternative information for credit assessment (e.g., payment and transactional data).
		5)	Supporting the implementation of government policies on SMEs development such as encouraging the government's SME One-Stop Service Center (OSS) in its role as an information center and a resource for helping SMEs develop their capabilities.
Payment Systems Roadmap No. 4 (2019-2021)	BOT	1)	Developing infrastructure that is interoperable, secure, and in compliance with international standards to support innovations and cross-boarder connectivity.
		2)	Promoting the development of various service innovations that meet users' needs.
		3)	Integrating payment data for utilization, develop data integration, and analyze by using technologies.
		4)	Maintaining stability, sound risk management, responsive supervision and examination, and customer protection.
		5)	Improving access, raise awareness and understanding, and promoting continuous usage.
The Third Thai Capital Market Development Plan (2016-2021)	FPO		SME related measure: "Promoting Capital Market to be source of finance for SMEs and Innovation".
Policy Guidelines for the Specialized Financial Institutions with regards to SMEs (2016-2020)	FPO	1)	Promoting financial access for SMEs at appropriate cost.
		2)	Supporting SMEs in targeted industries, including innovative and green SMEs.
		3)	Developing financial products suitable for micro SMEs as well as enable capable SMEs to become exporters.
		4)	Advocate for financial literacy.

Source: Asian Development Bank (2020)

Note: NESDB: National Economic and Social Development Board, BOT: Bank of Thailand, FPO: Fiscal Policy Office

1.3 Barriers to the growth and development of MSMEs

Before the arrival of the Covid-19 pandemic in 2020, Thailand's exports remained heavily dependent upon large firms. With reference to Table 1.3, large firms contributed 86 per cent of total exports in 2019 with the share of MSMEs declining to approximately 14 per cent compared to 29 percent in 2018. Major factors behind the sizeable decrease in MSME exports were firstly the US-China trade war, with "America First" policies aimed at attaining fair trade for American businesses globally and reducing its trade deficit. (OSMEP, 2020). Secondly, increased frailty of Thai MSMEs in international markets, as they struggled to remain competitive in labour intensive manufacturing activities due to intense competition from rapidly-developing but lower labour cost countries such as China, Vietnam, Cambodia and Indonesia[12]. It is also a reflection of the poor technical efficiency performance of Thailand's MSMEs in upgrading their skills, information technology, innovation and value-adding activities and overall competitiveness (Sriboonlue and Puangpronpitag, 2019; United Nations, 2020; Charoenrat and Harvie, 2019).[13]

Despite their obvious significance to the Thai economy, MSMEs face severe barriers to their further growth and development. These barriers are explored in more detail below. Factors to be considered include access to government finance and credit institution (bank) financial support to upgrade technology and engage in innovative activity, upgrading labour force skills, addressing poor exporting capacity, limited marketing experience, limited participation in regional and global production networks, limited use of information technology

[12] Thailand can be described as being in a "middle income trap" where it has lost its competitive advantage in low wage cost manufacturing due to its own rising wages and poor productivity. At the same time the country has been unable to break into higher-value-added activities and markets which require more knowledge, innovation, creative and skill intensive activities, due to low investment (e.g. in infrastructure and education), slow growth in the manufacturing sector of the economy, limited industrial diversification and poor labour market skills and conditions. Hence its economy has been stagnating and real income growth is stuck.

[13] The poor efficiency performance of Thailand's MSMEs is discussed in more detail below.

and e-commerce, limited managerial skills, and government bureaucracy, corruption and regulations. Thai MSMEs, however, still play an important role in assisting large domestic and foreign firms as sub-contractors, particularly in the context of regional production networks (OSMEP, 2019; Charoenrat and Pholphirul, 2020; Asian Development Bank, 2018), by being key sources of goods, services and information for large firms, and they play a significant role in the production process of export goods (UNCTAD, 2010; Yuhua, 2014; Charoenrat and Harvie, 2017a). They also provide flexibility for large firms in meeting changing market demand.

Focusing on Thai manufacturing MSMEs, many have not demonstrated an ability to be ready to face international competition in both domestic and regional markets, be able to take advantage of the opportunities arising from the country's increased opening and economic integration and engagement with the region (e.g. with ASEAN), nor to address intense competition from lower labour cost countries (Charoenrat and Harvie, 2017b; Charoenrat and Harvie, 2017a)[14]. Thai business segments, particularly Thai manufacturing MSMEs, are currently experiencing the so-called "*Nut-Cracker Effect*", which implies that Thailand is now trapped between countries with lower price/wage competitiveness, such as China and Vietnam and other countries in the region, and with countries involved in higher value added, knowledge and innovative production and services, such as Japan and South Korea (Sriboonlue and Puangpronpitag, 2019; Chaochotechuang and Mariano, 2016; UNIDO, 2020). While Thai MSMEs in general have made, and continue to make, a pivotal contribution to the social and economic development of the country (OSMEP, 2020; Charoenrat and Harvie, 2019), they now must engage in higher value adding, knowledge and skill intensive activities, and improve their competitiveness/efficiency/productivity if they are to become competitive and to grow, and facilitate Thailand moving out of its middle income trap.

1.4 The impact of Covid-19 on Thai economic activity

The Covid-19 pandemic has caused widespread contraction across Thai economy, with agriculture shrinking 5.7%, industry 1.9% and services 1.1% (reference). The most notable

[14] Thailand would not wish to engage in competition with countries in the low labour cost segment, as driving down labour cost to remain competitive would not produce benefits in terms of improved real income and a rising standard of living for its population.

sector affected was tourism and the associated hospitality sector, with the reduction of international tourists contributing to a 24.1% decline in accommodation and food service activities (UNIDO, 2020). Prior to Covid-19 the tourism sector accounted for a fifth of Thai GDP employment. Low-skilled workers, informal and migrant workers have been badly affected by Covid-19, in particular women and youth workers, who have suffered disproportionately from diminished employment opportunities in contact businesses bearing a significant burden of hugh layoffs during the Covid-19 pandemic (Kaendera and Leigh, 2021).

Using a number of simulated scenarios, OSMEP's estimates of the economic impact of Covid-19 on MSME economic activity are provided in Table 1.8. Assuming that the worst case transpired, the average annual growth rate of MSME GDP was forecast to decline by 6.2% in 2020, with the services sector to be the hardest hit. Due to the scarcity of data on the impact of Covid-19 on Thai MSMEs the findings of this report will be timely to better quantify this impact and to derive policy recommendations to aid MSMEs in the post-Covid recovery.

Table 1.8: GDP of Thai MSMEs Classified by Economic Activities during Covid-19 pandemic in 2020

MSME by Economic Activities	**Best Case**		**Base Case**		**Worst Case**	
MSME GDP (%YoY)	0.5%	%YoY	-3.0%	%YoY	-6.2%	%YoY
Agriculture	82,759.66	-6.17	106,252.69	-6.28	105,999.05	-6.54
Manufacturing	3,032,946.37	-5.52	3,867,743.61	-5.89	3,848,875.67	-6.35
Electricity & water supply	12,584.65	-6.36	16,160.25	-6.58	16,170.51	-7.02
Construction	210,904.41	-4.38	274,019.33	-4.78	274,130.11	-5.34
Trade	748,696.42	-5.56	955,293.23	-5.88	950,694.57	-6.33
Services	1,674,623.85	-6.47	2,157,836.76	-6.87	2,181,435.97	-7.85

Source: OSMEP (2015)

Best case scenario: Covid-19 under control by June 2020 and economic losses can be controlled immediately.

Base case scenario: Covid-19 controlled by September 2020.

Worst case scenario: Covid-19 controlled by December 2020.

2. Chapter 2: Measuring Thai MSME efficiency at the national level (pre-Covid-19)

2.1 How competitive and efficient are Thai MSMEs?

In the previous section we identified the significance of MSMEs to the Thai economy and the challenges they face in the future. They face both challenges and opportunities in domestic and regional markets, in terms of expanding market opportunities. But to be able to take advantage of these they must be competitive in both domestic and international markets. A key measure of this is their efficiency in transforming inputs into output. The more efficient they are at doing this the more competitive they can be in domestic and international markets. This section of the report aims to shed light on these issues in the pre-Covid-19 year of 2017 and in the process provide a baseline for subsequent analysis of the impact of Covid-19 in section 4..

The primary motivation of this section of the report is to:

1. estimate the efficiency performance (technical efficiency specifically) and competitiveness readiness of Thai manufacturing MSMEs at the national level, the sub manufacturing level, and key factors that contribute to this, utilizing national data from the industrial Census of Thailand for the year 2017[15].[16], an MSME survey and in-depth case study interviews. Technical efficiency estimation is conducted for both aggregate manufacturing

[15] Data for the year 2017 is chosen as this is based on industrial census data compiled by the Thai authorities every ten years, and contains the most comprehensive data available on Thai MSMEs. Hence, this study uses the best and most comprehensive data available on Thai manufacturing MSMEs.

[16] Thai National Census data for 2017, consists of a sample of 60,000 MSMEs.

MSMEs, and for sub-manufacturing sectors of operation classified by the Standard International Trade Classification (SITC) Revision 4[17] (See Annexe);

2. examine the factors that are most significant in affecting the technical efficiency performance of Thai manufacturing MSMEs at these levels. Potential factors influencing the technical inefficiency of Thai manufacturing SMEs are drawn from the literature (See Charoenrat and Harvie (2014, 2017a) ; and include: firm age; firm size; region of location (i.e., Bangkok, central and vicinity, northern and north-eastern regions); foreign ownership/investment involvement; export density and government assistance (see Charoenrat and Harvie (2014)[18] ;

3. review the effectiveness of Thai government competition policy (section 3?);

4. identify market access issues for Thai manufacturing MSMEs (section 3?) and

5. identify plans and policies to improve the performance of Thailand's manufacturing MSMEs (section 5?).

2.2 Methodology - Measuring the technical efficiency performance/competitiveness of Thai Manufacturing MSMEs

A popular measure of firm performance is that of economic efficiency, including technical and allocative efficiencies as sub-components (Coelli et al., 2005; Walheer and He, 2020). Measuring the technical efficiency of firms in an industry can be undertaken using non-parametric or parametric approaches (Idowu et al., 2019; Taib et al., 2018) . Data Envelopment Analysis (DEA) is a popular non-parametric approach that makes no assumptions concerning

[17] The 2017 industrial census comprises firms engaged in manufacturing activities which are classified by the International Standard Industrial Classification of all Economic Activities, ISIC: Revision 3. However, ISIC has 23 sub-manufacturing sectors in the industrial census. To keep the analysis tractable, this study adopts SITC Revision 4 which consists of only 10 sectors.

[18] For a more detailed discussion of these factors see Charoenrat and Harvie Charoenrat T and Harvie C. (2014) The Efficiency of SMEs in Thai Manufacturing: A Stochastic Frontier Analysis. *Economic Modelling* 43: 372-393.

the form of the production function (the relationship between inputs and outputs). Instead, the best practice function is obtained empirically from observed inputs and outputs. DEA precludes the possibility of evaluating the marginal products and elasticity of substitution of the production technology. DEA involves the use of linear programming for the construction of an efficiency frontier. It can be implemented without specifying an algebraic form of an association between inputs and outputs. It can also estimate the efficiency frontier without specifying whether the output is a linear, non-linear or other function of inputs (Pradhan, 2018; Firew et al., 2018).

Stochastic Frontier Analysis (SFA), on the other hand, is a parametric approach where the form of the production function is assumed to be known or is estimated statistically (Idowu et al., 2019; Kostlivý and Fuksová, 2019). SFA also allows other parameters of the production technology to be explored and complements the results that can be obtained from DEA. The advantage of this approach is that hypotheses can be tested with statistical rigour, given that the relationships between inputs and outputs follow known functional forms. When compared to the conventional econometric approach the SFA approach is superior, in that it estimates 'best practice' technology upon which the production function concept is based, while the former is based on 'averaging' estimators (Gamtessa, 2014; Mkanthama et al., 2018). Thus, a conventional econometric model may produce results that are fundamentally inconsistent with the definition of the production function (Duong, 2016; Essmui et al., 2013; Charoenrat and Harvie, 2014). In this report we adopt SFA because of its numerous empirical advantages over alternative methods. The maximum likelihood estimates for parameters of the stochastic frontier production function and a technical inefficiency effects model will be estimated simultaneously using the computer programme FRONTIER Version 4.1.

2.3 The Analytical model

The empirical results presented in the report involved a two stage approach. In the first stage firm technical efficiency scores were estimated for the sample of MSMEs utilizing a stochastic frontier analysis (SFA)[19], where the form of the production function was assumed to take the form of the Cobb-Douglas (Charoenrat and Harvie, 2014; Duong, 2016; Hossain and

[19] A software package which is most commonly used in the estimation of stochastic production frontiers in the literature is FRONTIER 4.1 developed by Coelli (1996) and is also used in this study.

Majumder, 2018). In the second stage the estimated technical efficiency scores were regressed against a number of explanatory variables documented above[20] and in section 2.3.2.

2.3.1 First stage

A two input factor and one output Cobb-Douglas production function in logarithmic form using cross-sectional data can be expressed as follows (Coelli et al., 2005; Mkanthama et al., 2018):

$$lnY_i = \beta_0 + \beta_1 ln(K_i) + \beta_2 ln(L_i) + (V_i - U_i) \qquad i = 1,\ldots, N, \qquad (1.1)$$

Where:

Y_i = value added of firm i;

K_i = the net value of fixed assets of firm i;

L_i = the total number of employees of firm i;

V_i = a random error term for firm i, and is assumed to be an independently and identically distributed normal random variable with zero mean and variance $\left(V_i: iidN(0, \sigma_V^2)\right)$ independently distributed of U_i; and

U_i = a non-negative random variable for firm i, accounting for technical inefficiency in the production function and is assumed to be independently distributed such that U_i is defined by the truncation of the normal distribution with mean μ_i and variance σ_u^2.

V_i and U_i are also assumed to be independently distributed for all firms (i = 1, 2,..., N). If U_i is equal to zero the firm is defined as being totally technically efficient and is at its maximum output level given the inputs used. If U_i is greater than zero the firm is defined as being technically inefficient (Coelli et al., 2005; Charoenrat and Harvie, 2014).

The subscript i refers to firms, β_0 represents the intercept term, β_1 represents the coefficient estimates of capital input and β_2 represents the coefficient estimates of labour input.

[20] See point 2 on page 20.

2.3.2 Second stage

There is no single theory that guides selection of variables to be used in regression analysis of possible causes of inefficiency of the production units (MSMEs) under investigation. The standard practice is to draw from the literature, emphasising potentially important local characteristics of factors while being mindful of constraints imposed by data availability. In this context the following explanatory variables are emphasised in this study for the sample of Thai MSMEs as indicated previously: firm size (resource based hypothesis), firm age (learning by doing hypothesis), urban or rural location (agglomeration effects), regional location (capturing differences in regional economic structure and industry clusters), export intensity (self-selection hypothesis) and recipient of government assistance.

Hence, potential firm specific-factors that could influence technical efficiency can be modelled in an inefficiency functional form as follows:

$$\mu_i = \delta_0 + \delta_1 Firm\ Age_i + \delta_2 Firm\ Size_i + \delta_3\ Firm\ Location_i + \delta_4 Foreign\ Investmetn_i + \delta_5 Exports_i + \delta_6 Government\ Assistance_i \quad (1.2)$$

Where:

$Firm\ Age_i$ = age of firm i, represented by operating years;

$Firm\ Size_i$ = size of firm i, represented by the number of workers;

$Firm\ Location_i$ = 1 if firm i is located in a Central[21] region; = 0 otherwise;

$Foreign\ Investment_i$ = 1 if firm i has foreign investment; = 0, otherwise;

$Exports_i$ = 1 if firm i exports to foreign markets, = 0 otherwise;

$Government\ assistance_i$ = 1 if firm i obtains government assistance; = 0 otherwise;

δ_i = a vector of unknown parameters to be estimated.

The coefficients of the stochastic frontier production function and technical inefficiency effects model can be estimated utilising the maximum likelihood method. The maximum

[21] For the firm location dummy variable, a dummy variable for firm location takes the value 1 if a firm is located in a Central region and 0 if a firm is located in the Northern, North-eastern and Southern regions.

likelihood function is defined in terms of the variance parameters as follows (Coelli et al., 2005; Idowu et al., 2019):

$$\sigma^2 \equiv \sigma_v^2 + \sigma_u^2 \quad \text{and} \quad \gamma \equiv \sigma_u^2 / \sigma^2 \tag{1.3}$$

Where:

σ_v^2 = a random error variance;

σ_u^2 = a technical inefficiency effects variance.

γ represents the share of technical inefficiency in the overall residual variance. If the value of γ is close to zero deviations from the frontier are largely attributable to noise, whereas a value close to unity indicates that deviations from the frontier are largely attributable to technical inefficiency (Coelli et al., 2005).

2.3.3 Data and Variables

We use firm-level data from industrial census for 2017 compiled by the National Statistical Office (NSO) of Thailand[22] (NSO, 2018). The total number of Thai manufacturing MSMEs included in the 2017 industrial census was 54,895. The key variables utilised for the first stage are output value added (*Y*), labour input (*L*) and capital input (*K*). Output (*Y*) is defined as the value of gross output minus intermediate consumption. Labour input (*L*) includes the number of workers in the enterprise, including the owner or partner, unpaid workers, skilled and unskilled labour. Capital input (*K*) is measured by the net value of fixed assets less depreciation at the end of the year. In addition, the key variables utilised for the second stage and also obtained from the census data are: firm size, firm age, location, export activity and government assistance.

2.4 Empirical results

2.4.1 Estimation results for Input Elasticities, Gamma Parameters and Technical efficiency (first stage)

[22] This data source is the best and most extensive available for manufacturing SMEs in Thailand, and is compiled on the basis of recommendations from the United Nations that countries should conduct such a census every 10 years.

Maximum likelihood estimates for the parameters of the stochastic frontier model and inefficiency effects model, as specified by equations 1.1, 1.2 and 1.3, were estimated simultaneously with the econometric package Frontier 4.1. The estimated results for these equations are provided in Tables 2.1 (aggregate manufacturing) and 2.3 (sub-manufacturing sectors). The results for aggregate manufacturing MSMEs in 2017 reveal that capital (β_1) and labour (β_2) inputs have positive coefficients and are significant at the 1 per cent level (see Table 2.1). Aggregate manufacturing MSMEs exhibit marginal increasing returns to scale as the sum of the estimated input coefficients are greater than unity (1.47).

Table 2.1: Maximum Likelihood Estimates[23] for Parameters of the Stochastic Frontier Model and Technical Inefficiency Effects Model by Aggregate Manufacturing MSMEs[24]

Variables	Aggregate Manufacturing MSMEs
Number of Observations	**54895**
	Coefficients
Stochastic Frontier Model	
Constant	4.197***
	(0.045)
Capital	0.576***
	(0.003)
Labour	0.895***
	(0.010)
Technical Inefficiency Effects Model	
Constant	-1.470***
	(0.204)
Firm Age (years)	-0.013***
	(0.001)
Firm Size (No of firms)	0.013***
	(0.0006)
Region of Location	2.231***
	(0.151)
Foreign Investment (dummy)	-0.949***
	(0.198)
Exports (dummy)	-1.401***
	(0.168)
Government Assistance (dummy)	-0.017
	(0.022)
Variance Parameters	
Sigma-squared	2.580***
	(0.058)

[23] For empirical results, the study has tested statistics for hypothesis tests of the stochastic frontier model and technical inefficiency effects model by aggregate manufacturing MSMEs. It is found that the stochastic frontier model and technical inefficiency effects model are applicable at the 1 per cent level of significance.

[24] The results for all sub-manufacturing sectors (SITC) are estimated by equations (1) and (2).

Variables	Aggregate Manufacturing MSMEs
Number of Observations	**54895**
	Coefficients
Gamma	0.359***
	(0.018)
Log-likelihood Function	-96536.64
Average Technical Efficiency[25]	**0.55**
Returns to scale	**1.47**

Note: Standard errors are in brackets; *, ** and *** indicate that the coefficients are statistically significant at 10%, 5% and 1%, respectively.

It is important to note that as enterprises in different sub-manufacturing sectors may operate with different technologies, it is practical to predict and compare the technical efficiency of Thai manufacturing MSMEs according to sub-manufacturing sectors. The 2017 industrial census comprise enterprises engaged in manufacturing activities which are classified by ISIC: Revision 3. However, ISIC has 23 sub-manufacturing sectors in an industrial census. To keep the analysis tractable, this study adopts SITC: Revision 4 which consists of only 8 sectors as summarised in Table 2.2.

Table 2.2: Standard International Trade Classification, SITC: Revision 4

Code/ Division of ISIC: Revision 3	Code/Division of SITC: Revision 4
ISIC 15: Manufacture of food products	SITC 0: Food and live animals
ISIC 16: Manufacture of beverage and tobacco	SITC 1: Beverages and tobacco
ISIC 17: Manufacture of textiles	SITC 6: Manufactured goods classified by material
ISIC 18: Manufacture of wearing apparel dressing	SITC 8: Miscellaneous manufactured articles
ISIC 19: Tanning, dressing of leather and manufacture of luggage, handbags, saddlery, harness and footwear	SITC 8: Miscellaneous manufactured articles
ISIC 20: Manufacture of wood and products of cork	SITC 2: Crude materials, inedible, except fuels
ISIC 21: Manufacture of paper and paper products	SITC 2: Crude materials, inedible, except fuels
ISIC 22: Publishing and printing and reproduction of recorded media	SITC 8: Miscellaneous manufactured articles
ISIC 23: Manufacture of coke, refined petroleum products	SITC 3: Mineral fuels, lubricants and related materials
ISIC 24: Manufacture of chemicals and chemical products	SITC 5: Chemicals and related products
ISIC 25: Manufacture of rubber and plastics products	SITC 5: Chemicals and related products
ISIC 26: Manufacture of other non-metallic mineral products	SITC 6: Manufactured goods classified by material
ISIC 27: Manufacture of basic metals	SITC 6: Manufactured goods classified by material
ISIC 28: Manufacture of fabricated metal products	SITC 6: Manufactured goods classified by material
ISIC 29: Manufacture of machinery and equipment n.e.c.	SITC 7: Machinery and transport equipment
ISIC 30: Manufacture of office and computing machinery	SITC 7: Machinery and transport equipment
ISIC 31: Manufacture of electrical machinery and apparatus n.e.c.	SITC 7: Machinery and transport equipment

[25] The average technical efficiency can be calculated as the sum of technical efficiency scores with respect to total number of firms.

ISIC 32: Manufacture of radio, television and communication equipments	SITC 7: Machinery and transport equipment
ISIC 33: Manufacture of medical, precision and optical instruments	SITC 8: Miscellaneous manufactured articles
ISIC 34: Manufacture of motor vehicles, trailers and semi-trailers	SITC 7: Machinery and transport equipment
ISIC 35: Manufacture of other transport equipment	SITC 7: Machinery and transport equipment
ISIC 36: Manufacture of furniture; manufacturing n.e.c.	SITC 8: Miscellaneous manufactured articles
ISIC 37: Recycling	SITC 6: Manufactured goods classified by material

Source: NSO (2018); UNSD (2010)

Table 2.3 exhibits the results for sub-manufacturing sectors classified by SITC Revision 4. All sub-manufacturing sectors had positive signs for both capital (β_1) and labour (β_2) and were significant at the 1 per cent level. All sub-manufacturing sectors operated under increasing returns to scale in production, and the significance of this increased for all sub sectors in comparison to 2017 with the exception of SITC 3. The elasticities of labour (β_2) varied between 0.242 in SITC 3 and 1.598 in SITC 1, while the capital (β_1) elasticities range from 0.451 in SITC 8 to 0.646 in SITC 6. High labour elasticity estimates in most sub-manufacturing sectors indicate that firms were heavily labour input dependent in their production. In comparison, the relatively low value of capital elasticity estimates indicates that capital input was less important in production. Furthermore, the estimated γ ranges from 0.110 in SITC 0 to 0.758 in SITC 3. Given the nature of these sub sectors, relatively more capital intensive, capital input is likely to be important in expanding production[26].

Table 2.3: Maximum Likelihood Estimates for Parameters of the Stochastic Frontier Model and Inefficiency Effects Model by SITC[27] Rev.4 (Standard International Trade Classification)

Variable	**SITC 0**	**SITC 1**	**SITC 2**	**SITC 3**	**SITC 5**	**SITC 6**	**SITC 7**	**SITC 8**
Number of Observations	12811	54	3498	124	4433	16330	5063	12582
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
Stochastic Frontier Model								
Constant	3.037**	3.233***	3.784***	7.070***	5.491***	3.186***	5.345***	5.629***
	(0.098)	(1.150	(0.201)	(0.866)	(0.189)	(0.116)	(0.214)	(0.101)
Capital	0.639***	0.515***	0.617***	0.578***	0.556***	0.646***	0.453***	0.451***

[26] This is consistent with the middle-income trap. Production remains heavily dependent in all sub manufacturing sectors on labour input, and a lack of investment in the capital stock and in improving human capital is constraining the contribution of capital input to production. Consequently, as labour costs rise relative to other countries in the region competitiveness in these activities will decline while the country remains unable to compete in more capital-intensive sectors due to a lack of investment in these.

[27] The results for all sub-manufacturing sectors (SITC) are estimated by equations (1) and (2).

Variable	SITC 0	SITC 1	SITC 2	SITC 3	SITC 5	SITC 6	SITC 7	SITC 8
Number of Observations	12811	54	3498	124	4433	16330	5063	12582
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
	(0.007)	(0.101)	(0.013)	(0.047)	(0.011)	(0.006)	(0.011)	(0.006)
Labor	0.860***	1.598***	0.756***	0.242**	0.677***	0.921***	1.296***	1.021***
	(0.017)	(0.362)	(0.036)	(0.151)	(0.034)	(0.018)	(0.037)	(0.020)
Technical Inefficiency Effects Model								
Constant	-0.785***	-3.153	-2.838***	-2.391*	-1.889***	-0.309*	0.409***	-1.366***
	(0.158)	(2.490)	(1.188)	(2.296)	(0.726)	(0.199)	(0.125)	(0.414)
Firm Age (years)	-0.024***	-0.037	-0.012***	0.122*	-0.037***	-0.002*	-0.002*	-0.010***
	(0.003)	(0.038)	(0.006)	(0.063)	(0.007)	(0.001)	(0.001)	(0.002)
Firm Size (No of workers)	0.009***	0.050	0.009***	-0.058*	0.004	0.012***	0.010***	0.0138***
	(0.001)	(0.042)	(0.002)	(0.032)	(0.002)	(0.001)	(0.0009)	(0.001)
Firm Location	-1.382***	-2.524*	-3.779***	+1.577	-3.505***	-1.248***	-0.614***	-2.370***
	(0.105)	(1.485)	(0.981)	(1.245)	(0.520)	(0.133)	(0.047)	(0.312)
Foreign Investment (dummy)	-0.112	-1.242	-3.388**	0.932	-2.674***	-0.367*	-0.218**	-1.021***
	(0.306)	(1.153)	(2.382)	(1.079)	(0.904)	(0.230)	(0.089)	(0.551)
Exports (dummy)	-1.229***	-5.367*	-3.842***	-6.900	-2.730***	-0.433***	-0.140*	-1.338***
	(0.273)	(3.203)	(1.567)	(6.712)	(0.728)	(0.172)	(0.089)	(0.286)
Government Assistance	0.025	1.350	-0.387***	-0.148	-0.058	0.039***	0.012	-0.142***
	(0.056)	(1.048)	(0.118)	(0.914)	(0.132)	(0.046)	(0.037)	(0.060)
Variance Parameters								
Sigma-squared	2.095***	1.818***	3.234***	5.400***	3.796***	2.093***	1.706***	2.506***
	(0.037)	(0.585)	(0.239)	(1.950)	(0.345)	(0.066)	(0.034)	(0.120)
Gamma	0.110***	0.346	0.498***	0.758***	0.643***	0.197***	0.20	0.368***
	(0.019)	(0.249)	(0.045)	(0.117)	(0.038)	(0.046)	(0.0038)	(0.040)
Log-likelihood Function	-22505.44	-86.40	-6274.50	-214.08	-7733.58	-28514.37	-8536.86	-21926.93
Average Technical Efficiency[28]	0.68	0.59	0.52	0.54	0.51	0.50	0.45	0.54
Returns to scale	1.50	2.11	1.37	0.82	1.23	1.57	1.75	1.47

Note: Standard errors are in brackets; *, ** and *** indicate that the coefficients are statistically significant at 10%, 5% and 1%, respectively. SITC 0: Food and live animals, SITC 1: Beverages and tobacco, SITC 2: Crude materials, inedible, except fuels, SITC 3: Mineral fuels, lubricants and related materials, SITC 5: Chemicals and related products, SITC 6: Manufactured goods classified by material, SITC 7: Machinery and transport equipment, SITC 8: Miscellaneous manufactured articles.

2.4.2 Average Technical Efficiency of Thai manufacturing MSMEs in 2017

Table 2.4 presents the average technical efficiency levels of Thai manufacturing MSMEs in nine categories. The average technical efficiency ranges from 0.68 percent for SITC 0: Food and live animals to 0.45 percent for SITC 7: Machinery and transport equipment. SITC 0, therefore, had the highest percentage mean technical efficiency. The lowest percentage mean technical efficiency is found for SITC 7: Machinery and transport equipment, with 0.45 percent. Finally, the average technical efficiency of all categories of Thai manufacturing MSMEs is 0.54 percent.

Table 2.4: Average Technical Efficiency of Thai manufacturing MSMEs

[28] The average technical efficiency can be calculated as the sum of technical efficiency scores with respect to total number of firms.

Categories	Mean Technical Efficiency
Aggregate manufacturing MSMEs	0.55
SITC 0	0.68
SITC 1	0.59
SITC 2	0.52
SITC 3	0.54
SITC 5	0.51
SITC 6	0.50
SITC 7	0.45
SITC 8	0.54
Overall Average Technical Efficiency	**0.54**

Note: SITC 0: Food and live animals, SITC 1: Beverages and tobacco, SITC 2: Crude materials, inedible, except fuels, SITC 3: Mineral fuels, lubricants and related materials, SITC 5: Chemicals and related products, SITC 6: Manufactured goods classified by material, SITC 7: Machinery and transport equipment, SITC 8: Miscellaneous manufactured articles.

2.4.3 Estimation results from the Technical Inefficiency Effects Model (second stage)

The estimated results for equations (1.1) and (1.3) are shown in Table 2.5. Negative coefficient signs of the inefficiency effects model represent technical efficiency, so must be converted to positive for technical efficiency.

Table 2.5: The Results of Inefficiency Effects Model of Thai Manufacturing MSMEs

Inefficiency Effects	Aggregate MSMEs	SITC 0	SITC 1	SITC 2	SITC 3	SITC 5	SITC 6	SITC 7	SITC 8
Constant	-***	-***	-	-***	-*	-***	-*	+***	-***
Firm Age	-***	-***	-	-***	+*	-***	-*	-*	-***
Firm Size	+***	+***	+	+***	-*	+	+***	+***	+***
Firm Location	-***	-***	-*	-***	+	-***	-***	-***	-***
Foreign Investment	-***	-	-	-***	+	-***	-*	-**	-***
Exports	-***	-***	-*	-***	-	-***	-***	-*	-***
Government Assistance	-	+	+	-***	-	-	+***	+	-***

Note: Standard errors are in brackets; *, ** and *** indicate that the coefficients are statistically significant at 10%, 5% and 1%, respectively. SITC 0: Food and live animals, SITC 1: Beverages and tobacco, SITC 2: Crude materials, inedible, except fuels, SITC 3: Mineral fuels, lubricants and related materials, SITC 5: Chemicals and related products, SITC 6: Manufactured goods classified by material, SITC 7: Machinery and transport equipment, SITC 8: Miscellaneous manufactured articles.

2.4.3.1 Firm-specific Factors Contributing to Technical Inefficiency

Firm age

In our study firm age had a positive association with technical efficiency in eight categories, including aggregate manufacturing MSMEs, SITC 0, SITC 1, SITC 2, SITC 5, SITC 6, SITC 7 and SITC 8[29]. This is consistent with previous empirical studies that found that firm age can have a positive impact upon technical efficiency (Gamtessa, 2014; Duong, 2016; Hossain and Majumder, 2018). It is implied that they have learned from past mistakes and are more likely to achieve higher efficiency because of 'learning by doing', associated with improvement in managerial skills, (Mujaddad and Ahmad, 2016; Essmui et al. 2013). In contrast, the opposite relationship was estimated for SITC 3: Mineral fuels, lubricants and related materials. This negative relationship between firm age and technical efficiency has been observed elsewhere (Charoenrat and Harvie, 2014; Duong, 2016), and may be present where the positive influence of the learning by doing process is offset by obsolete technology compared with younger enterprises (Essmui et al., 2013).

Firm Size

Firm size has been shown to be a significant factor influencing a firm's performance in past research (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019; Sharma and Kautish, 2019). In this study, the number of workers is used as the proxy for firm size, being consistent with the definition of manufacturing MSMEs used in Thailand. Past studies have found that the size of a firm has a positive relation with technical efficiency (Gamtessa, 2014; Duong, 2016; Charoenrat and Harvie, 2019; Hossain and Majumder, 2018), while others have observed a negative association (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019; Sharma and Kautish, 2019).

From Table 2.5, the estimates of coefficients for firm size contain significant positive signs in aggregate manufacturing MSMEs, SITC 0, SITC 1, SITC 2, SITC 5, SITC 6, SITC 7, and SITC 8. These results indicate that smaller sized firms were more technically efficient than larger sized firms in these categories. The benefits of being a small enterprise are as follows: 1) they have the flexibility to adjust and diversify their activities in an attempt to become more efficient; 2) small enterprises add dynamism to business activities which can improve

[29] However, when we consider the statistical significance, this relationship is relatively weak for SITC 6 and SITC 7, and insignificant for SITC 1.

economic performance; 3) small enterprises are more likely to have a cost advantage relative to medium and large enterprises. However, as with the results for firm age, the opposite coefficient sign was estimated for SITC 3: Mineral fuels, lubricants and related materials. The coefficient for this category is statistically significant at the 10 percent level of significance.

Firm location

A dummy variable is used to control for differences in firm location. Many studies show that a municipal area has a positive impact on technical efficiency (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019). Mkanthama et al. (2019) states that enterprises in big cities may have greater access to resources, such as capital, labour, finance, technology, information and communications technology infrastructure. The metropolitan efficiency effect also reflects possible agglomeration economies in the private sector, as a consequence of better availability of educated workers and managers, and market opportunities in metropolitan locations relative to non-metropolitan locations (Hossain and Majumder, 2018; Firew et al., 2018). However, a recent study of the technical efficiency performance of Vietnamese manufacturing SMEs found that SMEs located in urban centres in Vietnam have lower technical efficiency compared with SMEs located in rural areas, due to the higher costs for land, labour and space constraints. These issues may negatively affect urban SME efficiency (Duong, 2016).

Results concerning the dummy variable for the firm location are negative, as expected for all categories, and are highly significant at the 1 percent level. This indicates that location in the Central region is positively associated with technical efficiency. The central and vicinity regions contain many of Thailand's large businesses and are the focal point of finance, trade, and transport (Charoenrat and Harvie, 2019). Again, the coefficient for – SITC 3: Mineral fuels, lubricants and related materials is the opposite to others, however, is not statistically significant.

Foreign Investment

Several empirical studies have found that foreign ownership or investment in a firm has a positive relationship with its technical efficiency (Gamtessa, 2014; Duong, 2016; Hossain and Majumder, 2018). A firm having cooperation with a foreign partner can benefit from superior

technology, management style, managerial knowledge, good corporate governance and other performance improving business practices (Mujaddad and Ahmad, 2016; Essmui et al. 2013).

The positive relationship between foreign investment and technical efficiency of MSMEs is confirmed in table 2.5, with negative coefficients observed in eight categories, including aggregate manufacturing MSMEs, SITC 0, SITC 1, SITC 2, SITC 5, SITC 6, SITC 7 and SITC 8. As with previous results, the opposite coefficient sign was observed for SITC 3: Mineral fuels, lubricants and related materials, although it was not statistically significant.

Exports

MSMEs confront relatively big challenges in the global market because they have to compete with large companies' products. Therefore, those that export are required to improve their performance in an attempt for them to survive in the global market (Charoenrat and Harvie, 2019). As such, we observe a positive relationship between technical efficiency and exports. From Table 2.5, the estimated coefficients for exports are negative and statistically significant for all categories, including aggregate manufacturing MSMEs, SITC 0, SITC 1, SITC 2, SITC 3, SITC 5, SITC 6, SITC 7 and SITC 8.

Government Assistance

Several empirical studies have shown that government assistance has a positive and significant impact upon a firm's technical efficiency (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019; Sharma and Kautish, 2019). Government assistance can be in the form of financial support (i.e. credit assistance, income tax exemption or reduction, and duty privileges) and non-financial assistance (i.e., managerial, technical and training assistance). From the viewpoint of government, it is expected that firms should improve their performance from obtaining assistance. However, the effect of government assistance on a firm's technical efficiency is still ambiguous. For example, Duong (2016) found that government assistance in the form of land, premises and credit, have a significant negative impact upon the technical efficiency of Vietnamese manufacturing SMEs.

From Table 2.5, estimates of the coefficients for government assistance are negative and statistically significant for only two categories – SITC 2 and SITC 8. Otherwise it has no statistically significant correlation with other categories of MSMEs in Thailand. This result is consistent with a number of empirical studies (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019; Sharma and Kautish, 2019).

3. Chapter 3: Environmental factors affecting MSME efficiency and preparation for Covid-19

The analysis presented in the previous section revealed a number of factors that affect Thai MSME technical efficiency. While the coefficient attached to the government assistance variable was mostly statistically insignificant, the measurement was relatively crude. In this section we delve into the important topic of Thai competition policy and the related issue of market access. In addition, a number of relevant issues to MSME efficiency we were unable to explore in the previous modelling are explored such as access to finance, marketing, IT, and innovation. As well as discussing the role of these factors for MSME efficiency in general, we highlight their role within the context of Covid-19 and potential recovery efforts.

3.1 Competition advocacy

According to OECD (2020b), competition authorities can play an essential role in policy responses to the Covid-19. The major role of competition in ensuring the necessary conditions for economic growth and recovery make them vital stakeholders in a national policy context. Although there is no "one size can fit all", competition authorities can utilize their experience in economic analysis, methods, and evidence in evaluating anti-competitive effects and investigating potential efficiencies that can be place to good use when promoting and encouraging the conditions for recovery (Schaper and Burgess, 2021b).

Empirical evidence shows that enhanced competition can deliver a number of benefits at both micro and macroeconomic levels. At the microeconomic level, competition can lead to lower prices and more choice of goods and services. Competition can also increase the adoption of new innovations and accelerate the innovation process. In this regard, it can work as a virtuous circle, with innovative enterprises driving their competitors to further innovate in order to compete in the marketplace. As a consequence, it can lead to macroeconomic benefits that can accumulate over time, increasing prosperity in the long term. Competition can also promote the optimal use of scarce economic resources, boosting firms' productivity and efficiency, and

thereby driving economic growth. Competition policy has also been credited with reducing inequality and creating more employment opportunities (OECD, 2020b).

Furthermore, competition can ensure a stable of distribution of goods and services via supply chains. For example, competition can help ensure foods supply chains, including agricultural inputs, processing, manufacturing, and distribution. Even when shock occurs, such bad weather conditions, diseases and conflict affect food systems, economies with ample competition suffer fewer disruptions (OECD, 2020b).

3.2 Competition authorities' advocacy role

Fundamental economic theory demonstrates that government interventions in the market often lead to unintended and suboptimal outcomes. However, government backed competition authorities can play an important role ensure enterprises are able to operate in a level playing field. Focusing on government policy responses to the Covid-19 pandemic, it is imperative to ensure that policy interventions do not result in less competitive markets. The Governments should consider that the fiscal policy is a more effective measure to increase aggregate demand when product markets are more competitive (OECD, 2020b).

Prudent policy decision-making processes requires that all costs that are fully taken into account, including a loss of competition. In periods of economic crises, a narrative that often emerges is that of relaxing competition enforcement, such as lenient treatment of cartels and firms mergers, with proponents arguing that these measure could allow enterprises to better cope with the effects of the crisis. However, relaxing competition rules can lead to a reduction in the disciplining effect of enterprise rivalry and the mechanism of selection between efficient and inefficient enterprises. Furthermore, rent seeking associated with market power can come at the detriment of economic growth and consumer interests. Experience from prior crises suggests that relaxing the enforcement of competition law could delay economic recovery. To the contrary, the Covid-19 crisis can be a good opportunity for pro-competitive reforms. Reducing barriers to competition in existing and proposed legislation and regulation, while preserving desired government objectives can contribute to an economic recovery and resilience (OECD, 2020b). Therefore, raising awareness as to the benefits of competition and communicating these benefits to policymakers is vital in times of crisis. Especially, the welfare effects of lax competition enforcement and policy involve difficult trade-offs between elements and variables that may not easily be compared or predicted (OECD, 2020b).

3.3 Competition enforcement for recovery

Global markets have experienced a number of severe shocks to demand and supply with significant disruptions to global value chains/production networks. Many markets have observed price hikes and businesses sought to overcome those disruptions, creating agreements along with the global value chain. The primary demand and supply mismatch for essential products and services have led to allegations of exploitative pricing. Several competition authorities have sent out warnings that they would take action where is necessary. Differentiating legitimate from illegitimate pricing practices and how best to deal with the latter, have created substantial challenges for many competition authorities. Some competition authorities have long standing competence in combating exploitative abuse of power. However, it will take time to build such competence for countries that do not (OECD, 2020b).

Some agencies have considered other alternatives, including consumer protection or price gouging rules. A number of competition authorities have reaffirmed that the scrutiny of cartels and anticompetitive practices remained a priority. However, specific types of co-operation between competitors can fall within categories of lawful and pro-competitive collaboration (OECD, 2020b). Specific cooperation agreements between competitors are either expressly allowed or investigated. For example, “co-operation as a response type” has allowed the functioning of supply chains to provide important services, while “innovative co-operation type” agreements have been to allow joint investments in research and development projects for the development of vaccines and medicines (OECD, 2020b).

As a consequence of crisis some enterprises under financial distress face pressure to exit markets, while other enterprises could merge or be subject to attempted acquisitions. However, authorities need to be mindful that mergers can irrevocably change the market structure, particularly if there are significant barriers to entry for potential new entrants, which come with long run implications. Therefore, competition authorities need to be well equipped to fully consider the circumstances of markets and participants in periods of economic crisis. It means that the competition enforcement can play a key role in the market failures and other market conditions that are specific to the current economic crisis (OECD, 2020b).

3.4 Market access during Covid-19

Market access is an ability of enterprises to enter and operate within both domestic and international markets. The ability of an enterprise to offer goods or services to consumers in the marketplace that can be affected by a number of important factors, such as general and industry-specific policies legislated by a government, by transnational trading systems and the

behaviour of other businesses. It can be stated that no business can survive without access to existing or potential new markets and customers. Therefore, market access is an important factor for competition authorities and policymakers (Schaper and Burgess, 2021a). Some competition agencies have responded to Covid-19 by adapting the solution in which they can manage and enforce the competition laws, the exemptions they grant, and the business behaviour which they can authorise. Many competition authorities have exceptionally relaxed the application of some prohibitions, and they have focused on the impact these decisions-making that may have on MSMEs (Schaper and Burgess, 2021a).

The issues of market access can be comprehensively addressed through a wide range of different tools. It may consist of government financial support to alleviate the lack of liquidity and to maintain jobs in the face of severe reductions in demand; support to commence online trading and associated expansion of digital skills and activities; permitted travel zones among areas with low Covid-19 rates; and creation of business planning and strategic skills development for MSMEs (Schaper and Burgess, 2021a).

3.5 Market Access via Digital Markets

The Covid-19 pandemic has pushed MSMEs to go digital. Digitalization can make MSMEs more resilient and more competitive, as well as facilitate their access to both domestic and international markets. There is empirical evidence that MSMEs are unable to rapidly shift to online delivery methods, due to greater hardships and may be at higher risk of failure than counterparts. The lack of digital readiness among many MSMEs is a key barrier to go online shopping both during and after Covid-19 pandemic (Schaper and Burgess, 2021a).

If a business used digital effectively, it can assist them to improve their market access and efficiency. E-commerce can also allow MSMEs to reach more customers, such those in remote locations and in international markets. It can allow MSMEs to source inputs and supplies competitively from a growing number of online retailers. Importantly, IT-enabled services can reduce costs by outsourcing non-essential services, and can provide MSMEs a global presence, allowing them to compete directly into domestic and international markets (Schaper and Burgess, 2021a).

However, most MSMEs, particularly micro enterprises, have been slow at adopting e-commerce, online platform and information and communication technology (ICT) according to the World Bank Enterprise Surveys (WTO, 2016). The study presents that only 23 percent of micro-enterprises have an official website, while 85 percent of large enterprises do.

Thai MSMEs face specific challenges concerning e-commerce. The quality of ICT infrastructure and related services in Thailand puts MSMEs at a competitive disadvantage relative to firms based in industrial areas, and in comparison, to larger domestic firms which normally have more online platforms and resources. Power supplies can be unreliable and expensive, many entrepreneurs and staff lack digital literacy, and there may be low levels of consumer familiarity with online methods. Another concern of online platform is cybersecurity levels, because MSMEs typically are less protected from online attacks than larger counterparts.

To address these challenges it is important to archieve a common understanding of the problems to be tackled to facilitate entry to digital markets and develop methods to assist ICT problems for MSMEs (Schaper and Burgess, 2021b). It is important to increase human and technological capacities and international collaboration in digital literacy. A digital strategy that describes how to increase understanding and analysis capabilities of digital literacy and markets is a starting point (Schaper and Burgess, 2021a). Other potential solutions in achieving digital transformation need implemention strategies such as through the creation of a business innovation centre.

3.6 Market Challenges and Opportunities

It is important to state that market challenges and opportunities are the primary topic of the UNCTAD Thai national study on the impact of COVID19 on MSMEs. Thailand is recognized as an upper middle-income country amongst ASEAN economies. The country was ranked 40th out of 132 in the World Economic Forum (World Economic Forum, 2019), which measures institutions, policies and services to facilitate trade in the country. Even through natural disasters and political instability Thailand has maintained a resilient and open economy, particularly as a member of ASEAN. Thailand has been very active in regional free trade agreements (e,g, with ASEAN) and bilateral trade agreements with Australia, India, Japan, and New Zealand.(International Trade Centre, 2020). The country's efficiency in import-export procedures and attractive feature to foreign investors gives it a competitive edge, however, Thailand has still also imposed high import tariffs and restricted market entry. The national strategy aims at strengthening competitiveness in international markets by improving its productivity and preparing for participation in regional economic integration (World Economic Forum, 2019; International Trade Centre, 2020).

With respect to trade policy and market access, Thailand's trade tariff was 7.46% in 2019 (World Economic Forum, 2019). The average applied tariff on agricultural goods is higher than non-agricultural goods, with high tariffs imposed on beverage and tobacco, clothing, and fruits, vegetables, and plants (International Trade Centre, 2020). Although Thai exporters enjoyed few barriers to their exports, the high import tariffs that are applied to inputs of small domestic production serves as an impediment to trade.

Thai MSMEs in various industries face intense competition from both domestic large and international suppliers of goods and services. Many domestic companies are family owned businesses that span generations and are led by second and third-generation businesspersons who are highly educated and possess deep knowledge of their industries. The mass market of Thailand is price conscious and commonly served by local suppliers and/or low-priced imports. International exporters with products that are competitive for reasons other than price should operate with a Thai local partner to undertake an appropriate market entry strategy (International Trade Administration (ITA), 2020). Thailand's average applied Most Favoured Nation (MFN) tariff rate was 12.5 per cent ad valorem in 2017. About one-third of Thailand's MFN tariff schedule involves duties of less than 5 per cent and 30 per cent of tariff lines are MFN duty free, including chemicals, electronics, industrial machinery, and paper. Thailand has bound all tariffs on agricultural products in the WTO, but only 70 per cent of its tariff lines on industrial products are bound. It has bound its agricultural tariffs at 39.5 per cent ad valorem, compared with its average applied MFN tariff on agricultural products of 25.1 per cent. MFN duties on imported processed food products range from 30 per cent to 50 per cent, which can limit the ability of international exporters of such products to compete in the Thai market. In addition, tariffs on meats, fresh fruits (citrus fruit and table grapes) and vegetables, fresh cheese, and pulses (dry peas, lentils, and chickpeas) are comparably high (International Trade Administration (ITA), 2020).

The main concern for international enterprises to enter the Thai market is corruption and lack of transparency in Thai government procurements. Where corruption is commonly suspected during the bidding process, Thai government agencies have a right to accept or reject any or all bids at any time and can modify the technical requirements. This allows considerable flexibility for government agencies and state-owned enterprises to manage procurements, while denying bidders recourse to challenge procedures. There are many allegations that the Thai government makes changes to technical requirements for this purpose during the procurements. Despite the Thai government having made a commitment to transparency in

government procurements, many foreign companies and the Thai media continue to report allegations of irregularities (International Trade Administration (ITA), 2020).

3.7 Trade competition policy in Thailand

The Trade Competition Act (TCA) B.E. 2560 (2017) came into force on 5 October 2017. The TCA is the main legislation regulating business operators in Thailand on issues of free and fair trade competition[30] (Bunruangthaworn et al., 2020). The TCA established the Office of Trade Competition Commission (OTCC) which is an independent agency that has the power to order business operators to suspend, cease, or rectify any action to prevent the establishment of monopolies and unfair trade practices in the country (ASEAN, 2021). Focusing on the Office of Trade Competition Commission (OTCC) (2020), it is a responsible authority for the enforcement of the competition law in all sectors in Thailand, in coordination with sector regulators.

The OTCC issues guidelines that aim to prevent wholesalers, retailers, and franchisors from engaging in unfair trade practices with their business partners and large domestic and international firms which dominate certain markets (Surakitjakorn and Lalitkomon, 2020). A recent example of these was a notification that deals with the determination of unfair trade practices in wholesale and retail businesses. Notification regarding the guidelines for the consideration of unfair trade practices in a wholesale and retail business came into force on 20 July 2019. It has stated the criteria for the consideration of unfair trade practices and provides a list of the types of conduct that wholesalers and retailers (for example, hypermarkets,

[30] The Thai economy is still dominated by large firm which dominate GDP (60%), exports (86%), even though they account for less than 1% of all enterprises in the country. MSMEs account for 99% of all enterprise and, most importantly, 80% of total employment. So, competition policy is important to ensure their survival, that they compete on a level playing field with large firms, that they can enter new domestic markets (through the internet) without large firms preventing or dominating them, because they are important for employment. Without competition policy to protect them they will be hindered in their growth and this will discourage entrepreneurial activity in the country. Covid-19 will also weaken them further without stronger competition policy. MSMEs are concerned with new entrants in the market and large firms exerting their market dominance. Therefore, MSMEs should be concerned with the need for strong competition policy in Thailand.

department stores, supermarkets, convenience stores) are prohibited from undertaking in their dealings with manufacturers or distributors, including importers and weaker domestic MSMEs. These types of prohibited conduct can be classified into eight categories as in the following (Surakitjakorn and Lalitkomon, 2020; Office of Trade Competition Commission (OTCC), 2020):

1. Unfairly fixing a low purchasing price from the manufacturer or distributor, including forcing the manufacturer or distributor to provide a discount for products already delivered;
2. Unfairly demanding economic benefits from the manufacturer or distributor;
3. Unfairly returning the purchased goods without a justifiable reason;
4. Unfairly setting contractual conditions in the consignment agreement;
5. Unfairly forcing the manufacturer or distributor to purchase goods or services without a justifiable reason;
6. Unfairly assigning duties to the personnel of the manufacturer or distributor without prior agreement or the consent of the manufacturer or distributor;
7. Unfairly refusing to accept products that are specifically ordered or made for the wholesaler or retailer for instance, private brand, house brand; and
8. Other unfair trade practices that may cause damage to a manufacturer or distributor, such as delaying payment for the purchase of goods, refusal to deal in, or delisting of stock.

MSMEs are particularly exposed to such practices in their dealings with large and dominant firms in markets in Thailand. They require protection under the law.

Recent enforcement under the Trade Competition Act (TCA) 2017

A recent case occurred in 2019, involving an energy drink manufacturer, namely M-150 Company Limited that had a dominant position in the energy drink market. The M-150 Company Limited was alleged to have prohibited its distributors, mainly MSMEs from selling the products of its competitors. The OTCC ruled that this manufacturer had committed an offense by abusing its dominance, in contravention of the Trade Competition Act (Surakitjakorn and Lalitkomon, 2020). The OTCC also found that the M-150 Company Limited is in a dominant position in the energy sales market as it has control over more than 50 percent of market sales in Thailand. It considered this action to be unreasonable as it had caused damage to agents, mainly MSMEs. A fine was imposed on the M-150 Company

Limited for utilizing market dominance to restrict fair competition. As a result, the OTCC imposed aggregate fines of approximately THB 12 million, consisting of separate THB 6 million fines on both the company and the company's director (Surakitjakorn and Lalitkomon, 2020).

The OTCC has issued a ruling on Toyota Motor Thailand Co., Ltd. (Toyota) case in 2019. They had circulated a notification to all of its agents to prohibit the sale of "Toyota Altis Hybrid" model where it was for modification as a taxi car. Toyota has prohibited its agents, mainly MSMEs from selling Toyota's cars out of his or her designated territorial market in Thailand. The OTCC expressed that that the Toyota case did not violate the TCA as follows (Bunruangthaworn et al., 2020):

1. the prohibition of sale, where it was for the modification of the cars as taxi cars, was to preserve the brand's image which is for the purpose of maintaining the position of the product and satisfying customers;
2. Toyota's agents were prohibited to conduct their business or marketing activities outside of their territorial market, but customers were not restricted in buying the products in different territorial markets.

Even though, TCA does not explicitly provide for exceptions to the prohibitions under the act, given the ruling in the Toyota case, it can be observed that where it is for the preservation of the position and image of a product and customer satisfaction, which may restrict some operators' trade opportunities. The OTCC can rule such restriction as a fair trade practice. The ruling also reflects that if such conditions were not made to restrict customers or is against customer's rights, conditions will not likely be deemed as an unfair condition that causes damage to other operators and will not violate the provisions of the TCA. Finally, the Toyota case implies that the OTCC can utilize their discretion on a case by case basis in deciding on the extent and exception of the interpretation of the TCA (Bunruangthaworn et al., 2020).

Unfair Trade Practices: Buyers

This case involved two buyers of agricultural products which occurred during the enforcement of the 2017 TCA. The OTCC ruled that the buyers had engaged in unfair trade practices by threatening other prospective buyers, mainly MSMEs and prohibiting them from purchasing agricultural products from sellers based in the same area as the offenders. The OTCC imposed a THB 25,000 fine on the offenders, initially calculated as 10 percent of the offenders' total

turnover during the period of the offense and further reduced by half due to the offenders' cooperation and in light of it being their first offense (Surakitjakorn and Lalitkomon, 2020).

Another case occurred under the 1999 TCA. A hypermarket operator launched a promotion in 2011 that customers could exchange a competitor's coupon with its own coupon for double the value. The hypermarket operator was found guilty of engaging in unfair trade practices under section 29 of the 1999 TCA during January- August 2011. It is important to state that it is difficult for MSME retailers to compete with this. However, the OTCC did not impose a criminal fine on the hypermarket operator, as the 1999 TCA had already been repealed when the OTCC's decision was finally made. The OTCC also could not impose an administrative fine under section 57 of the TCA, as this would have been contrary to the principle of non-retroactivity (Surakitjakorn and Lalitkomon, 2020).

3.8 Access to Finance

There is ample evidence that many MSMEs face acute problems in accessing finance, mainly related to their limited resources, inadequacy in business operation and perceived risk by lenders[31] (Harvie, 2011; Yuhua, 2014; Sharma and Kautish, 2019). Harvie and Charoenrat (2015) also point out that access to finance is a crucial factor affecting the competitive readiness of MSMEs. This in turn determines their ability to fully exploit and participate in the international market, and take advantage of business opportunities stemming from regional economic integration such as participating in global production networks.

With respect to the context of Thailand, research has shown confirmed MSMEs face difficulties in accessing formal sources of funding, due to limitations related to their characteristics such as small size, lack of human resource development, a lack of management and/or administration skills and lack of a business plan (Chaochotechuang and Mariano, 2016; Sriboonlue and Puangpronpitag, 2019). A lack of access to capital causes them to encounter high financial costs and high failure rates. They have also been unable to obtain capital through the Thai stock exchange market and raise funds from banks and financial institutions. Their financial sources are limited mainly to commercial banks. But as indicated commercial banks consider them as risky and tend to impose credit constraints. This is where Credit Guarantee Fund (CGF) provided by the government are so important to reduce the risks of lending to Thai

[31] Market failure can arise from this, with MSMEs subject to credit constraints and an inability to obtain funds for investment even for profitable projects.

MSMEs. This lack of interaction with financial markets and institutions has caused several problems for Thai MSMEs (Charoenrat and Harvie, 2017b). For example, a lack of efficiency, usage of out dated technology, poor innovation, inadequate funds for investment and a lack of integration into domestic and international value adding production networks (Malarvizhi et al., 2019; Sharma and Kautish, 2019).

3.9 Marketing

The role of marketing is one of the most significant factors affecting MSMEs' success and prosperity (UNIDO, 2020; OECD, 2020a). Thai MSMEs primarily remain in the domestic market but even here they face intense competition from large and dominant domestic firms, due to an intense competition in international markets, their involvement in primarily low-skill low-value-adding activities, as well as from the existence of tariff and non-tariff barriers in global markets (Sriboonlue and Puangpronpitag, 2019; Charoenrat and Harvie, 2019). These factors add disproportionately to their costs. Most Thai MSMEs are not well-prepared for both domestic and international markets. The major reason for this is that they lack knowledge and know-how to increase the value-added content of their products; distribution channels; and market penetration. As a result, the marketing efforts of MSMEs are frequently not fully competitive in the global market (Charoenrat and Harvie, 2017b). Focusing on the domestic market, Thai MSMEs face intense competition from large firms and from imported products, such as from the modern trade discount and convenience stores (OSMEP, 2020; Chaochotechuang and Mariano, 2016).

3.10 Exports

Thai MSMEs have internal barriers that impede their export performance, such as a lack of managerial export experience and weak planning systems (Charoenrat and Harvie, 2019). MSMEs lack export knowledge and information and have poor networking that leads to difficulties in finding new domestic and international markets (Sriboonlue and Puangpronpitag, 2019; UNIDO, 2020). Export density as shown in the results are positively associated with technical efficiency both in aggregate for MSME and for sub-manufacturing sector SITC2, SITC8 but negatively for SITC6. MSMEs use less formal market research on international market opportunities (too costly). Thai MSMEs also confront greater challenges in the global market than large firms, because they have to compete with several large companies' products and they lack access to market information and changing marketing environment that has increased competition in both domestic and international markets, requiring Thai MSMEs to

improve their performance in an attempt for them to survive in the global market (Charoenrat and Harvie, 2019). Focusing on product quality and technological advances, Thai MSMEs are not well equipped to compete with MSMEs in other countries such as Japan, China, Malaysian, Taiwan due to being heavily involved in labour-intensive, low-skill, low-value-adding activities using out of date technology (Chaochotechuang and Mariano, 2016; Sriboonlue and Puangpronpitag, 2019).

3.11 Information Technology (IT)

Thai MSMEs lack the ability to access, afford, and have the necessary skills to use information technology (IT) and to adopt e-commerce in their business. Most Thai SMEs still employ a traditional style of business operation, rather than utilize IT (Chaochotechuang and Mariano, 2016). The majority of MSME entrepreneurs and employees have low education and skills, and lack the understanding of how to embed and use IT effectively in their business (Sriboonlue and Puangpronpitag, 2019). This also makes it difficult to enter and develop new markets and excludes them from participating in production networks where the employment of e-commerce is generally a requirement. Therefore, the application of IT for MSMEs is difficult and mainly beyond their capacity to use efficiently, despite Thai government agencies having provided technological support to assist SMEs, such as with the Software Park project (Sriboonlue and Puangpronpitag, 2019). However, only a small number of MSMEs received any benefit from this project due to the Thai government agencies providing insufficient information about the IT project. Many MSMEs were not aware of the benefits from IT services provided by government agencies (OSMEP, 2019). In contrast, large firms have continued to develop and enhance their utilization of IT. They have effectively applied IT to their administration and production process. For example, the management of their supply chains, commodity inventories and e-commerce systems. The benefit of IT to large firms is to simplify their process of work, save production costs, and expand customer reach (Sriboonlue and Puangpronpitag, 2019). For many SMSEs this makes competing with large firms very difficult.

3.12 Innovation

Innovation is usually related to creative thinking, improvement and innovative usage of technology to increase the economic value of products and services (Harvie and Charoenrat, 2015; Audretsch et al., 2012). It also involves product, process and organisational innovations. MSMEs usually focus upon product innovations as these are less resource-intensive. Hence, innovation is vital in the knowledge or so-called “new economy” today. With respect to the

innovation system in Thailand, it is not well-organised in many areas, such as in the macro-environment, innovation infrastructure, research and development (R&D) and technology capabilities. It can be stated that Thai MSMEs pay insufficient attention to innovation (OSMEP, 2019; Sriboonlue and Puangpronpitag, 2019). This is as a consequence of the low level of education of employees in the MSME sector that contributes to a lack of creative activity and limited resources. In addition, the Thai educational system itself is one of the problems, because in Thailand emphasis is placed on rote learning or memorizing in class and not learning through creative thinking (Charoenrat and Harvie, 2019).

Furthermore, brainstorming is one kind of creative thinking in schools. Teaching students to think creatively must, therefore, be the priority of schools today (Sriboonlue and Puangpronpitag, 2019). The absence of appropriate innovation among Thai MSME entrepreneurs is a critical issue that leads to low product quality and production, and is an issue that needs to be urgently addressed by the Thai government. Focusing on technology and quality control, Thailand's MSMEs are producing goods below export-quality standards, such as ISO, GMP making it difficult for them to participate in the regional supply chains of multinational companies and international markets more generally (Charoenrat and Harvie, 2019). Although the Thai government established an innovation development fund in an attempt to support entrepreneurs and employees, to date this fund has not been successful in terms of patents, product designs, trademarks, certification mark and local Thai wisdom (culture, art and knowledge in the community) (OSMEP, 2020).

3.13 Human Capital

Human resources are a crucial issue for MSME development, especially in the knowledge- and skill-intensive "new economy" today (OECD, 2020a). The Thai government has supported the educational system by allocating a large amount of funds through successive budgets. However, the average education of Thai workers is quite low and almost 70 percent of the workforce in MSMEs has only primary education or lower. The labour force in MSMEs comprises largely unskilled labour. These workers have limitations and difficulties in learning and training, and knowledge acquisition and application. That part of the labour force which is more highly educated, such as at the secondary school or diploma levels, have a greater ability to learn and understand compared to workers who only have a primary education (OECD, 2020a). Entrepreneurship skill is a main problem facing Thai MSMEs. The traditional style of running a business may be productive for the domestic market, but it may not be effective for the international market (Charoenrat and Harvie, 2019). Moreover, most Thai MSMEs are

family businesses, and informal, which limits their business growth and market expansion. They have limited capabilities in raising and managing finance, conducting market research, business management, and analysis of domestic and international markets (Charoenrat and Harvie, 2017b).

3.14 Government Regulation

One of main reasons for the weakness of Thailand's MSMEs relates to the Thai government. The government has, until quite recently and despite its importance for employment, not paid much attention to MSMEs. Government agencies are not well-prepared to play an effective role in assisting and supporting MSMEs (Charoenrat and Harvie, 2019). For instance, the Thai government should play the key role in providing necessary knowledge and information for the MSME sector. It should also encourage networking between MSMEs for their mutual benefit and should launch necessary measures to protect MSMEs from unfair competition and international trade barriers (Charoenrat and Harvie, 2019; Sriboonlue and Puangpronpitag, 2019), and actively encourage the usage of digital technology by MSMEs. Importantly, corruption in Thai government agencies and in corporate governance is the major reason for the lack of effectiveness of supporting MSMEs. MSMEs also face various problems from the Thai government such as the lack of transparency of government agencies, an inadequate legal and regulatory framework, inconsistent MSME promotion plans and confusion in the structure of government agencies and their support (UNIDO, 2020; Charoenrat and Harvie, 2019).

Chapter 4: Measuring the impact of Covid-19 - Analysis of the 2020 UNCTAD Survey on MSMEs in Thailand

4.1 Introduction

The collection of the 2020 UNCTAD MSME survey allows an analysis of manufacturing MSMEs classified by ISIC: Revision 4, 2-digit code, at a point in time during Covid-19. The data collection was conducted by Suan Dusit Poll[32] during December 2020 – January 2021 using interviews. The 2020 MSME survey collected information on the operation of manufacturing establishments such as: the main area of operation; the location of firm; the type of firm; the ownership type; cost of production; cost of sales and administrative expenses and

[32] Suan Dusit Poll is widely recognised as a large and an academic polling centre within Suan Dusit university (a public university) of Thailand. It is also a well-known polling organisation in the country.

inventory of the firm. The survey can be utilized for a national account compilation and constructing economic indicators. In addition, the 2020 UNCTAD MSME survey consists of four parts: (1) general information of firms in the survey; (2) the current impact of Covid-19; (3) dealing with Covid-19; and (4) competition policies and market access during Covid-19. The total sample of MSME manufacturing enterprises obtained for Thailand in this survey is 219.

4.2. Survey sample distribution

Table 4.1 presents the number and percentage of Thai manufacturing MSMEs included in the UNCTAD survey by various categories. With regards to size of enterprises the largest number of interviewed manufacturing MSMEs was small enterprises, amounting to 140 firms or 63.90% of the total sample, followed by micro enterprises and medium enterprises, respectively. Focusing on the regional distribution of interviewed MSMEs, Northern, North-eastern, and Southern regions contained the highest number of MSMEs in 2020, accounting for 128 firms or 58.40% of the total sample, while the central region had 91 firms or 41.60% of the total sample. In terms of sub-manufacturing sectors of interviewed firms in 2020, SITC 8: Miscellaneous manufactured articles had the highest number of interviewed firms, amounting to 56 firms or 25.60 percent of the total sample, followed by SITC 0, SITC 6, SITC 1, SITC 2, SITC 7, SITC 5 and SITC 8, respectively. Finally, for the type of ownership, 94 private limited companies representing 42.90% of the total sample representing the largest number of interviewed firms, followed by sole proprietors, partnerships, and other firms, respectively.

Table 4.1: Number and Percentage of Interviewed MSMEs by Size, Location of Firms, Sub-manufacturing Sectors and Type of ownerships

Items	Number of Observations	Percentage (%)
Size of enterprises		
Micro enterprises	65	29.70
Small enterprises	140	63.90
Medium enterprises	14	6.40
Total	**219**	**100**
Location of enterprises		
Central region	91	41.60
Northern, North-eastern, and Southern regions	128	58.40
Total	**219**	**100**
Sub-manufacturing sectors		
SITC 0: Food and live animals	47	21.50
SITC 1: Beverages and tobacco	40	18.30

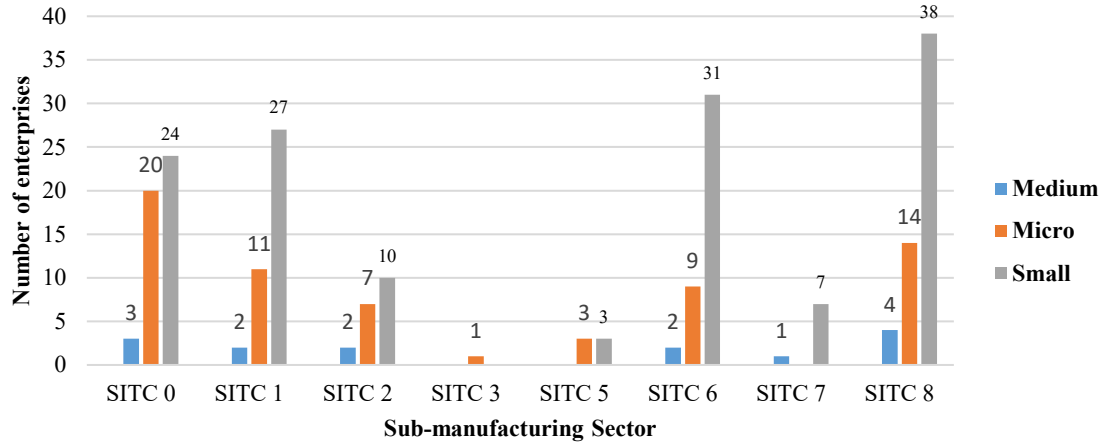
Items	Number of Observations	Percentage (%)
SITC 2: Crude materials, inedible, except fuels	19	8.70
SITC 3: Mineral fuels, lubricants and related materials	1	0.50
SITC 5: Chemicals and related products	6	2.70
SITC 6: Manufactured goods classified by material	42	19.20
SITC 7: Machinery and transport equipment	8	3.70
SITC 8: Miscellaneous manufactured articles	56	25.60
Total	**219**	**100**
Type of ownerships		
Sole proprietor	78	35.60
Partnership	41	18.70
Private limited	94	42.90
State-owned enterprise	5	2.30
Other enterprises	1	0.50
Total	**219**	**100**

Table 4.2 shows the number and percentage of interviewed manufacturing MSMEs classified by sector and size. The largest number of firms was in SITC 8, which had 56 firms or 25.60% of the total sample. The total number of micro firms in SITC 8 was 4 enterprises, while small and medium firms had 14 and 38 enterprises, respectively. SITC 0 was the second highest, with 47 enterprises or 21.50% of total sample. The total number of micro and small firms in SITC 0 was 3 and 20 enterprises, respectively, accounting for 21.40% and 30.80%, respectively of the total sample, while medium firms accounted for 24 firms, representing 17.10% of the sample. SITC 6 was third, with 42 firms or 19.20% of the sample, followed by SITC 1, SITC 2, SITC 7, SITC 5, and SITC 3, respectively. Furthermore, Figure 1.1: summarises interviewed MSMEs by size, location of firms, sub-manufacturing sectors and type of ownerships.

Table 4.2: Number and Percentage of Interviewed MSMEs Classified by Sector and Size

Items	Size of enterprises			
	Micro	**Small**	**Medium**	**Total**
SITC 0: Food and live animals	3	20	24	47
SITC 1: Beverages and tobacco	2	11	27	40
SITC 2: Crude materials, inedible, except fuels	2	7	10	19
SITC 3: Mineral fuels, lubricants and related materials	0	1	0	1
SITC 5: Chemicals and related products	0	3	3	6
SITC 6: Manufactured goods classified by material	2	9	31	42
SITC 7: Machinery and transport equipment	1	0	7	8
SITC 8: Miscellaneous manufactured articles	4	14	38	56

Figure 1.1: Interviewed MSMEs by Size, Location, Sub-manufacturing Sectors and Qwnership Type



Total	**14**	**65**	**140**	**219**
Percentage of Manufacturing Sector				
SITC 0: Food and live animals	21.40%	30.80%	17.10%	21.50%
SITC 1: Beverages and tobacco	14.30%	16.90%	19.30%	18.30%
SITC 2: Crude materials, inedible, except fuels	14.30%	10.80%	7.10%	8.70%
SITC 3: Mineral fuels, lubricants, and related materials	0.00%	1.50%	0.00%	0.50%
SITC 5: Chemicals and related products	0.00%	4.60%	2.10%	2.70%
SITC 6: Manufactured goods classified by material	14.30%	13.80%	22.10%	19.20%
SITC 7: Machinery and transport equipment	7.10%	0.00%	5.00%	3.70%
SITC 8: Miscellaneous manufactured articles	28.60%	21.50%	27.10%	25.60%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Table 4.3 presents the number and percentage of type of family business and ownership of the company classified by size, sector (SITC) and ownership. For the type of family business, most of the firms in terms of both size of enterprise and sub-manufacturing sector of operation are a family business, representing 170 firms of all enterprises in the sample, while the rest of the firms are not a family business, representing 49 firms in the firm sample. The majority of the firms are locally owned, representing 216 firms of the over number of enterprises, while only 3 firms are foreign-owned.

Table 4.3: Number and Percentage of Type of family business and Ownership of the Company Classified by Size and Sector

Items	Type of family business			Ownership of company		
	Not family business	Family business	**Total**	Local	Foreign	**Total**
Micro enterprises	5	60	**65**	65	0	**65**
Small enterprises	36	104	**140**	137	3	**140**

Items	Type of family business			Ownership of company		
	Not family business	Family business	**Total**	Local	Foreign	**Total**
Medium enterprises	8	6	**14**	14	0	**14**
Total	**49**	**170**	**219**	**216**	**3**	**219**
Percentage of enterprises						
Micro enterprises	10.20%	35.30%	**29.70%**	30.10%	0.00%	**29.70%**
Small enterprises	73.50%	61.20%	**63.90%**	63.40%	100.00%	**63.90%**
Medium enterprises	16.30%	3.50%	**6.40%**	6.50%	0.00%	**6.40%**
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
Sub-manufacturing sector						
SITC 0: Food and live animals	5	42	**47**	47	0	**47**
SITC 1: Beverages and tobacco	2	38	**40**	39	1	**40**
SITC 2: Crude materials, inedible, except fuels	5	14	**19**	19	0	**19**
SITC 3: Mineral fuels, lubricants, and related materials	0	1	**1**	1	0	**1**
SITC 5: Chemicals and related products	2	4	**6**	6	0	**6**
SITC 6: Manufactured goods classified by material	13	29	**42**	42	0	**42**
SITC 7: Machinery and transport equipment	6	2	**8**	8	0	**8**
SITC 8: Miscellaneous manufactured articles	16	40	**56**	54	2	**56**
Total	**49**	**170**	**219**	**216**	**3**	**219**
Percentage of sub-manufacturing sector						
SITC 0: Food and live animals	10.20%	24.70%	**21.50%**	21.80%	0.00%	**21.50%**
SITC 1: Beverages and tobacco	4.10%	22.40%	**18.30%**	18.10%	33.30%	**18.30%**
SITC 2: Crude materials, inedible, except fuels	10.20%	8.20%	**8.70%**	8.80%	0.00%	**8.70%**
SITC 3: Mineral fuels, lubricants, and related materials	0.00%	0.60%	**0.50%**	0.50%	0.00%	**0.50%**
SITC 5: Chemicals and related products	4.10%	2.40%	**2.70%**	2.80%	0.00%	**2.70%**
SITC 6: Manufactured goods classified by material	26.50%	17.10%	**19.20%**	19.40%	0.00%	**19.20%**
SITC 7: Machinery and transport equipment	12.20%	1.20%	**3.70%**	3.70%	0.00%	**3.70%**
SITC 8: Miscellaneous manufactured articles	32.70%	23.50%	**25.60%**	25.00%	66.70%	**25.60%**
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Table 4.4 presents the number and percentage of exporting and non-exporting MSMEs in the sample classified by size and sector in 2020. In the sample of firms, exporting firms accounted for only 28 enterprises, while non-exporting firms accounted for 191 enterprises. With respect to exporting firms, small enterprises dominated the sample, contributing 25 of the 28 exporting firms in the sample or 89.30 percent of all exporting firms, while only 2 medium and 1 micro enterprises had any export activity. For non-exporting firms, small enterprises again dominated, with 115 in total or 60.20 percent of overall non-exporting firms. Micro and

medium enterprises had 64 and 12 firms, representing 33.50 percent and 6.30 percent respectively of overall non-exporting firms.

With respect to the sub-manufacturing sectors, Table 4.4 shows the largest number of exporting firms was in SITC 1, representing 8 firms or 28.60 percent of all exporting firms. The second largest number of exporting firms was in SITC 6, accounting for 7 firms or 25.00 percent of all exporting firms, followed by SITC 0, SITC 8, SITC 2, SITC 7, SITC 3, and SITC 5, respectively. For non-exporting firms, SITC 8 had the highest number of non-exporting firms, accounting for 52 firms or 27.20 percent of all non-exporting firms. SITC 0 had the second highest number of non-exporting firms, representing 42 firms or 22.00 percent of all non-exporting firms, followed by SITC 6, SITC 1, SITC 2, SITC 7, SITC 5, and SITC 3, respectively.

Table 4.4: Number and Percentage of Exporting and Non-Exporting MSMEs Classified by Size and Sector

Items	Non-exporting firm	Exporting firm	Total
Micro enterprises	64	1	**65**
Small enterprises	115	25	**140**
Medium enterprises	12	2	**14**
Total	191	28	**219**
Percentage of enterprises			
Micro enterprises	33.50%	3.60%	**29.70%**
Small enterprises	60.20%	89.30%	**63.90%**
Medium enterprises	6.30%	7.10%	**6.40%**
Total	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing sector			
SITC 0: Food and live animals	42	5	**47**
SITC 1: Beverages and tobacco	32	8	**40**
SITC 2: Crude materials, inedible, except fuels	17	2	**19**
SITC 3: Mineral fuels, lubricants, and related materials	1	0	**1**
SITC 5: Chemicals and related products	6	0	**6**
SITC 6: Manufactured goods classified by material	35	7	**42**
SITC 7: Machinery and transport equipment	6	2	**8**
SITC 8: Miscellaneous manufactured articles	52	4	**56**
Total	**159**	**142**	**301**
Percentage of sub-manufacturing sector			
SITC 0: Food and live animals	22.00%	17.90%	**21.50%**
SITC 1: Beverages and tobacco	16.80%	28.60%	**18.30%**
SITC 2: Crude materials, inedible, except fuels	8.90%	7.10%	**8.70%**
SITC 3: Mineral fuels, lubricants, and related materials	0.50%	0.00%	**0.50%**
SITC 5: Chemicals and related products	3.10%	0.00%	**2.70%**

Items	Non-exporting firm	Exporting firm	Total
SITC 6: Manufactured goods classified by material	18.30%	25.00%	**19.20%**
SITC 7: Machinery and transport equipment	3.10%	7.10%	**3.70%**
SITC 8: Miscellaneous manufactured articles	27.20%	14.30%	**25.60%**
Total	**100.0%**	**100.0%**	**100.0%**

4.2.1 Current impact of Covid-19

Table 4.5 exhibits the number and percentage of MSME manufacturing firms indicating the most significant financial problems experienced during Covid-19. The highest response was a decline in sales/revenue during Covid-19 (187 enterprises or 45.17% of all sample enterprises in this category), followed by the financial problems of repayment of loans (119 firms or 28.74% of firms), staff wages and social security charges, fixed costs, and payments of invoices, respectively. In addition, Figure 1.2 shows a clustered bar of number and percentage of sample firms indicates the most significant financial problems experienced during Covid-19.

Table 4.5: Number and Percentage of Firms in the Sample Indicating the Most Significant Financial Problems Experienced During Covid-19 Classified by Manufacturing MSMEs

Items	Manufacturing MSMEs	Percentage (%)
(Multiple answers)		
1. Staff wages and social security charges	63	15.22
2. Fixed costs	26	6.28
3. Repayment of loans	119	28.74
4. Payments of invoices	19	4.59
5. Decline in sales/revenue	187	45.17
Total	**414**[33]	**100**

[33] MSMEs can provide answers up to 3 responses.

Figure 1.2: MSMEs indicating the most significant financial problems experienced during Covid-19

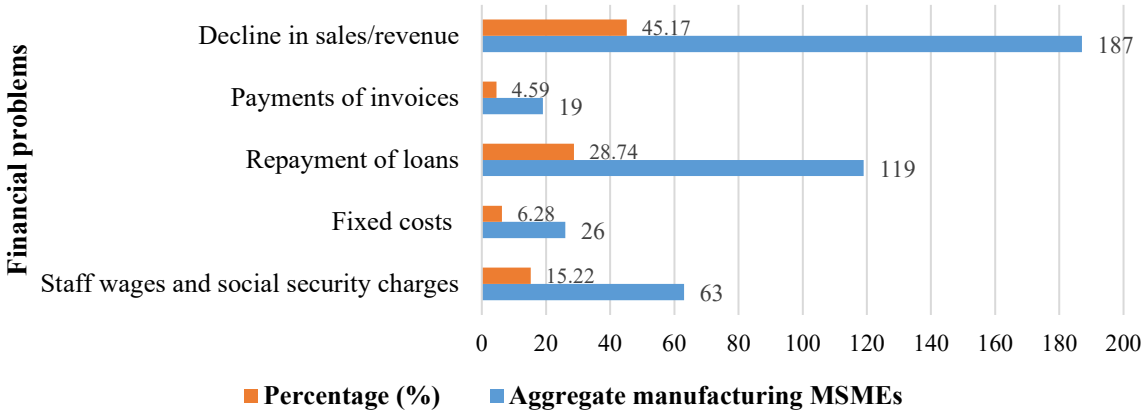


Table 4.6 presents the number and percentage of firms in the sample that have specified business problems due to the Covid-19 pandemic. Over half of firms cited a reduction of (local) orders (local), followed by increased difficulty of accessing finance, upstream and downstream chain disruptions, disruption of logistics, reduction of orders (from overseas), and existing loans cannot be extended, respectively. However, business problems of inability to deliver existing orders (lockdowns) and insufficient protective equipment (e.g. masks) are not indicated by the firms in the sample. Moreover, Figure 1.3 exhibits a clustered bar of number and percentage of sample firms specifying business problems due to the Covid-19 pandemic.

Table 4.6: Number and Percentage of Firms in the Sample Specifying Business Problems Due to the Covid-19 Pandemic Classified by Manufacturing MSMEs

Items	Manufacturing MSMEs	Percentage (%)
(Multiple answers)		
1. Reduction of orders (local)	192	53.48
2. Reduction of orders (from overseas)	24	6.69
3. Inability to deliver existing orders (lockdowns)	0	0.00
4. Increased difficulty of accessing finance	65	18.11
5. Existing loans cannot be extended	17	4.74
6. Disruption of logistics	27	7.52
7. Upstream and downstream chain disruptions	34	9.47
8. Insufficient protective equipment (e.g. masks)	0	0.00
Total	**359**	**100**

Figure 1.3: MSMEs specifying type of business problems due to the Covid-19 pandemic

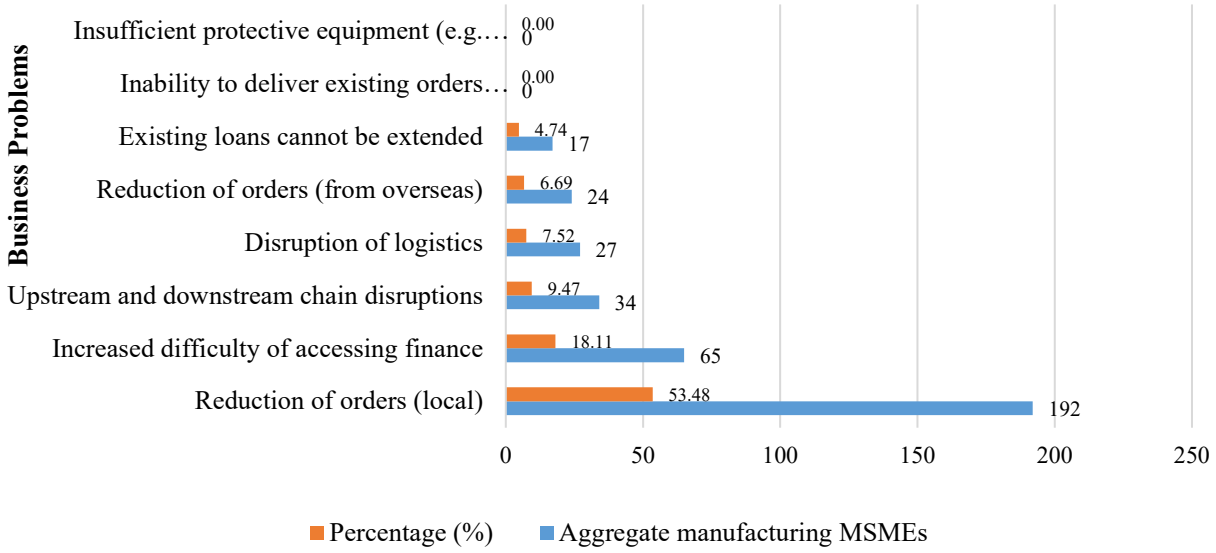


Table 4.7: Number and Percentage of Firms in the Sample Expecting on Firm's Revenue as a Result of Covid-19 Classified by Size and Sector

Items	Impacting on firm's revenue		
	No	**Yes**	**Total**
Micro enterprises	3	62	**65**
Small enterprises	11	129	**140**
Medium enterprises	2	12	**14**
Total	**16**	**203**	**219**
Percentage of enterprises			
Micro enterprises	18.80%	30.50%	**29.70%**
Small enterprises	68.80%	63.50%	**63.90%**
Medium enterprises	12.50%	5.90%	**6.40%**
Total	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing sector			
SITC 0: Food and live animals	2	45	47
SITC 1: Beverages and tobacco	1	39	**40**
SITC 2: Crude materials, inedible, except fuels	0	19	**19**
SITC 3: Mineral fuels, lubricants, and related materials	0	1	**1**
SITC 5: Chemicals and related products	0	6	**6**
SITC 6: Manufactured goods classified by material	4	38	**42**
SITC 7: Machinery and transport equipment	0	8	**8**
SITC 8: Miscellaneous manufactured articles	9	47	**56**
Total	**16**	**203**	**219**

Items	Impacting on firm's revenue		
	No	Yes	Total
Percentage of sub-manufacturing sector			
SITC 0: Food and live animals	12.50%	22.20%	**21.50%**
SITC 1: Beverages and tobacco	6.30%	19.20%	**18.30%**
SITC 2: Crude materials, inedible, except fuels	8.90%	7.10%	**8.70%**
SITC 3: Mineral fuels, lubricants, and related materials	0.00%	0.50%	**0.50%**
SITC 5: Chemicals and related products	0.00%	3.00%	**2.70%**
SITC 6: Manufactured goods classified by material	25.00%	18.70%	**19.20%**
SITC 7: Machinery and transport equipment	0.00%	3.90%	**3.70%**
SITC 8: Miscellaneous manufactured articles	56.30%	23.20%	**25.60%**
Total	**100.0%**	**100.0%**	**100.0%**

Table 4.8 presents the number and percentage of firms in the sample that consider layoffs, or has already done some because of the pandemic classified by size and sector. It can be observed that most firms in both size of enterprise and sub-manufacturing sector did not layoff their workers during the Covid-19, representing 185 firms of all sample enterprises, while only 34 firms that layoff their workers in 2020.

Table 4.8: Number and Percentage of Firms in the Sample Considering Layoffs, or Have Already Done Some because of the Pandemic Classified by Size and Sector

Items	Layoffs	No layoffs	Total
Micro enterprises	11	54	**65**
Small enterprises	17	123	**140**
Medium enterprises	6	8	**14**
Total	34	185	**219**
Percentage of enterprises			
Micro enterprises	32.40%	29.20%	**29.70%**
Small enterprises	50.00%	66.50%	**63.90%**
Medium enterprises	17.60%	4.30%	**6.40%**
Total	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing sector			
SITC 0: Food and live animals	7	40	**47**
SITC 1: Beverages and tobacco	6	34	**40**
SITC 2: Crude materials, inedible, except fuels	3	16	**19**
SITC 3: Mineral fuels, lubricants, and related materials	0	1	**1**
SITC 5: Chemicals and related products	1	5	**6**
SITC 6: Manufactured goods classified by material	9	33	**42**
SITC 7: Machinery and transport equipment	2	6	**8**
SITC 8: Miscellaneous manufactured articles	6	50	**56**
Total	**34**	**185**	**219**
Percentage of sub-manufacturing sector			

Items	Layoffs	No layoffs	Total
SITC 0: Food and live animals	20.60%	21.60%	**21.50%**
SITC 1: Beverages and tobacco	17.60%	18.40%	**18.30%**
SITC 2: Crude materials, inedible, except fuels	8.80%	8.60%	**8.70%**
SITC 3: Mineral fuels, lubricants, and related materials	0.00%	0.50%	**0.50%**
SITC 5: Chemicals and related products	2.90%	2.70%	**2.70%**
SITC 6: Manufactured goods classified by material	26.50%	17.80%	**19.20%**
SITC 7: Machinery and transport equipment	5.90%	3.20%	**3.70%**
SITC 8: Miscellaneous manufactured articles	17.60%	27.00%	**25.60%**
Total	**100.0%**	**100.0%**	**100.0%**

4.2.2 Dealing with Covid-19

Table 4.9 presents the number and percentage of firms in the sample that indicate important issues to deal to with Covid-19, including cash flow shortage, a shortage of workers, shortages of inputs, and difficulties in fulfilling contracts, respectively, classified by manufacturing MSMEs in 2020. It can be seen that the majority of firms in the sample are concerned about loans from commercial banks during Covid-19, accounting for 150 enterprises or 50.17% of all enterprises in this category, followed by reduction of operating costs, loans by microfinance companies or private individuals, no cash flow shortfall problems, negotiating with lenders to avoid withdrawing loans, and equity financing, respectively. For a shortage of workers, most firms in the sample have not had a problem, representing 196 firms or 81.33% of all enterprises in the sample, followed by wage increases, outsourcing of orders, employ more migrant workers, and use of advanced equipment or software to reduce the number of workers required, respectively.

With regard to the shortages of inputs such as intermediate goods and raw materials, it can be observed that it the majority of firms in the sample indicates that there has been no shortage of inputs during Covid-19, accounting for 102 enterprises or 33.33 percent of all enterprises in this category, followed by reduction of production/sales, seek new production/distribution/sales channels, increasing procurement channels (domestically/internationally), and delay goods/services delivery, respectively. Focusing on difficulties in fulfilling contracts with local firms and foreign firms, the majority of firms in the sample specified that they have no contractual performance issues, representing 123 firms or 49.40% of all enterprises, followed by settlement by mutual agreement, expect the government

to coordinate and provide clear disclaimer agreements, legal or arbitrary settlement, and payment of liquidated damages, respectively.

Table 4.9: Number and Percentage of Firms in the Sample Indicating Important Issues to Deal with from Covid-19, Including Cash Flow Shortage, a Shortage of Workers, Shortages of inputs, and Difficulties in fulfilling contracts, Respectively Classified by Manufacturing MSMEs

Items	Manufacturing MSMEs	Percentage (%)
(Multiple answers)		
1. Loans by commercial banks	150	50.17
2. Loans by Internet finance	0	0.00
3. Loans by microfinance companies or private individuals	36	12.04
4. Negotiating with lenders to avoid withdrawing loans	23	7.69
5. Equity financing (adding new shareholders or capital increase of former shareholders)	17	5.69
6. Reduction of operating costs (e.g. layoffs and salary reductions)	45	15.05
7. No cash flow shortfalls problem	28	9.36
Total	**299**	**100**
1. Wage increases	25	10.37
2. Use of advanced equipment or software to reduce the amount of workers required	4	1.66
3. Outsourcing of orders	11	4.56
4. Delay in delivery	0	0.00
5. No shortage of workers	196	81.33
6. Employ more migrant workers (subject to government approval	5	2.07
Total	**241**	**100**
1. Reduction of production/sales	76	24.84
2. Outsourcing orders	0	0.00
3. Increasing procurement channels (domestically/internationally)	53	17.32
4. Seek new production/distribution/sales channels	68	22.22
5. Delay goods/services delivery	7	2.29
6. There is no shortage of inputs for a firm	102	33.33
Total	**306**	**100.00**
1. Settlement by mutual agreement	85	34.14
2. Legal or arbitrary settlement	13	5.22
3. Expect the government to coordinate and provide clear disclaimer agreements	22	8.84
4. Payment of liquidated damages	6	2.41
5. No contractual performance issues	123	49.40
Total	**306**	**100.00**

Table 4.10 presents the number and percentage of firms that obtained support packages from the Thai government during the pandemic covid-19, classified by size and sector. The majority

of firms in both size of enterprise and sub-manufacturing sector obtained measures/support packages from the Thai government, representing 157 firms of all sample enterprises, while only 62 firms did not obtain government assistance.

Table 4.10: Number and Percentage of Firms in the Sample Obtaining Measures/Support Packages from the Thai Government During the Covid-19 Classified by Size and Sector

	Obtaining Measures/Support Packages		
Items	**No**	**Yes**	**Total**
Micro enterprises	21	44	**65**
Small enterprises	37	103	**140**
Medium enterprises	4	10	**14**
Total	**62**	**157**	**219**
Percentage of enterprises			
Micro enterprises	33.90%	28.00%	**29.70%**
Small enterprises	59.70%	65.60%	**63.90%**
Medium enterprises	6.50%	6.40%	**6.40%**
Total	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing sector			
SITC 0: Food and live animals	5	42	**47**
SITC 1: Beverages and tobacco	13	27	**40**
SITC 2: Crude materials, inedible, except fuels	6	13	**19**
SITC 3: Mineral fuels, lubricants, and related materials	1	0	**1**
SITC 5: Chemicals and related products	1	5	**6**
SITC 6: Manufactured goods classified by material	12	30	**42**
SITC 7: Machinery and transport equipment	0	8	**8**
SITC 8: Miscellaneous manufactured articles	24	32	**56**
Total	**62**	**157**	**219**
Percentage of sub-manufacturing sector			
SITC 0: Food and live animals	8.10%	26.80%	**21.50%**
SITC 1: Beverages and tobacco	21.00%	17.20%	**18.30%**
SITC 2: Crude materials, inedible, except fuels	9.70%	8.30%	**8.70%**
SITC 3: Mineral fuels, lubricants, and related materials	1.60%	0.00%	**0.50%**
SITC 5: Chemicals and related products	1.60%	3.20%	**2.70%**
SITC 6: Manufactured goods classified by material	19.40%	19.10%	**19.20%**
SITC 7: Machinery and transport equipment	0.00%	5.10%	**3.70%**
SITC 8: Miscellaneous manufactured articles	38.70%	20.40%	**25.60%**
Total	**100.0%**	**100.0%**	**100.0%**

Table 4.11 provides a breakdown of the specific government support packages received. It can be seen that the majority of firms in the sample obtained support in terms of extended deadline

for filing corporate income tax return to August (Por Ngor Dor 50) and September (Por Ngor Dor 51), representing 120 enterprises or 47.06 percent of all enterprise in this category, followed by filing of other taxes for affected operators extended by three months, loans up to THB 3 million for MSMEs at 3 percent interest rate for the first two years of taxes, other measures/support, filing of excise tax by service businesses extended by one month, filing of excise tax for oil product operators, exemption of import duty for products, and exemption of taxes and fee cuts, respectively.

Table 4.11: Number and Percentage of Firms in the Sample Specifying Measures/Support Packages from the Thai Government During the Covid-19. Classified by Manufacturing MSMEs

Items	manufacturing MSMEs	Percentage (%)
(Multiple answers)		
1. Loans up to THB 3 Million for MSMEs at 3% interest rate for the first two years of taxes and fee cuts for debt restructuring with non-financial institution creditors.	41	16.08
2. Date for filing corporate income tax extended to August (Por Ngor Dor 50) and September (Por Ngor Dor 51).	120	47.06
3. Filing of excise tax by service businesses extended by one month.	1	0.39
4. Filing of excise tax for oil product operators extended to the 15th of the following month for the next three months.	1	0.39
5. Filing of other taxes for affected operators extended by three months.	67	26.27
6. Exemption of import duty for products related to the prevention and treatment of Covid-19.	1	0.39
7. Exemption of taxes and fee cuts for debt restructuring with non-financial institution creditors.	1	0.39
8. Other measures/support	23	9.02
Total	**255**	**100.00**

4.2.3 MSME knowledge of competition policies and market access measures during Covid-19.

This section identifies the number and percentage of firms in the sample that know and understand measures/support made available by the Thai Government, including the Thai competition authority (guidelines, investigations), market access initiatives, competition law and policy, respectively, during Covid-19, classified by size and sector in 2020. Focusing on the Thai competition authorities (guidelines, investigations, and other actions), the majority of firms in the sample in terms of both size of enterprise and sub-manufacturing sector understood the role of the Thai competition authorities in the context of Covid-19, represented 128 firms of all enterprises in this category, while only 91 firms did not (see Figure1.4 below). With respect to market access initiatives for MSMEs from the Thai government, it can be seen that the majority of firms acknowledged market access initiatives during the Covid-19, accounting for 127 firms of all sample enterprises, whereas 92 firms did not. For the enforcement of competition law and policy during COVID-19, the majority of firms understood competition law and policy, representing 132 firms in all sample enterprises, while only 87 firms did not.

Moreover, Figure 1.4 exhibits a clustered bar of sample firms specifying measures/support adopted by the Thai Government, including Thai competition authorities (guidelines, investigations), market access initiatives, competition law and policy, respectively, classified by size of enterprise.

Table 4.12: Number and Percentage of Firms in the Sample that Know and Understand Measures Adopted by the Thai Government, including Thai Competition Authorities (Guidelines, Investigations), Market Access Initiatives, Competition Law and Policy Classified by Size and Sector

Items	Thai Competition Authorities		Market Access Initiatives		Competition Law and Policy	
	No	**Yes**	**No**	**Yes**	**No**	**Yes**
Micro enterprises	20	45	23	42	23	42
Small enterprises	61	79	59	81	55	85
Medium enterprises	10	4	10	4	9	5
Total	**91**	**128**	**92**	**127**	**87**	**132**
Percentage of Enterprises						
Micro enterprises	22.00%	35.20%	25.00%	33.10%	26.40%	31.80%
Small enterprises	67.00%	61.70%	64.10%	63.80%	63.20%	64.40%
Medium enterprises	11.00%	3.10%	10.90%	3.10%	10.30%	3.80%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing Sector						
SITC 0: Food and live animals	13	34	12	35	13	34
SITC 1: Beverages and tobacco	14	26	15	25	15	25
SITC 2: Crude materials, inedible, except fuels	10	9	10	9	7	12
SITC 3: Mineral fuels, lubricants, and related materials	0	1	0	1	0	1

Items	Thai Competition Authorities		Market Access Initiatives		Competition Law and Policy	
	No	Yes	No	Yes	No	Yes
SITC 5: Chemicals and related products	2	4	2	4	2	4
SITC 6: Manufactured goods classified by material	15	27	17	25	17	25
SITC 7: Machinery and transport equipment	5	3	5	3	3	5
SITC 8: Miscellaneous manufactured articles	32	24	31	25	30	26
Total	**91**	**128**	**92**	**127**	**87**	**132**
Percentage of Manufacturing Sector						
SITC 0: Food and live animals	14.30%	26.60%	13.00%	27.60%	14.90%	25.80%
SITC 1: Beverages and tobacco	15.40%	20.30%	16.30%	19.70%	17.20%	18.90%
SITC 2: Crude materials, inedible, except fuels	11.00%	7.00%	10.90%	7.10%	8.00%	9.10%
SITC 3: Mineral fuels, lubricants, and related materials	0.00%	0.80%	0.00%	0.80%	0.00%	0.80%
SITC 5: Chemicals and related products	2.20%	3.10%	2.20%	3.10%	2.30%	3.00%
SITC 6: Manufactured goods classified by material	16.50%	21.10%	18.50%	19.70%	19.50%	18.90%
SITC 7: Machinery and transport equipment	5.50%	2.30%	5.40%	2.40%	3.40%	3.80%
SITC 8: Miscellaneous manufactured articles	35.20%	18.80%	33.70%	19.70%	34.50%	19.70%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Figure 1.4: MSMEs familiar with Measures/Support Adopted by the Thai Government.

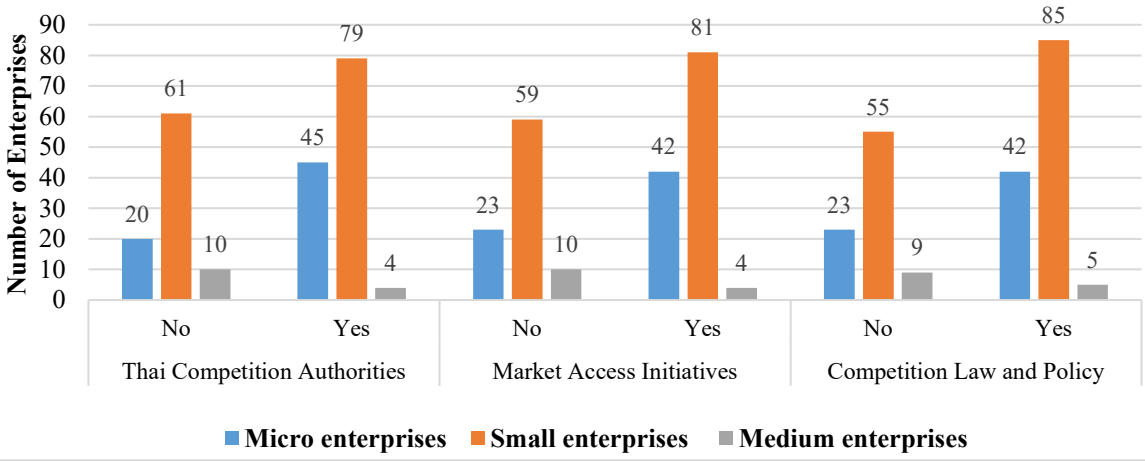


Table 4.13 shows the number and percentage of firms in the sample that specify other competition measures other than relaxation of competition enforcement in the context the Covid-19. It can be observed the majority of firms in the sample indicated the issue of (2) co-operation/collaboration in R&D projects related to the development of vaccines and medicines, representing 138 firms or 41.57% of all enterprises, whereas the issue of (3) while co-operation/collaboration during the crisis may be beneficial for specific purposes and the issue

of (1) co-operation/collaboration between competing firms to ensure provision of an essential service had 113 and 81 firms, respectively, accounting for 34.04% and 24.40% of all sample enterprises, respectively.

Table 4.13: Number and Percentage of Firms in the Sample Specifying Other Competition Measures than Relaxation of Competition Enforcement During the Covid-19 Classified by Aggregate Manufacturing MSMEs

Items	manufacturing MSMEs	Percentage (%)
(Multiple answers)		
1. Co-operation/collaboration between competing firms to ensure provision of an essential service (e.g. transport) or in distributing scarce but essential goods (e.g. maintaining the food chain).	81	24.40
2. Co-operation/collaboration in R&D projects related to the development of vaccines and medicines, and other essential activities which can entail substantial investments and risks for a single firm (Joint Ventures).	138	41.57
3. While co-operation/collaboration during the crisis may be beneficial for specific purposes, competition authorities are required to strike the right balance between allowing such private initiatives to address market failures in the short-run and avoiding distortion of competition in the long-run	113	34.04
Total	**332**	**100.00**

Table 4.14 presents the number and percentage of firms in the sample that consider which competition or pro-competitive measures would be most beneficial to a business during the Covid-19 period. It can be observed that the majority of firms in the sample pointed out that the most beneficial competition reform for the entire business would be those addressing the financial sector during the Covid-19, accounting for 179 firms or 50.71% of all sample

enterprises in this category, followed by upstream chain, downstream chain, and sector/segment: consolidation of the sector, maturation, and relative stability, respectively.

Table 4.14: Number and Percentage of Firms in the Sample Considering Which Competition or Pro-Competitive Measures Would Be Most Beneficial to a Business During the Covid-19 Classified by Aggregate Manufacturing MSMEs

Items	manufacturing MSMEs	Percentage (%)
(Multiple answers)		
1. Financial sector: access to cheaper, faster, and broader financial services, including credit.	179	50.71
2. Upstream chain: access to cheaper, timely, more quality merchandise/service.	72	20.40
3. Downstream chain: better negotiation terms, more guarantees and timely payment.	58	16.43
4. Sector/segment: consolidation of the sector, maturation, and relative stability.	44	12.46
Total	**353**	**100.00**

Table 4.15 shows the number and percentage of firms in the sample supporting various aspects of increased competition during Covid-19. Again, the importance of finance was clear, with 183 firms citing a desire for increased access or lower cost of finance. Next, domestic customers (domestic – increased demand and higher prices) and domestic suppliers (domestic - lower prices and cost of inputs) was very important to 149 and 134 firms, respectively. Focusing on improved transport infrastructure and transport cost and reduce business taxes and other operating cost, was cited as very important by 106 and 103 firms, respectively.

Table 4.15 Number of Firms in the Sample Indicating that Would Increasing Competition Be Most Beneficial to a Business in the period of Covid-19 Classified by Aggregate Manufacturing MSMEs in 2020.

Items	Unimportant	Somewhat unimportant	Neither unimportant or important	Important	Very important
1.Financial sector – increased access to, and lower cost of, borrowing.	1	2	1	31	183
2.Your suppliers (domestic - lower prices and cost of inputs).	1	1	8	71	134
3.Your suppliers (foreign – lower prices and cost of inputs).	40	26	40	54	33

4.Your customers (domestic – increased demand and higher prices).	2	1	8	56	149
5.Your customers (foreign – increased demand and higher prices).	35	30	36	54	31
6.Enhance access to overseas markets.	35	16	45	59	38
7.Reduce the cost of exporting (customs bureaucracy).	43	24	32	59	31
8.Improve transport infrastructure and transport cost.	3	3	8	97	106
9.Reduce business taxes and other operating cost.	0	3	18	94	103
10. Others	1	0	0	0	7

Table 4.16 presents the number and percentage of firms in the sample indicating the market issues, including restricted new firms, important market access and local/foreign market, respectively in the context of Covid-19, classified by size and sector in 2020. With respect to restricted new firms, the majority of firms in the sample in terms of both size of enterprise and sub-manufacturing sector suggested that the Thai government should restrict new firms (domestic and/or foreign) from entering the sector, representing 164 firms of all enterprises, while only 55 firms disagreed. For the important market access, it can be observed that the majority of firms in both size of enterprise and sub-manufacturing sector acknowledged that market access is important for firm survival during the Covid-19, accounting for 127 firms in all sample enterprises, whereas 92 firms did not. Focusing on local/foreign market, most firms in both size of enterprise and sub-manufacturing sector pointed out a local market is more important that foreign market, representing for 208 firms in all sample enterprises, while only 11 firms did not.

Table 4.16: Number and Percentage of Firms in the Sample Indicating the Market Issues, Including Restricted New Firms, Important Market Access and Local/Foreign Market Classified by Size and Sector

Items	Restricted new firms		Important market access		Local/Foreign market	
	No	Yes	No	Yes	Foreign	Local
Micro enterprises	18	47	35	30	1	64
Small enterprises	35	105	51	89	9	131
Medium enterprises	2	12	6	8	1	13
Total	**55**	**164**	**92**	**127**	**11**	**208**

Percentage of Enterprises						
Micro enterprises	32.70%	28.70%	38.00%	23.60%	9.10%	30.80%
Small enterprises	63.60%	64.00%	38.00%	23.60%	81.80%	63.00%
Medium enterprises	11.00%	3.10%	6.50%	6.30%	9.10%	6.30%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing Sector						
SITC 0: Food and live animals	9	38	19	28	3	44
SITC 1: Beverages and tobacco	9	31	14	26	1	39
SITC 2: Crude materials, inedible, except fuels	6	13	10	9	1	18
SITC 3: Mineral fuels, lubricants, and related materials	0	1	0	1	1	0
SITC 5: Chemicals and related products	2	4	2	4	0	6
SITC 6: Manufactured goods classified by material	7	35	15	27	1	41
SITC 7: Machinery and transport equipment	5	3	2	6	0	8
SITC 8: Miscellaneous manufactured articles	17	39	30	26	4	52
Total	**55**	**164**	**92**	**127**	**11**	**208**
Percentage of Manufacturing Sector						
SITC 0: Food and live animals	0.164	0.232	20.70%	22.00%	27.30%	21.20%
SITC 1: Beverages and tobacco	0.164	0.189	15.20%	20.50%	9.10%	18.80%
SITC 2: Crude materials, inedible, except fuels	0.109	0.079	10.90%	7.10%	9.10%	8.70%
SITC 3: Mineral fuels, lubricants, and related materials	0	0.006	0.00%	0.80%	9.10%	0.00%
SITC 5: Chemicals and related products	0.036	0.024	2.20%	3.10%	0.00%	2.90%
SITC 6: Manufactured goods classified by material	0.127	0.213	16.30%	21.30%	9.10%	19.70%
SITC 7: Machinery and transport equipment	0.091	0.018	2.20%	4.70%	0.00%	3.80%
SITC 8: Miscellaneous manufactured articles	0.309	0.238	32.60%	20.50%	36.40%	25.00%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 4.17 presents the number and percentage of firms in the sample indicating the use of online/ social network/ digital platforms during the period of Covid-19, classified by size and sector in 2020. With respect to the online platform, the majority of firms in the sample both in terms of size of enterprise and sub-manufacturing sector utilized online/social network/digital platforms to conduct their business, representing 125 firms out of all enterprises, while 94 firms did not. In terms of selling online, the majority of firms by both size of enterprise and sub-manufacturing sector indicated that they are selling or marketing products online, accounting for 132 firms in all sample enterprises, whereas 87 firms did not.

Focusing on government support, the majority of firms by both size of enterprise and sub-manufacturing sector specified that the Thai government was doing enough to encourage and support the use of online platforms, representing 173 firms in the sample of all enterprises, while 46 firms did not.

Table 4.17: Number and Percentage of Firms Use of Online/Social Network/Digital Platforms Classified by Size and Sector

Items	Online platforms		Selling online		Government support	
	No	Yes	No	Yes	No	Yes
Micro enterprises	38	27	23	42	14	51
Small enterprises	51	89	56	84	31	109
Medium enterprises	5	9	8	6	1	13
Total	**94**	**125**	**87**	**132**	**46**	**173**
Percentage of Enterprises						
Micro enterprises	40.40%	21.60%	26.40%	31.80%	30.40%	29.50%
Small enterprises	54.30%	71.20%	64.40%	63.60%	67.40%	63.00%
Medium enterprises	5.30%	7.20%	9.20%	4.50%	2.20%	7.50%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Sub-manufacturing Sector						
SITC 0: Food and live animals	20	27	9	38	7	40
SITC 1: Beverages and tobacco	23	17	13	27	9	31
SITC 2: Crude materials, inedible, except fuels	7	12	12	7	3	16
SITC 3: Mineral fuels, lubricants, and related materials	0	1	0	1	0	1
SITC 5: Chemicals and related products	1	5	2	4	2	4
SITC 6: Manufactured goods classified by material	14	28	15	27	9	33
SITC 7: Machinery and transport equipment	1	7	4	4	2	6
SITC 8: Miscellaneous manufactured articles	28	28	32	24	14	42
Total	**94**	**125**	**87**	**132**	**46**	**173**
Percentage of Manufacturing Sector						
SITC 0: Food and live animals	21.30%	21.60%	10.30%	28.80%	15.20%	23.10%
SITC 1: Beverages and tobacco	24.50%	13.60%	14.90%	20.50%	19.60%	17.90%
SITC 2: Crude materials, inedible, except fuels	7.40%	9.60%	13.80%	5.30%	6.50%	9.20%
SITC 3: Mineral fuels, lubricants, and related materials	0.00%	0.80%	0.00%	0.80%	0.00%	0.60%
SITC 5: Chemicals and related products	1.10%	4.00%	2.30%	3.00%	4.30%	2.30%
SITC 6: Manufactured goods classified by material	14.90%	22.40%	17.20%	20.50%	19.60%	19.10%
SITC 7: Machinery and transport equipment	1.10%	5.60%	4.60%	3.00%	4.30%	3.50%
SITC 8: Miscellaneous manufactured articles	29.80%	22.40%	36.80%	18.20%	30.40%	24.30%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

4.3 Technical efficiency estimates in Covid-19 period

In this section we now present empirical results identifying the most important factors impacting the technical efficiency of our sample of Thai enterprises in 2020. As with section 2, a Cobb-Douglas production function is used to estimate technical efficiency and to investigate inefficiency effects models:

$$lnY_i = \beta_0 + \beta_1 ln(K_i) + \beta_2 ln(L_i) + (V_i - U_i)^{34} \quad , \text{i} = 1,\ldots, \text{N}, \qquad (4.1)$$

where Y_i denotes value added, K_i represents net fixed assets, L_i represents the total number of employees, V_i are random error terms that are assumed to be independently and identically distributed normal random variables with zero means and variances, $\left(V_i: \ iidN\left(0,\sigma_v^2\right)\right)$ and are assumed to be independently distributed of the U_i. The U_is are non-negative random variables accounting for technical inefficiency in the production function that are assumed to be independently distributed, such that U_i is defined by the truncation of the normal distribution with mean μ_i and variance σ_μ^2 (Coelli et al., 2005; Kerdsriserm et al., 2018).

With respect to the second stage, a slightly different model specification is used compared to section 2. The specific factors that could affect the technical efficiency of Thai MSMEs, are modeled in an inefficiency functional form as follows:

$$\mu_i = \delta_0 + \delta_1 Firm\ location_i + \delta_2 Government\ measure_i + \delta_3 Competition\ authority_i + \delta_4 Market\ access\ initiative_i + \delta_5 Competition\ law\ and\ policy_i + \delta_6 Restricted\ new\ firm_i + \delta_7 Online\ platform_i \qquad (4.2)$$

where *firm location* is a dummy variable that takes the value 1 if a firm is located in the central region and 0 otherwise, to control for differences in location. *Government measure* is a dummy variable for government measures/support packages during Covid-19 that takes 1 if a firm obtained measures/support packages from the Thai government. A dummy variable for *competition authority* takes the value 1 if a firm knows and understands measures adopted by the Thai competition authorities and 0 otherwise. *Market access* initiative is a dummy variable for market access initiatives adopted by the Thai government that takes the value 1 if a firm knows about market access initiatives and 0 otherwise. A dummy variable for *competition law and policy* takes the value 1 if a firm understands the flexibility in the enforcement of competition law and policy during COVID-19 and 0 otherwise. *Restricted new firm* is a dummy variable for restricted new firms that takes the value 1 if a firm suggests the Thai government should restrict new firms (domestic and/or foreign) from entering the sector and 0 otherwise.

[34] The Cobb–Douglas production function will be estimated simultaneously with the technical inefficiency effects model as indicated in Equation 2.2.

Finally, *online platform* is a dummy variable that takes the value 1 if a firm use online/social network/digital platforms in the conduct of business and 0 otherwise.

As before, the coefficients of the frontier and inefficiency effects model can be measured utilizing the maximum likelihood method. The maximum likelihood function is defined in terms of the variance parameters as follows (Coelli et al., 2005; Walheer and He, 2020):

$$\sigma^2 \equiv \sigma_v^2 + \sigma_u^2 \text{ and } \gamma \equiv \sigma_u^2 / \sigma^2 \quad (4.3)$$

where γ presents the share of technical inefficiency in the overall residual variance. If the value of γ is close to zero deviations from the frontier are largely attributable to noise, whereas a value close to unity indicates considerable technical inefficiency (Coelli et al., 2005; Kerdsriserm et al., 2018).

4.3.1 Data and Variables

This study utilized the 2020 UNCTAD MSME survey data collected by Suan Dusit Poll[35], concerning enterprises engaged in manufacturing industry activities only. The 2020 MSME survey covered establishments in all regions throughout the nation. An interview method was employed in the data collection. The 2020 MSME survey collected 219 manufacturing firms which were micro, small, and medium sized enterprises. Importantly, this study only focuses upon manufacturing MSMEs so the sample size was reduced to 153 after we excluded MSMEs with missing values, non-responses, negative values and intentional misreporting and errors arising at coding and data entry stages. This is essential in an attempt to ensure an adequacy of data in order to conduct the SFA analysis. Therefore, data for Thai manufacturing MSMEs are categorized by aggregate manufacturing MSMEs.

Data extracted from the 2020 MSME survey are those pertaining to the estimation of a Cobb-Douglas production function, and include value added (Y), labor input (L) and capital input (K). Value added is measured as the value of gross output minus intermediate consumption and is used for output production. The formula for value added is calculated by subtracting intermediate inputs from output. Labor input is measured by the number of workers in the firm.

[35] Suan Dusit Poll is recognised as one of the best- and well-known polling organizations in Thailand.

Hence the total number of workers is used as the proxy for labor input. Capital input is measured as the net value of fixed assets after deducting accumulated depreciation at the end of the year. The net value of fixed assets is a combination of land, buildings, construction, machinery and equipment, vehicles and office appliances. In addition, the independent variables used for the second stage and also obtained from the 2020 survey data include: firm location, government measure, competition authority, market access initiative, competition policy, restricted new firms, market access and online platforms.

4.3.2 Hypothesis Tests

The estimation of a stochastic frontier production function can be used to test the validation of three null hypotheses: (1) absence of technical inefficiency effects (2) absence of stochastic inefficiency effects (3) insignificance of joint inefficiency variables. Formal hypotheses tests associated with the stochastic production function and technical inefficiency effects models are presented in Tables 4.18 and 4.19, respectively. The three hypotheses were tested using the generalized likelihood-ratio test (LR test), which can be defined as (Coelli et al., 2005; Walheer and He, 2020):

$$\lambda = -2\left\{\log\left[L\left(H_0\right)\right] - \log\left[L\left(H_1\right)\right]\right\} \qquad (4)$$

$log[L(H_0)]$ and $log[L(H_1)]$ are the values of a log-likelihood function for the stochastic frontier model under the null hypothesis (H_0) and the alternative hypothesis (H_1). The LR test statistic has an asymptotic chi-square distribution with parameters equal to the number of restricted parameters imposed under the null hypothesis (H_0), except hypotheses (1) and (2) which contain a mixture of a chi-square distribution (Kodde and Palm, 1986). Hypotheses (1) and (2) involve the restriction that is equal to zero which defines a value on the boundary of the parameter space (Coelli et al., 2005; Mkanthama et al., 2018).

Table 4.18: presents results for hypothesis tests for aggregate manufacturing MSMEs. From Table 4.18 the first null hypothesis, which specifies that technical inefficiency effects are absent from the model is strongly rejected at the 1 percent level of significance, given the assumptions of the technical inefficiency effects model of equation (2.2) as specified above. This specifies that no reduced form of this model is an adequate representation of the data for aggregate manufacturing MSMEs. The second null hypothesis, that inefficiency effects are not stochastic, is strongly rejected, implying that the estimated parameters can be defined in the technical inefficiency effects model given by equations (2.1) and (2.2). The last null hypothesis, specifying that all estimated parameters of the explanatory variables in the

inefficiency effects model are equal to zero, is strongly rejected at the 1 percent level of significance for aggregate manufacturing MSMEs, indicating that the joint inefficiency effect of the explanatory variables is statistically significant, as defined by equations (2.1) and (2.2).

Table 4.18: Statistics for Hypothesis Tests of the Stochastic Frontier Model and Technical Inefficiency Effects Model by Aggregate Manufacturing MSMEs

	Aggregate Manufacturing MSMEs
Null Hypothesis	**(1) No technical inefficiency Effects**
	$(H_0 : \gamma = \delta_0 = \delta_1 = \cdots = \delta_7 = 0)$
LR Statistics	-203.85
Critical Value	**29.93***
Decision	Reject H_0
Null Hypothesis	**(2) No stochastic Inefficiency**
	$(H_0 : \gamma = 0)$
LR Statistics	-210.54
Critical Value	**5.41***
Decision	Reject H_0
Null Hypothesis	**(3) No joint Inefficiency Variables**
	$(H_0 : \gamma = \delta_0 = \delta_1 = \cdots = \delta_7 = 0)$
LR Statistics	20.68
Critical Value	**15.51**
Decision	Reject H_0

Note: All critical values of the test statistic are presented at the 1% level of significance, obtained from a chi-square distribution, except those indicated by *, which contain a mixture of a chi-square distribution, obtained from Table 1 of (Kodde and Palm (1986)).

4.3.3 Empirical Results

Maximum likelihood estimates for the parameters of the stochastic frontier model and technical inefficiency effects model, as specified by equations (4.1) and (4.2), were estimated simultaneously with the econometric package Frontier 4.1 using the firm-level MSME survey data for 2020 and presented in Table 4.19.

The Cobb-Douglas production function for aggregate manufacturing MSMEs has positive signs for both capital and labor input, 0.839 and 0.176 respectively, and they are also highly significant at the 1 percent level. Aggregate manufacturing MSMEs exhibit constant returns to scale as the sum of the estimated input coefficients is close to unity (1.02).

The estimate of the variance parameter gamma (γ) is 0.484, implying that deviations from the stochastic production frontier are due to considerable technical inefficiency. The mean technical efficiency of aggregate manufacturing MSMEs is 77 percent, indicating a high level of technical efficiency in their production process in 2020.

Table 4.19 also presents the estimated results for the technical inefficiency effects model, as specified by equation 4.2. As before in section 2, negative estimated coefficient signs of the inefficiency effects model represent (positive) technical inefficiency and vice versa. Addressing each coefficient in turn:

Firm location, is positive and statistically significant at the 5 percent level of significance. This implies that the location of an MSME in Northern, North-eastern and Southern regions in Thailand is negatively related to technical efficiency, and that there are significant efficiency disadvantages for manufacturing MSMEs located in other regions that require to be urgently understood and addressed. Bangkok and its environs (Central region) carries major locational advantages for MSMEs, but there are major locational disadvantages for efficiency for MSMEs located outside the Central region.

Government measures, the estimated coefficient for government measures has an unexpected positive sign for manufacturing MSMEs, implying that government measure are negatively related to the technical efficiency of Thai manufacturing MSMEs in 2020, however, this coefficient is not statistically significant.

Competition authority, the estimated coefficient value of the coefficient for competition authority shows an unexpected positive sign. This indicates that knowledge of competition authority has had a potentially negative impact on the technical efficiency of Thai manufacturing MSMEs in 2020, however, this effect is weak and statistically significant at the 10% level only.

Market access initiative, the estimated coefficient for market access initiative is negative and statistically significant at the 5 percent level. This result suggests that market access initiatives have a positive relationship to technical efficiency for Thai manufacturing MSMEs in 2020 in our sample.

Competition law and policy, the estimated coefficient has an unexpected positive sign for our sample of Thai manufacturing MSMEs, but is statistically significant at the 10 percent level only. This implies that there was a negative relationship between the ~~enforcement~~ knowledge of competition law and policy and the technical efficiency for our sample of manufacturing MSMEs in 2020.

Restricted new firm, the negative coefficient for restricted new firms in our sample of Thai manufacturing MSMEs indicates a positive relationship between restricting new firms and technical efficiency, but this coefficient is not statistically significant.

Online platform, the estimate of the coefficient for online platform indicates an unexpected but insignificant positive sign for our sample of Thai manufacturing MSMEs. This can imply that using an online platform has a potentially negative impact on the technical efficiency of our sample of Thai manufacturing MSMEs in 2020. But the coefficient is insignificant.

At first glance, the estimated coefficients for our various government policy variables suggest that government interventions have a detrimental effect on MSME technical efficiency. However, this is not necessarily the case. First, those firms accessing government support are potentially affected by self-selection effects. That is, thriving firms have no need for government support, and are unlikely to qualify for any assistance for hardship. Only those that have been affected in a negative way by Covid-19, and are likely to be displaying poor technical efficiency, would be accessing support. From an econometric point of view this would introduce an endogeneity issue into the model specification which would require more sophisticated techniques to address. From a layman's point of view, it means that the true causation of technical efficiency is difficult to quantify.

Second, many of the competition related variables used in this model relate to firms' knowledge of, or opinion on, the policy initiatives and do not necessarily measure the efficacy of these policies. Furthermore, it is likely that if a firm owner is knowledgeable about one type of competition policy they would be aware of others. Likewise, if they share one type of opinion on a policy they would share similar opinions on others. The end result is that the multiple explanatory variable responses we have included in this model are likely to be related to each other and not independent, introducing a potential econometric issue of multicollinearity. The signs of multicollinearity are insignificant coefficients and sometimes the coefficient displaying the opposite sign to that expected, as we have observed in the estimates of table 4.19. Unfortunately, eliminating multicollinearity from a model is difficult.

Table 4.19: Maximum Likelihood Estimates for Parameters of the Stochastic Frontier Model and Technical Inefficiency Effects Model by Aggregate Manufacturing MSMEs

Variables	**Aggregate Manufacturing MSMEs**
Number of Observations	**153**
	Coefficients
Stochastic Frontier Model	
Constant	2.134***
	(0.645)
Capital	0.839***

Variables	Aggregate Manufacturing MSMEs
Number of Observations	**153**
	Coefficients
	(0.049)
Labour	0.176***
	(0.095)
Technical Inefficiency Effects Model	
Constant	-3.922*
	(2.386)
Firm location (dummy)	1.489**
	(0.808)
Government measure (dummy)	1.899
	(1.348)
Competition authority (dummy)	1.597*
	(1.019)
Market access initiative (dummy)	-3.528**
	(1.555)
Competition law and policy (dummy)	0.858*
	(0.488)
Restricted new firms (dummy)	-0.382
	(0.613)
Online platform (dummy)	0.216
	(0.601)
Variance Parameters	
Sigma-squared	1.486***
	(0.423)
Gamma	0.484***
	(0.236)
Log-likelihood Function	-203.8459
Average Technical Efficiency[36]	**0.77**
Returns to scale	**1.02**

Note: Standard errors are in brackets; *, ** and *** indicate that the coefficients are statistically significant at 10%, 5% and 1%, respectively.

4.4 Case study selection process (10 selected and interviewed MSMEs from the MSME survey, with sectors highlighted)

With respects to manufacturing MSMEs in Thailand, this study has also conducted an in-depth interview with ten sub-manufacturing MSMEs in Thailand, from the following sectors1) Manufactures of leather and related products – 1 firm; 2) Manufactures of rubber and plastics

[36] The average technical efficiency can be calculated as the sum of technical efficiency scores with respect to the total number of firms.

products – 2 firms; 3) Manufactures of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials – 3 firms; 5) Manufactures of food products - 2 firms; 6) Manufactures of motor vehicles, trailers and semi-trailers – 1 firm; and 7) Repair and installation of machinery and equipment producers – 1 firm. Table 4.20 summarizes the responses s of an in-depth interview with manufacturing MSME owners regarding the current impact of the Covid-19 pandemic.

Table 4.20: Results of an in-depth interview with manufacturing MSME owners

Questions	Answers
The current impact of the Covid-19 pandemic: 1) please indicate and explain the most significant financial problems experienced by your firm during Covid-19; 2) please specify and describe the business problems of your firm due to the Covid-19 pandemic; 3) addressing issues of finance/liquidity – please explain in terms of ensuring how you will have enough liquidity to pay bills; 4) in your opinion, has the Thai government been doing enough in regard to issues of finance/liquidity to assist you through the pandemic?.	Most interviewed MSMEs expressed that they faced a problem of renegotiating loans with banks. They have asked both state banks and private banks for more loans. But they also have a problem with the cost of borrowing. Some firms have asked a bank for an overdraft (OD), but the bank has refused. Focusing on the issue of has the Thai government been doing enough in relation to addressing finance/liquidity issues, the majority of interviewed firms responded that they have obtained a debt moratorium with their banks and the bank allowed it, because they must comply with recently introduced government measures[37]. However, some firms stated that some banks implement a suspension of principle loans for six months, but they still have to pay interest on loans monthly which remains unhelpful.

[37] Government measures taken are the following:

1. Loans up to THB 3 Million for SME at 3% interest rate for the first two years of taxes and fee cuts for debt restructuring with non-financial institution creditors;

2. Date for filing corporate income tax extended to August (Por Ngor Dor 50) and September (Por Ngor Dor 51);

3. Filing of excise tax by service businesses extended by one month;

4. Filing of excise tax for oil product operators extended to the 15th of the following month for the next three months;

5. Filing of other taxes for affected operators extended by three months;

6. Exemption of import duty for products related to the prevention and treatment of Covid-19;

7. Exemption of taxes and fee cuts for debt restructuring with non-financial institution Creditors.

Questions	Answers
	Most firms mentioned that they urgently require real "credit assistance measures" from the Thai government with guidelines for various loans, such as credit cards and cash flow loans. Most firms strongly expressed the view view that current measures relating to a moratorium on principal payments, debt payment extensions and the right to borrow from state-owned banks were not effective.
How can a business deal with the covid-19 pandemic? 1) please explain the main means that you are considering to deal with the issue of a cash shortage during Covid-19?; 2) please specify and describe what measures/support you are receiving.	With respects to the cash flow shortage, most interviewed firms indicated that they are concerned about loans from commercial banks during Covid-19. This is consistent with the results from the 2020 MSME survey. For measures/support from the Thai government, most firms have obtained it, but they said there is insufficient loans from both state owned and private banks. Some firms have been unable to access loans. Moreover, some manufacturing firms pointed out that they are not eligible for soft loans from state banks like some other business sectors, such as tour and travel agencies, spas, transport businesses, hotels, and restaurants, amongst others. They therefore face discrimination. Hence, most interviewed firms expressed that they urgently needed a soft loan from state banks to get them through the pandemic. They also mentioned that the Thai government should apply an automatic suspension on loan payments for six months from January 2021 onwards. It is important to note that some firms stated that if they cannot get access to loans, they will face bankruptcy before the end of 2021.
The issues of competition policies and market access during Covid-19: 1) do you know and understand measures adopted by the Thai competition authorities in the context of Covid-19?;	Most interviewed firms responded that they do not know and understand measures and market access initiatives adopted by the Thai competition authorities. This result is contradicted with the results

Questions	Answers
2) do you know about market access initiatives adopted by the Thai government in the context of Covid-19; 3) what competition measures, other than relaxation of competition enforcement, do you deem adequate during Covid-19?; 4) in which sector/segment of the economy do you consider competition or pro-competitive measures likely to be most beneficial to your company/segment? 5) would increasing competition be most beneficial to your firm, please explain.	from the 2020 MSME survey. Some firms said that they are not interested with this issue. In addition, some firms have stated that they engage in co-operation/collaboration between themselves and competing firms to ensure provision of an essential service (e.g. transport). The majority of interviewed firms have been concerned with competition or pro-competitive measures. They mostly responded that they cannot see the benefits from this issue. Focusing on the question of should the Thai government restrict new firms (domestic and/or foreign) from entering domestic sectors, most interviewed firms pointed out the government should restrict new firms to enter into their area of business, due to high competition, loss of sales/profits which will intensify difficulties during Covd19. With respect to the importance of market access in order to survive during Covid-19 crisis, the majority of interviewed firms expressed they are aware that market access is important, but that it is very difficult to seek new market targets, both local and international, during Covid-19.
Use of online platfrms and e-commerce: 1) does your firm use online/ social network/ digital platforms?; 2) is the government doing enough to encourage and support the use of online platforms for local firms to increase market access?; 3) for your business what is the role of the internet in seeking out markets (local); 4) what are the major challenges that you face in accessing markets using online platforms?; 5) what more could the government do to encourage market access though online platforms for your firm?;	The majority of interviewed firms responded that they did use online platforms in the conduct of their business. However, the online platforms did not really improve their sales, because they cannot complete with the big online platforms, such as Lazada, Alibaba, Shopee. For the major challenges to accessing markets using online platforms, they expressed that they required practical assistance from the Thai government. For instance, a database on online marketing, an online platform established by the Thai government. Finally, the question on the period of recovery from COVID-19. The majority of interviewed firms

Questions	Answers
6) if the international COVID-19 crisis were to end today, how long do you estimate it would take for your company to get back to business as usual? __ months.	indicated that they would require about 6 months to get back to normal.

5. Conclusions and policy recommendations

5.1 Introduction

In summary, the report has presented a plethora of potential factors impacting the competitiveness and export participation of Thai MSMEs. There are common threads in the evidence presented. Foreign ownership and investment in local enterprises is a potent force to rapidly upgrade firm competitiveness, technology and engagement in exporting. The capital stock and technology of domestic Thai MSMEs needs to be improved. There is considerable regional inequality in the performance (technical efficiency) of Thai MSMEs. This gap needs to be closed otherwise certain regions in Thailand will not benefit from the effects of free trade agreements and regional economic integration in general, and inclusive growth and development, a key objective of the AEC, will not be achievable. It is clear from this study that Thai small businesses are aware of these developments, and by implication the opportunities arising, and the challenge they face is to ensure that they are in a good position to take advantage of these. This can occur from appropriate business support measures including that of access to finance, technology, skilled labour, market information and networking.

In a single generation (1950-1973) Thailand moved from being a low-income to upper middle-income status country, primarily via successfully pursuing an export-oriented, FDI-driven industrialisation strategy. The strategy resulted in remarkable GDP growth rates, but became spectacularly undone with the onset of the Asian Financial Crisis in 1997-98 arising from ill-judged and poorly supervised liberalisation of its capital account, financial sector weaknesses and macroeconomic distortions. Which led to rapid accumulation of foreign debt and a questioning of the country's capability of meeting its interest payments on this debt as well as repaying the debt itself. Since the crisis the country has engaged in economic reform aimed at broadening its economic basis with MSMEs centre stage. But there are now signs that the country is stuck in a middle income trap. Despite this there are positive signs. The country has the twelfth biggest automotive industry in the world, and the biggest in Southeast Asia (OICA,

2017). Tourism is another important driver of growth, generating more than 11 per cent of GDP in 2016, and is a valuable source of foreign exchange. The country is also a leading global exporter of rice.

But by 2020 the country and its MSMEs faced a number of challenges:

1. First, as a legacy of its earlier development strategy, there is heavy concentration of business production and exports in the hands of relatively few dominant large domestic and foreign enterprises. This presents a challenge to MSMEs who find it difficult to compete and enter new markets. If the economic base of the country is to be diversified and be less dependent on large enterprises operating in sunset industries for output and exports, a more entrepreneurial society will be essential. This will require competition and market access policies and regulations that can establish a level playing field for MSMEs, prevent their exploitation by large firms, encourage the establishment of new firms, enhance their growth, survival and entry into new and innovative markets and overall encourage entrepreneurial activity.
2. Access to more, and tailored sources of finance for MSMEs. They will not be able to survive short term or long term without access to finance
3. The country is currently stuck in a Middle income trap. Rising domestic wage costs mean the country can no longer compete in low value adding, low skill, labour intensive sectors such as those now dominated by China, Vietnam, Bangladesh and Indonesia. Nor, as a middle income country, should it wish to do so. Being competitive on the basis of primarily low labour cost is not beneficial for the standard of living of its population. The country is also lacking in the development of innovative, knowledge intensive, and higher value adding sectors. So, is unable to compete with countries such as Korea, Taiwan and Japan in value chains by its MSMEs. It must move up the value added supply chain.
4. Thailand, like much of the countries in Southeast Asian, has a Missing Middle. It has relatively few medium sized enterprises (only 0.5% of all firms, or 15,000 firms). These tend to contribute disproportionately to output, employment, R&D, new technology, exports, innovation and value chain participation. Their lack of development can be due to barriers facing micro and small enterprise, which then fail to develop and grow into medium sized enterprises.
5. Major inefficiency in MSMEs. In moving the economy out of its middle income trap Thailand's MSME competitiveness must be improved and the dominance and

associated unfair practices of large firms scrutinized and curtailed where appropriate. As discussed in this report there have already been a number of cases where large firms have attempted to exert their dominance in markets and over smaller producers. This study has also shown that there is considerable MSME inefficiency (and lack of competitiveness) both in aggregate and by sub-manufacturing sectors. This Report has identified empirically major ways in which this inefficiency can be addressed (e.g. greater foreign ownership involvement in local MSMEs was a significant factor) as a short term solution. Third, the country has a missing middle. are medium sized enterprises which are a major source of investment in R&D, innovation, participation in global value chains and the development and implementation of new technology. This suggests that there are barriers facing micro and small firms from upgrading to become medium sized enterprises requiring further study. It also means that there is a smaller pool of firms to be promoted to large firms.

5.2 Policy recommendations

Access to Finance and liquidity

Arising from COVID 19, and highlighted in the MSME survey results presented earlier in this study, MSMEs' major concern relates to declining sales and revenue, putting pressure on profits, cash flow, liquidity and firm survival. The most common concerns of MSMEs during the COVID pandemic will be declining sales and revenue and obtaining finance/liquidity to pay wages, suppliers, tax liabilities to government and generally survive for the duration of COVID.

Recommendations

1. **Alleviating short term liquidity and financial pressure in the context of Covid 19:**

The MSME survey and in depth case study interviews have identified the concerns that MSMEs have in terms of lost sales revenue and ongoing burden of loan interest payments. High priority should be given to alleviate this pressure and could include the following:

1. ***Debt moratorium*** – agreement with lenders (commercial banks) to renegotiate the terms of the loans in terms of the repayment schedule, possible deferment of the loan, cost of the loan, duration of the loan (spreading the repayment over a longer duration). Government and commercial bank involvement in this process is essential.

2. ***Tax compliance issues*** *- t*o comply with tax regulations, companies must file 21 payments per year, taking around 262 hours in total, which amounts to around 28.7% of total profits. The number of payments and the time required to complete them is high by the standards of OECD high-income countries, where 10.9 payments take 160.7 hours on average. The payment of VAT is not required until an enterprise records THB 1.8 million turnover per annum, and therefore many smaller enterprises are not subject to VAT. Payment of corporate income tax accounts for both the highest share of hours (156 in total, more than double the time required to complete the remaining 20 tax payments) and the highest tax wedge on profits (20.6%). Hence, the cost of tax compliance for MSMEs in the current environment should be reduced wherever possible. This can include delay or extension to deadlines for tax payments to enable MSMEs to retain more liquidity.
3. ***Government spending/subsidies to MSMEs aimed at retaining jobs and demand–*** a number of governments globally, mainly in the developed high income world, provided payments/subsidies to their MSMEs to maintain employment, demand and provide short term liquidity. For example, in Australia, the Job keeper scheme to support businesses (mainly MSMEs) and not for profit organisations, involved payments to firms that satisfied certain employment criteria. It was administered by the Australian Taxation Office (ATO). There were two payment rates – a tier 1 (higher) rate and a tier 2 (lower) rate. The payment rate depends on the number of hours:
    - an eligible employee worked, or
    - an eligible business participant was actively engaged in the business.

Such as scheme would require careful costing by the government and come out of the central budget. It would have the advantage of quickly providing the liquidity needed by MSMEs to meet bills, interest payments, other expenditures, and in general enhance firm survival. It also enables workers to be retained in employment and for them to continue spending, paying tax and injecting demand into the local economy, with a multiplier effect on overall demand. This would alleviate the local (Thai) decline in sales/revenue for domestic MSMEs, and particularly those in the retail sector. This would have the overall survival of these MSMEs, which would generate more tax revenue for government further down the track both from surviving firms and employed workers. This would assist in at least partially funding this program.

2. **Ensure access to markets and internationalisation**

Since the late 1990s Thailand has made efforts to diversify the economy, encourage more innovation and an entrepreneurial activity, and place less reliance on large firms operating in sunset industries. Aiming to increase the contribution of SMEs to national income and employment. MSMEs account for 42.2 per cent of GDP and 80% of employment. Under the fourth MSME Promotion Plan (2017-2021), Thailand aims to increase this contribution to at least 50 per cent of GDP by 2021 via policies aimed at increasing internationalisation, clustering, innovation and the adoption of new technology. Thailand's Dimension 4 score of 5.41 out of 6 by the OECD reflects its advanced level of policy development in promoting its MSMEs to expand globally. Despite these efforts, however, large firms still dominate GDP and exports and there is **heavy concentration** in many key sectors.

Recommendations:

1. **Strengthen Competition policy and market access backed up by legislation**.

Ensure strong competition policy and regulatory policy to allow market entry and ensure that large firms do not abuse MSMEs in their business dealings. Covid has put many MSMEs into weak financial circumstances and into weak business circumstances in their dealings with large firms. It will be essential to strengthen the legal environment to maintain a level playing field for all firms with heavy fines for non-compliance with the law and the

2. **Promote MSME Internationalisation**

Recommendations:

Further streamline customs and cross-border trading regulations.

Develop specific cross-border trading assistance for SMEs.

In working to achieve greater market access and internationalisation for MSMEs, Thailand must continue its focus on promoting exports. The Department of International Trade Promotion (DITP), under the Ministry of Commerce, should work in close collaboration with OSMEP to boost the exports and trade expansion of Thai MSMEs.

Major MSME export promotion schemes should be further encouraged, and include:

1. MSME participation in major trade fairs, such as Inacraft, an international handicraft trade fair in Jakarta, and Texworld, an international textile trade fair in Paris. DITP aids the participation of Thai MSMEs in more than 100 international trade fairs each year.
2. establish offices overseas, there are already some 40 such offices, overseas to expand and promote Thai products.
3. OSMEP to further assist MSMEs prepare to expand into international markets and connect with regional business networks.
4. OSMEP's One Stop Service Centres to provide free consultations on product development and marketing strategies to support MSME internationalisation.
5. Partnering with large companies and multinational corporations (MNCs). The one stop centre provides MSMEs with assistance in accessing specific international markets.
6. Integration of MSMEs into Global Value Chains (GVCs) (indirect exporting).

As one of the main manufacturing bases in Southeast Asia, especially in the production of auto parts and electrical and electronic goods, Thailand has maintained its strong supply-chain support for local businesses involved in each production stage, with a special focus on MSMEs. The chief government agency to encourage MSME integration into global value chains (GVCs) is the Board of Investment (BOI). The auto and auto parts industry are an excellent example of how targeted investment policies and linkages with local MSMEs in the value chain can lead to a globally competitive and successful export industry. The Department of Industrial Promotion should further implement programs aimed at increasing the value added of SME outputs by strengthening their capacity to link with GVCs, particularly in the production of automotive parts, automatic engines and robotics.

3. Cluster-based Special Economic Development Zones Policy

Came into effect on 16 September 2015 aimed at encouraging SME linkages with large companies and MNCs through industrial clustering policies, and related to the incorporation of MSMEs in value chains. Investment incentives for industrial clusters include corporate income tax exemptions and import duty exemptions on machinery. The tax incentives are greater for industries developed under a Super Clusters strategy rolled out for areas of business using advanced technology in the production process. Companies also enjoy personal income tax exemptions for renowned specialists who work in the specified area. To tap into the cluster incentives, companies must co-operate in developing human resources or technology as

approved by BOI, support technology and knowledge transfers to Thai SMEs and ensure a supply of skilled workers in the future.

The Super Clusters initiative has allowed Thailand to develop its key industries. Seven provinces have super clusters for automotive parts, electrical appliances, electronics and telecommunications: Ayutthaya, Pathum Thani, Chonbburi, Rayong, Chachoengsao, Prachinburi and Nakhon Ratchasima. The cluster policy is co-ordinated by various ministries including Industry and Finance. Enhancing SME integration into GVCs through tax incentives and matchmaking initiatives is articulated as a strategy in OSMEP's 4th SME Promotion Master Plan 2017-2021.

4. Utilization of E-commerce

Further expand the utilisation of e-commerce in MSMEs. Thailand recognises the need to maximise the use of digital technology to drive the country forward, and is conducting extensive reform in this area. The Thailand Digital Economy and Society Development Plan is the country' its blueprint for digital innovation. The plan, known as Digital Thailand, was co-developed by the Ministry of Information and Communication Technology (MICT) and the Ministry of Sciences and Technology (MOST). In 2016, the new Ministry of Digital Economy and Society (MDES) replaced MICT, with a mandate to implement the plan and encourage all economic sectors to use digital technology within five years. In 2017, the Digital Economy Promotion Agency (DEPA) was established to promote and support the development of digital industry and innovation. Further progress on this will be essential to expand market access for MSMEs both domestically and internationally.

The Digital Thailand plan emphasises the use by MSMEs of digital technology, including e-commerce platforms. The plan aims to strengthen the Thai economy within ten years by equipping MSMEs with digital technology to make them more competitive in international trade. In the first phase, the government has focused on deploying broadband to all villages to ensure equal access to the internet and e-commerce platforms. By February 2017, MDES had installed high-speed internet networks in 99 villages in 13 provinces and a free Wi-Fi zone was established in each village (Inside Thailand, 2017). There have also been initiatives to provide coaching and assistance for MSMEs to go online. To implement the plan, a Digital Economy Development Fund was being set up from the annual fiscal budget.

The Thai government has also collaborated with leading e-commerce platform providers. One example is Thailand's 2016 agreement with Alibaba Group to help Thai SMEs use e-commerce

platforms (Business Wire, 2016). Towards this goal, Digital Park Thailand has been launched as an innovation hub within the EEC framework. Another example of the Thai government's collaboration with private providers is the Smart Online SMEs programme, in which Google is to train MSMEs in accessing digital technology.

Other initiatives to increase SME use of e-commerce include the launch by the Ministry of Finance in January 2017 of PromptPay, a new e-payment system. PromptPay allows registered customers to transfer funds via mobile phone with only the mobile number or national ID number of the recipient. This system also provides an incentive for small businesses by freeing transactions of less than THB 5,000 from service fees.

5. Improve Quality standards

The government recognises the importance of quality standards for making MSMEs competitive in domestic and international markets. A key initiative to improve quality standards is the Community Products Standards (CPS) project, which was implemented by the Ministry of Industry. CPS supports Thailand's One Tambon One Product initiative, which helps village communities to identify and promote unique products for export.

Trade facilitation

To encourage international tradeThailand has established basic infrastructure to facilitate thiss. The Thailand Customs Department, under the Ministry of Finance, provides information on its website on import-export requirements, tariffs and available free trade agreements (FTAs). Thai Customs also established a call centre, the Customs Care Centre, as an enquiry point for customs information. A separate website, the National Trade Repository, was established under the Ministry of Commerce as an information gateway on Thailand's trade in goods and services and e-commerce. To strengthen Thailand's competitiveness in international trade and facilitate matters for traders, the country established an e-customs system, the National Single Window (NSW), in 2014. As of December 2016, 26 government agencies had completed electric data integration under the NSW for customs formalities for goods or documents. Thailand has conducted training sessions and seminars on use of the NSW and Thai Customs services. However, specific initiatives to help MSMEs deal with customs procedures and use trade facilitation services have not been defined.

To further support international traders, Thailand implemented an Authorised Economic Operator (AEO) programme for exporters/importers and customs brokers in 2013. However, the programme has no incentives or support mechanisms for MSMEs to become AEOs. These

mainly relate to addressing medium to long term issues focusing upon *economic reforms to address the country's middleincome trap:*

- Increasing the breadth and depth of long term sources of finance (Dimension 3)
- Improving productivity (business development services, productive agglomerations and cluster enhancement, technological innovation) (Dimension 1)
- Stimulating entrepreneurship skills and capacity (long term). (Dimension 7)

In addition to addressing the immediate challenges that Thai MSMEs face from COVID 19, they also face challenges if they are too enable the country to move out of its middle income trap. They need to move from being low cost manufacturers of, for example, electronic and automotive parts, into more advanced and high value adding manufacturing that involves knowledge, skill and innovation orientated activity. They will require broader based and deeper sources of finance for MSMEs, aimed at addressing their low productivity, low efficiency and low competitiveness, low export activity, lack of participation in global and regional production networks, and poor quality products. The challenges are numerous. The objective of the government is to see Thailand achieve high income status by 2026, which is at the end of the country's 13th national economic and social development plan. Achieving the plan will also be conditional on achieving structural reform.

To achieve the longer term development objectives the government has a long term strategic plan known as the National Strategy (2017-2036). Its aim being to achieve: economic resilience, sustainability, competitiveness, security, good government, territorial development, science and technology research and development (R&D), and to enhance infrastructure and logistical networks. It proposes MSME-specific policies under its second pillar, "enhancing competitiveness". A range of financial measures are proposed, such as creating an MSME credit rating database, tax amnesties and access to finance programmes, along with the creation of enhanced service centres, policies to increase linkages between MNCs and MSMEs, and measures to support the development of MSMEs operating in the digital economy.

Supplementing the National Strategy, Thailand has also promoted a new economic model, Thailand 4.0, and a new initiative, the Super-Cluster Initiative, to move into high value-added manufacturing as mentioned previously. Thailand 4.0 identifies priority sectors and targeted intervention to support development during the infancy stage in order to boost the country's innovative capacity. The super-cluster initiative looks at promoting productive agglomerations of these industries along the country's Eastern Economic Corridor (EEC). All reform priorities

are also governed by Thailand's other targets under multilateral initiatives, such as the Sustainable Development Goals (SDG Goals).

Medium-term plans (lasting five years) are also developed to realise the objectives of the National Strategy. The country is currently implementing its 12th National Economic and Social Development Plan (2017-2021). The 12th Plan aims to strengthen national competitiveness by building a digital and services-based economy, and to enhance the skills of Thailand's workforce while strengthening employment protection legislation and social security entitlements. It has a broad development agenda, in line with the philosophy of the "sufficiency economy," introduced under the 9th economic plan.

As for the COVID response strategy, attaining the long run development objectives, will require ensuring MSME access to adequate long term sources of finance. Hence Dimension 3, addressing access to finance, remains important for the long run development of the country.

6. MSME access to finance and addressing market failure (credit rationing)

Due to their small size, limited resources, lack of transparency, perceived high risk and likelihood of bankruptcy, high cost of assessing loan viability, small firms are not perceived as desirable, or profitable, customers for commercial banks. This can result in **credit rationing** to smaller firms (see Stiglitz and Weiss (1981). Small firms are then unable to obtain the finance they need to grow their business, invest in R&D and new technology, improve their efficiency, contribute to GDP growth, exports and generate more jobs even if they have profitable projects in which to invest. This is an example of market failure which can be compounded by the effects of COVID 19. In this situation the government needs to identify appropriate measures to address these exceptional and longer term financial needs and requirements if the middle income trap is to be overcome.

Thailand does have a number of policy instruments in place to support MSME financing and it has increased regulatory oversight of financing institutions. There are currently three main instruments through which the government of Thailand encourages bank lending to MSMEs. These being:

1. Dedicated credit lines

Credit lines are provided only for working capital loans. They are normally provided for specific purposes, and the amount allocated fluctuates year by year. Something similar to

address the intense financial difficulties currently being experienced by MSMEs due to Covid19 should be considered as well as to attain long term development goals.

2. Credit guarantees for small firm loans

To address issues of risk associated with MSME lending the Thai Credit Guarantee Corporation (TCG) was established in 1991 as a portfolio scheme under the Small Industry Credit Guarantee Corporation Act. Initially it had subscribed capital of THB 400 million (USD 12.7 million). It has since received five further capital injections, bringing total subscribed capital to THB 6.8 billion, of which 98 per cent is paid-up capital. As of January 2018, this entity had provided 396,122 guarantees amounting to THB 67.5 billion in total. Enterprises operating in the services sector accounted for the highest share of guarantees outstanding (20.2 per cent), followed by manufacturing (13.0 per cent). Access, however, has been highly skewed towards the Greater Bangkok region, which accounts for 40.3 per cent of guarantees outstanding, compared to 15.6 per cent in Northeast Thailand, which received the second highest share (TCG, 2018). Although the scheme is a public-private partnership, the government holds the vast majority of the shares (95.49 per cent are held by the Ministry of Finance, and 4.51 per cent by public and private financial institutions). The TCG is monitored by the Bank of Thailand, the Fiscal Policy Office and the State Enterprise Policy Office (since it is classified as a state-owned enterprise). If Thailand's recovery from COVID and addressing its middle income trap is to be achieved such a credit guarantee scheme should be given priority to address the issue credit rationing to MSMEs.

3. Specialised MSME lending institutions

Alongside schemes to support commercial bank lending, two specialised public institutions provide finance for MSMEs in Thailand. The first is a development bank designed to address the financial needs of MSMEs, the Small and Medium Enterprise Development Bank of Thailand (SME Bank), which has been operational since 2002. This bank operates under the Ministry of Finance, and provides credit, advisory and other add-on services for MSMEs which would not be seen as profitable for commercial banks. The second is the Export-Import Bank of Thailand (EXIM Thailand), which was established in 1993 with an initial capital injection of THB 2.5 billion. EXIM Thailand offers short-term and long-term credits, in both local and foreign currency. Its programs targeted at MSMEs include the Exim Instant Credit Super Value, which was announced in 2017 and supports firms in obtaining product certification. EXIM Thailand recently partnered with the SME Bank to increase its support for SME development: the two institutions signed an MoU at the end of 2017.

While Thailand's financial intermediation level is high, and scores well on the OECD SME policy index (Figure 5 above), with domestic credit to the private sector amounting to 147.3 per cent of GDP in 2016 and MSME loans accounted for 34 per cent of total bank loans extended by private banks, or USD 153 billion in 2017 (World Bank, 2016). Surveys suggest, including our own MSME survey, that a relatively high share of small enterprises (44.8 per cent) have had loan applications rejected, in contrast to their larger peers (World Bank, 2016). This may indicate the existence of credit rationing (lending gap) due to market failure for the reasons discussed previously and the low creditworthiness and limited collateral of small and micro firms. The MSME survey indicated that access to finance is a critical issue for them during the period of the pandemic if they are to survive it (**development objective 1**), but it will also be essential for MSMEs to grow, invest in new technology and capital equipment and achieve the longer term developments set for them by the government (**development objective 2**).

Despite the numerous efforts made by the Thai authorities there still appears to be a problem for MSMEs to access finance, and alternative financing instruments should be considered. But a comprehensive regulatory framework for alternative financing instruments is still missing in Thailand. It is recommended that the Bank of Thailand and the SEC continue regulatory experimentation to see how different rules could assist or inhibit growth of the sector. Other possible sources of finance to be considered are:

1. ***Microfinance***

Thailand has a relatively deep microfinance sector, with one of the world's largest country-based microfinancing schemes. This is the government-sponsored Village and Urban Revolving Fund, a network of 80 000 village banks with 8.5 million borrowers as of 2011 (The Economist, 2013). Thailand has also been implementing a program to enhance the regulation and product offerings of microfinance institutions operating in the country via its Master Plan for Financial Inclusion, which began in 2015 and ran until 2018. This program aims to increase the volume and range of microfinance products provided by specialised financial institutions.

2. ***Asset based financing products***

The country's relatively wide range of available asset-based financing products are regulated under Article 4 of the Financial Institutions Businesses Act B.E. 2551 (2008). Prior to 2004, only separate companies could provide factoring instruments, but banks are now also able to provide this product. Thailand has the second highest factoring volume in ASEAN after

Singapore. It registered total factoring turnover of EUR 4 414 million in 2015, mostly (99 per cent) directed at the domestic market, and had 16 specialised factoring companies (FCI, 2017). Despite the relatively high volume of asset-based financing instruments extended (compared to Thailand's regional peers), they are not used on a substantial scale by MSMEs. Reforms to the country's secured transaction framework, via the introduction of the Business Collateral Act in 2016, aimed to increase the use of asset-based financing instruments by smaller enterprises.

3. *Equity financing*

Thailand has a relatively deep stock market. The Stock Exchange of Thailand (SET) was established in 1975, and today its market capitalisation stands at around 106.4 per cent of GDP (World Bank, 2015), with high stock market turnover (72 per cent). Although equity financing is growing it is still relatively shallow and the market is particularly less developed for early stage financing. There are currently six registered private equity funds in the country, and some equity instruments are regulated under the Securities and Exchange Act B.E. 2535 (1992). In 2015, the cabinet tasked three government banks – Krungthai Bank, the SME Bank and the Government Savings Bank – to establish the SMEs Private Equity Trust Fund, worth THB 2.3 billion (USD 65.6 million).

There is currently no comprehensive regulatory framework in place for venture capital (VC) financing. Two types of VC firms can currently operate in Thailand. First is a "VC fund," similar to a mutual fund, whereby major investors and institutional investors can invest in SMEs. These funds are under the purview of SEC, and a number of VC funds already operate in Thailand, including Intouch and Digital Venture. The second is a "VC company," which is under the purview of the Ministry of Commerce.

The government is trying to attract VC investors via instruments that include tax exemptions (under a royal decree issued under the Revenue Code Regarding Reduction and Exemption from Revenue Taxes, No. 597/2016). Thailand's approach to catalysing private equity and VC financing is clearly linked to its diversification and Thailand 4.0 strategy: tax exemptions apply only to investments in R&D-based and technology-based companies, certified by the National Science and Technology Development Agency (NSTDA), and the MSMEs Private Equity Trust Fund can invest only in high-growth start-ups, technology-based MSMEs and suppliers to government or large enterprises. In 2017, ten VC deals were finalised in Thailand, with an aggregate value of USD 59 million (Preqin, 2017).

A junior board for MSMEs is in place: the Market for Alternative Investments (MAI), on which 151 firms were listed with a total market capitalisation of THB 314 billion (around USD 10 billion) as of February 2018. Between 2012 and 2016, the Securities and Exchange Commission (SEC) ran two public programs to increase the number and type of MSMEs that were listing on the MAI: one was targeted at increasing geographic representation (the Scheme of the New Stock, Pride of the Province, or IPOP), and the other at increasing the number of listed SMEs from more nascent industries (the Scheme of Creative Innovation Stock, Pride of Thai, or INNO). The Department of Industrial Promotion is currently running a program preparing entrepreneurs to list on the MAI within three years of program inception.

Legal, regulatory and institutional financial framework

As mentioned previously Thailand does not yet have comprehensive financial framework conditions for supplying finance. It performs well on indicators of financial soundness and product availability but needs to undertake additional steps to enhance the legal and institutional environment for getting credit, particularly in the area of creditor rights. An important issue in the current COVID context. For SMEs to grow and develop it is essential that the financial sector contains the necessary breadth and depth of instruments to meet the MSME sector if they are to both survive 1) the current COVID crisis and shortage of finance/liquidity that MSMEs currently face as indicated in the MSME survey and from the in depth interview case studies and 2) to obtain long term funding goals to enable them to contribute to long term development goals including addressing the country's middle income trap.

For debt financing, facilities to assess and hedge against credit risk are available and have significantly improved over the past few years. A credit reporting system is in place, and it currently covers 56.6% of the adult population (in 2017, compared to 21.7 per cent in 2007) (World Bank, 2017). Credit information is provided by private credit bureaus, which compile at least two years of positive and negative data that can be accessed online. The ability of financial institutions to utilise contracting elements such as securitisation to mitigate credit risk has been significantly enhanced by the introduction of the Business Collateral Act in July 2016. This act broadens the range of assets that can be securitised and the enforcement rights of secured creditors. Previously only a pledge or a mortgage could be used as a security and only land or buildings could be mortgaged. Assets could not be securitised as a floating charge,

and assets such as raw materials, unregistered machinery or intellectual property could not be securitised.

The new range of eligible securities should boost access to finance for certain types of enterprise, such as higher-technology innovative MSME start-ups (whose main asset may be their intellectual property) or agricultural enterprises (which may now be able to securitise crops, for instance through a warehouse receipt scheme or certain types of agricultural machinery). In addition, secured creditors are now paid first in the event of either business liquidation or a debtor defaulting outside an insolvency procedure. Thailand has also strengthened its movable assets register. Other contracting elements such as out-of-court procedures are possible. But enforcing a contract takes around 420 days, compared to the best regional performer, Singapore, where it takes just 164 days (World Bank, 2017).

Productivity measures

The Thailand master plan and action plan for the development of efficiency and productivity of industry (2016-2021), proposed by the Office of Industrial Economics (OIE) under the Ministry of Industry, consists of strategies for boosting industrial productivity such as:

1. applying technology, innovation and new management systems;
2. improving human resource skills and capability; and
3. developing management skills for entrepreneurs and/or production managers.

For MSMEs, the plan focuses on the enhancement of productivity growth in dimensions such as production processes, labour productivity, effective management, etc. The consultation process during drafting of the master plan involved the private sector (mostly represented by the Federation of Thai Industries and the Thai Chamber of Commerce) and research centres.

While Thailand has made significant strides to improve productivity, support innovation and the adoption of new technology and to promote the greening of SMEs. To continue this progress the country could also:

Recommendations

1. Establish a clear division of roles among institutions involved in dealing with productivity. Thailand would benefit from more efficient operational models that clarify the roles and responsibilities of the institutions involved.

2. Strengthen infrastructure at the local level.
3. Develop instruments that help SMEs get individualised BDS support.
4. Further develop instruments linking SMEs to sources of knowledge.

Greening of MSMEs

Thailand's overall score of 4.29 on the greening of SMEs also places it above the ASEAN median. This reflects the fact that a number of its environmental policies also cover SMEs. However, these provisions tend to be broad in scope, and more could be done to ensure that they better target the specific needs of small and medium-sized enterprises.

Thailand's National Economic and Social Development Plan contains multiple provisions for green industry generally and green SMEs in particular. The plan's third strategy, for strengthening the economy and underpinning sustainable competitiveness, calls for providing green finance to agricultural sector entrepreneurs, developing green tourism, green technology research and development, and building a curriculum at the university and vocational levels to help SME entrepreneurs develop green enterprise knowledge. The fourth strategy, for environmentally friendly growth for sustainable development, calls for green labelling, investment in green industrial production, promotion of life-cycle assessment for products and an expansion of green public procurement policies.

The Ministry of Industry's Strategic Plan calls for promoting eco industrial clusters and eco products, including through SMEs. One component of this plan is the Ministry's Green Industry Project, which provides different levels of green compliance certification to enterprises.

Recommendations:

Establish a focal point to support the greening of SMEs - The government could establish a dedicated unit, potentially within the Department of Industrial Works, to serve as a focal point for the variety of greening initiatives focused on SMEs.

Develop an environmental regulatory regime that promotes SME compliance.

Ensure co-ordination of environmental activities.

Dimension 5: Institutional framework for MSME policy.

Clarify the country's SME definition. Because Thailand's SME definition does not disaggregate micro from small enterprises, firms may not be receiving appropriately targeted interventions.

Streamline co-ordination among implementing agencies. Primary responsibility for implementing SME policy lies with OSMEP, but in practice it is shared with the Ministries of Industry and Commerce. To enhance implementation, the government could build a co-ordination mechanism for the relevant agencies.

Legislation, Regulation and tax relating to MSMEs

Strengthen the use of RIA. (regulatory impact analysis)

Further simplify tax filing procedures. Thailand has implemented measures to facilitate the filing of taxes and to ensure tax compliance. To continue improving the ease of filing taxes, the government could reduce the number of payments and the time required to complete them, particularly for corporate income tax.

Streamline e-governance platforms. While online platforms are available for filing tax and social security and pension contributions, these procedures remain burdensome due to the lack of a single online platform. To facilitate filing, the government could consolidate the platforms of the different agencies and ensure that agencies can view each other's data. It could also integrate Thailand's e-signature into more services.

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APPENDIX:

1) MSME Survey Questionnaire;

2) In-Depth Interview Questionnaire;

3)Thailand: Main macroeconomic indicators, 2012-2016

MSME SURVEY QUESTIONNAIRE

Survey Information/Background

Analysis of the impact of COVID-19 on micro, small and medium-sized enterprises (MSMEs) in Thailand from competition policy and market access perspectives.

This study is conducted by the Competition and Consumer Policies Branch (CCPB) of the United Nations Conference on Trade and Development (UNCTAD, in collaboration with the Thai Office of the Trade Competition Commission and the Centre for Entrepreneurship, Innovation and SME Development in the ASEAN Region (CEISDA) at Khon Kaen University, Thailand and Centre for Contemporary Australasian Business and Economic Studies (CCABES) at University of Wollongong, Australia.

The main purpose of this initiative is to assess how COVID-19 has impacted MSMEs in key strategic sectors at the national level of Thailand from competition policy and market access perspectives. This is part of the implementation of UNCTAD's activities of Phase 2 within the United Nations COVID-19 Response focusing on SMEs recovery (Pillar 3).

Complete confidentiality is assured with this survey. The information that you provide us will be used in an aggregate form only. Individual firm data and firm identity will be completely anonymous.

SURVEY QUESTIONNAIRE

Country	Thailand				
Location (City)					
Date	/ / 2020				
Starting time			.		
Finish time			.		
Name of interviewer					
Name of respondent					
Job title					
Telephone contact					

1. GENERAL INFORMATION

1.1 Name of firm……
1.2 Province……
1.3 Age of owner……..
1.4 Telephone contact……
1.5 E-mail contact……
1.6 Year business operation started……...

1.7 Please identify the MAIN area of operation of your firm (ISIC Re.4, 2-digit code)? (Tick one)

❑	10.Manufacture of food products
❑	11. Manufacture of beverages
❑	12. Manufacture of tobacco products
❑	13. Manufacture of textiles
❑	14. Manufacture of wearing apparel
❑	15. Manufacture of leather and related products
❑	16. Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
❑	17. Manufacture of paper and paper products
❑	18. Printing and reproduction of recorded media
❑	19. Manufacture of coke and refined petroleum products
❑	20. Manufacture of chemicals and chemical products
❑	21. Manufacture of basic pharmaceutical products and pharmaceutical preparations
❑	22. Manufacture of rubber and plastics products
❑	23. Manufacture of other non-metallic mineral products
❑	24. Manufacture of basic metals
❑	25. Manufacture of fabricated metal products, except machinery and equipment
❑	26. Manufacture of computer, electronic and optical products
❑	27. Manufacture of electrical equipment
❑	28. Manufacture of machinery and equipment n.e.c.
❑	29. Manufacture of motor vehicles, trailers and semi-trailers
❑	30. Manufacture of other transport equipment
❑	31. Manufacture of furniture
❑	32. Other manufacturing
❑	33. Repair and installation of machinery and equipment
❑	45. Wholesale and retail trade; repair of motor vehicles and motorcycles
❑	451. Sale of motor vehicles
❑	452. Sale of motor vehicle parts and accessories
❑	453. Sale, maintenance and repair of motorcycles and related parts and accessories
❑	454. Wholesale trade (except of motor vehicles and motorcycles)
❑	46. Wholesale on a fee or contract basis
❑	462. Wholesale of agricultural raw materials and live animals
❑	463. Wholesale of food, beverages and tobacco
❑	464. Wholesale of household goods
❑	465. Wholesale of machinery, equipment and supplies
❑	466. Other specialized wholesale
❑	469. Non-specialized wholesale trade
❑	47. Retail trade (except of motor vehicles and motorcycles)
❑	471. Retail sale in non-specialized stores
❑	472. Retail sale of food, beverages and tobacco in specialized stores
❑	473. Retail sale of automotive fuel in specialized stores
❑	474. Retail sale of information and communications equipment in specialized stores
❑	475. Retail sale of other household equipment in specialized stores

❑	476. Retail sale of cultural and recreation goods in specialized stores
❑	477. Retail sale of other goods in specialized stores
❑	479. Retail trade not in stores, stalls or markets

1.8	**What is the ownership type of your firm?** (tick one)	
	Sole Proprietor	❑
	Partnership	❑
	Private Limited	❑
	Public Limited	❑
	Cooperative	❑
	State-owned enterprise	❑
	Other (e.g. informal)	❑

1.9	**Does your firm have foreign shareholders /ownership?** (tick one)	
	Yes	❑
	No	❑

1.10	**(a) Is this a family owned and run business?** (tick one)	
	Yes	❑
	No	❑

1.11	**What was your firm's total sales for each of the years 2019 and 2020?**		
	Specify currency: _____		
		2019	2020
	a. Total sales (value)		

1.12	**In 2020 , did you sell any of your products overseas?**	
	Yes	❑
	No	❑

1.13	**What was your firm's total production cost for 2019 and 2020?**		
	Specify currency: _____		
		2019	2020
	Total production cost		

1.14	**Inventory in 2019**		
	Specify currency: _____		
		At the beginning of 2019 (Jan. 1, 2019)	**At the end of 2019 (Dec. 31, 2019)**
	1. Materials and components		
	2. Work in progress, finished goods, purchase of goods for resale		

1.15	**How many full-time, part-time and foreign employees work in your company**	
	Total full-time employees (number)	
	Total part-time employees (number, FTE)	
	Foreign employees (number, FTE)	

2. CURRENT IMPACT OF COVID-19

2.1 Please indicate the most significant financial problems experienced by your firm during COVID19 (please select and rank all that apply, where "1" is the most important etc.):
( ) Staff wages and social security charges
( ) Fixed costs, e.g. rent
( ) Repayment of loans
( ) Payments of invoices
( ) Decline in sales/revenue
( ) Other expenses, please specify: _____
2.2 Are there any other business problems your firm is facing due to the pandemic? ((please select and rank all that apply, where "1" is the most important etc.)
( ) Reduction of orders (local)
( ) Reduction of orders (from overseas)
( ) Inability to deliver existing orders (lockdowns)
( ) Increased difficulty of accessing finance
( ) Existing loans cannot be extended
( ) Disruption of logistics
( ) Upstream and downstream chain disruptions
( ) Insufficient protective equipment (e.g. masks)
( ) Other, please specify: _____

2.3 What impact do you currently expect on your firm's revenue this year as a result of COVID- 19?
( ) No impact
( ) Decrease of ____%
( ) Increase of ____%

2.4 Is your firm currently considering layoffs, or has already done some because of the pandemic?
( ) Yes (go to question 3.3)
( ) No (go to question 3.5)

2.5 How many staff members (full and part time, FTE) are you expecting to (or have already) cut in 2020?
_____ (Number)

2.6 Do you expect these layoffs to be temporary or permanent? (Tick one)
( )____ Temporary
( )____ Permanent

2.7 If the international COVID-19 crisis were to end today, how long would you estimate it would take for your company to get back to business as usual? How many months?. Specify……_

3. Dealing with COVID-19

3.1 For the cash flow shortage, what is the main means you are considering to deal with this issue.? (Pick more than one answers)
( ) Loans by commercial banks
( ) Loans by Internet finance
( ) Loans by microfinance companies or private individuals
( ) Negotiating with lenders to avoid withdrawing loans
( ) Equity financing (adding new shareholders or capital increase of former shareholders)
( ) Reduction of operating costs (e.g. layoffs and salary reductions)
( ) No cash flow shortfalls problem

3.2 For a shortage of workers, what is the main means you are considering to deal with this issue? (Pick more than one answers)
( ) Wage increases
( ) Use of advanced equipment or software to reduce the amount of workers required.
( ) Outsourcing of orders
( ) Delay in delivery
( ) No shortage of workers
( ) Employ more migrant workers (subject to government approval
3.3 What is the main means you are currently considering to deal with shortages of inputs such as intermediate goods and raw materials? (Up to two options)
( ) Reduction of production/sales
( ) Outsourcing orders
( ) Increasing procurement channels (domestically/internationally)
( ) Seek new production/distribution/sales channels
( ) Delay goods/services delivery
( ) There is no shortage of inputs for my firm.

3.4 What are the main means you are currently using to deal with difficulties in fulfilling contracts with local firms and foreign firms??
( ) Settlement by mutual agreement
( ) Legal or arbitral settlement
( ) Expect the government to coordinate and provide clear disclaimer agreements
( ) Payment of liquidated damages
( ) No contractual performance issues

3.5 Are there currently any measures/support packages by the government that your company is directly benefiting from?
( ) Yes (go to question 4.6)
( ) No (go to question 5.1)

3.6 Please specify what measures/support you are receiving:
( ) Loans up to THB 3 Million for SME at 3% interest rate for the first two years
of taxes and fee cuts for debt restructuring with non-financial institution creditors
( ) Date for filing corporate income tax extended to August (Por Ngor Dor 50) and September (Por Ngor Dor 51)
( ) Filing of excise tax by service businesses extended by one month
( ) Filing of excise tax for oil product operators extended to the 15th of the following month for the next three months
( ) Filing of other taxes for affected operators extended by three months
( ) Exemption of import duty for products related to the prevention and treatment of Covid-19
( ) Exemption of taxes and fee cuts for debt restructuring with non-financial institution creditors

4. COMPETITION POLICIES AND MARKET ACCESS DURING COVID-19

3.1 Do you know and understand measures adopted by the Thai competition authorities in the context of COVID-19, including guidelines, investigations and other actions?
( ) Yes
( ) No

3.2 Do you know about measures adopted by the Thai government in the context of COVID-19, including market access initiatives for MSMEs
( ) Yes
( ) No

3.3 Do you consider it necessary for greater flexibility in the enforcement of competition law and policy during COVID-19?

( ) Yes
( ) No

3.4 Which of the Government/Competition authority/Regulators' measures below do you consider most appropriate under any relaxation of competition enforcement during COVID-19 (Up to two options)

( ) Impose percentage discounts on service contracts
( ) Fixing maximum prices, in an *ad hoc* and *ex post* manner
( ) Mandatory school tuition discounts
( ) Creation of a ceiling price on items considered essential to cope with a pandemic or public calamity (such as, medication, masks and alcohol gel)
( ) Price freeze

3.5 What competition measures, other than relaxation of competition enforcement, do you deem adequate in the COVID-19 context? (Up to two options)

( ) Co-operation/collaboration between competing firms to ensure provision of an essential service (e.g. transport) or in distributing scarce but essential goods (e.g. maintaining the food chain)
( ) Co-operation/collaboration in R&D projects related to the development of vaccines and medicines, and other essential activities which can entail substantial investments and risks for a single firm (Joint Ventures)
( ) While co-operation/collaboration during the crisis may be beneficial for specific purposes, competition authorities are required to strike the right balance between allowing such private initiatives to address market failures in the short-run and avoiding distortion of competition in the long-run

3.6 In which sector/segment of the economy do you consider competition or pro-competitive measures would be most beneficial to your company/segment? (Up to two options)

( ) Financial sector: access to cheaper, faster and broader financial services, including credit
( ) Your upstream chain: access to cheaper, timely, more quality merchandise/service
( ) Your downstream chain: better negotiation terms, more guarantees and timely payment
( ) Your own sector/segment: consolidation of the sector, maturation and relative stability

3.7 Would increasing competition be most beneficial to your firm and if so where ?

Options	**Importance**				
	Unimportant	**Somewhat unimportant**	**Neither unimportant or important**	**Important**	**Very important**
Financial sector – increased access to, and lower cost of, borrowing	❑	❑	❑	❑	❑
Your suppliers (domestic - lower prices and cost of inputs)	❑	❑	❑	❑	❑
Your suppliers (foreign – lower prices and cost of inputs)	❑	❑	❑	❑	❑
Your customers (domestic –	❑	❑	❑	❑	❑

increased demand and higher prices)					
Your customers (foreign – increased demand and higher prices)	❑	❑	❑	❑	❑
Enhance access to overseas markets	❑	❑	❑	❑	❑
Reduce the cost of exporting (customs bureaucracy)	❑	❑	❑	❑	❑
Improve transport infrastructure and transport cost	❑	❑	❑	❑	❑
Reduce business taxes and other operating cost	❑	❑	❑	❑	❑

3.8 Should the government restrict new firms (domestic and/or foreign) from entering the sector in which your business operates so as to protect existing local firms from the impact of COVID19 (loss of sales/profits etc.)?

( ) Yes
( ) No

3.9 Is market access important for your firm in order to survive the current COVD crisis?

( ) Yes
( ) No

3.10 Which area of market access is most important to your firm particularly during the Covid 19 crisis:

( ) local/domestic market
( ) foreign/overseas market

3.11 Does your firm use online/ social network/ digital platforms (e.g. Line, Facebook, websites, online platforms, etc.) in the conduct of your business (marketing and sales)?

( ) Yes (go to question 5.8)
( ) No (go to question 5.12)

3.12 Which online platform (social media) do you mostly use (tick up to two)

( ) Facebook
( ) Line
( ) Websites
( ) Other online platorm ……

Has selling or marketing your product(s) online improved your firm's market access, sales and profitability?

( ) Yes
( ) No

3.13 Is the Thai government doing enough to encourage and support the use of online platforms for your firm to increase market access?

( ) Yes
( ) No

4.15 What is more important to your firm and it's survival in the midst of the Covid19 pandemic:

( ) enhancing government competition policy
( ) enhancing market access

IN-DEPTH INTERVIEW QUESTIONNAIRE

Analysis of the impact of COVID-19 on micro, small and medium-sized enterprises (MSMEs) in Thailand from competition policy and market access perspectives.

1. Current Impact of Covid-19

1.1 Please indicate and explain the most significant financial problems experienced by your firm during COVID-19. (for instance, staff wages and social security charges, fixed costs (e.g. rent), repayment of loans, payments of invoices, and decline in sales/revenue).

2.1. Please specify and describe the business problems of your firm due to the Covid-19 pandemic? (for example, reduction of orders (local), reduction of orders (from overseas), increased difficulty of accessing finance, existing loans cannot be extended, disruption of logistics, upstream and downstream chain disruptions).

2.2. Addressing issues of finance/liquidity – Please explain in terms of ensuring enough liquidity to pay bills etc (renegotiating loans with banks (amount borrowed/cost of borrowing/ going elsewhere and if so where etc). How close are you going to be bankrupt if COVID continues for a few more months?

2.3. In your opinion, has the Thai government been doing enough in issues finance/liquidity? If not what more that the government need to do (e.g. delaying tax payments etc., implement a debt moratorium with the banks etc.)

2.4. Focusing on worker lay-offs. What is the firm doing in this area? There is evidence from other countries to suggest that small firms in financial difficulty move from full time to part time employment as a means to cut costs. Has this been happening in your firm?

2. How to Deal with COVID-19

2.1 For the cash flow shortage, please explain the main means that you are considering to deal with this issue during Covid-19? (Such as, loans by commercial banks, loans by microfinance companies or private individuals, negotiating with lenders to avoid withdrawing loans, equity financing (adding new shareholders or capital increase of former shareholders), reduction of operating costs (e.g. layoffs and salary reductions), no cash flow shortfalls problem.

2.2 Please specify and describe what measures/support you are receiving: (for example, Loans up to THB 3 Million for SME at 3% interest rate for the first two years of taxes and fee cuts for debt restructuring with non-financial institution creditors, Date for filing corporate income tax extended to August (Por Ngor Dor 50) and September (Por Ngor Dor 51), Filing of other taxes for affected operators extended by three months)

3. Competition policies and market access during Covid-19

3.1 Do you know and understand measures adopted by the Thai competition authorities in the context of COVID-19? Such as guidelines, investigations, please explain.

3.2 Do you know about market access initiatives adopted by the Thai government in the context of COVID-19? Please describe.

3.3 What competition measures, other than relaxation of competition enforcement, do you deem adequate in the COVID-19 context? For example:

- Co-operation/collaboration between competing firms to ensure provision of an essential service (e.g. transport) or in distributing scarce but essential goods (e.g. maintaining the food chain)
- Co-operation/collaboration in R&D projects related to the development of vaccines and medicines, and other essential activities which can entail substantial investments and risks for a single firm (Joint Ventures)

- While co-operation/collaboration during the crisis may be beneficial for specific purposes, competition authorities are required to strike the right balance between allowing such private initiatives to address market failures in the short-run and avoiding distortion of competition in the long-run

3.4 In which sector/segment of the economy do you consider competition or pro-competitive measures would be most beneficial to your company/segment? For instance:

- Financial sector: access to cheaper, faster and broader financial services, including credit
- Your upstream chain: access to cheaper, timely, more quality merchandise/service
- Your downstream chain: better negotiation terms, more guarantees and timely payment
- Your own sector/segment: consolidation of the sector, maturation and relative stability

3.5 Would increasing competition be most beneficial to your firm, please explain, (such as financial sector – increased access to, and lower cost of, borrowing, your suppliers (domestic - lower prices and cost of inputs), your suppliers (foreign – lower prices and cost of inputs), your customers (domestic – increased demand and higher prices), your customers (foreign – increased demand and higher prices), enhance access to overseas markets, reduce the cost of exporting (customs bureaucracy), improve transport infrastructure and transport cost, reduce business taxes and other operating cost.

3.6 Please explain that should the Thai government restrict new firms (domestic and/or foreign) from entering the sector in which your business operates so as to protect existing local firms from the impact of COVID19 (loss of sales/profits etc.)?

3.7 Please explain is market access important for your firm in order to survive the current COVD crisis? And which market access is most important to your firm: local/domestic market, foreign/overseas market and both equally important.

3.8 What are the priorities in terms of market access for your firm? (Such as, increased domestic market access, increased foreign market access, increased market access to other countries in ASEAN, increased market access to non ASEAN countries.).

3.9 Does your firm use online/ social network/ digital platforms (e.g. Line, Facebook, websites, online platforms, etc.) in the conduct of your business (marketing and sales)?

3.10 Is the government doing enough to encourage and support the use of online platforms for local firms to increase market access? Please describe.

3.11 Seeking out markets (local) and the role of the internet in this. What could be done to assist the firm in seeking out new business/markets online. What is the government doing in this context and what more does it need to do? What problems does the firm face in going online (lack of skills in knowing how to use this effectively, poor telecommunications infrastructure, training program (provided by government and by the private sector etc.)

3.12 What are the major challenges that you face in accessing markets using online platforms? (For instance, online not relevant to my business/business model, Limited or poor Internet connections, lack of worker/employer expertise, lack of resources, lack of time, cannot see the benefit, concerns over security – payments online, transportation issues
Online platforms too expensive)

3.13 What more could government do to encourage market access though online platforms for your firm? (For example, provide more financial incentives and resources-through tax incentives/subsidies for online uptake, provide a faster and more reliable internet throughout the country, facilitate training programs to enhance worker skills in the use of online platforms to expand uptake and market access, address concerns over security – payments online, reduce the cost of online services/platforms, improve

the quality and reliability of online platforms, promote and provide training programs on the benefits of online platforms)

3.14 What is more important to your firm and it's survival in the midst of the Covid19 pandemic: enhancing government competition policy, enhancing market access , or both issues are important.
3.15 If the international COVID-19 crisis were to end today, how long would you estimate it would take for your company to get back to business as usual? _____ months.

Table 20.1: Thailand: Main macroeconomic indicators, 2012-2016

Indicator	Unit of measurement	Year				
		2012	2013	2014	2015	2016
GDP growth	Percent, y-o-y	7.2	2.7	0.9	2.9	3.2
Inflation	Percent, average	3	2.2	1.9	-0.9	0.2
Government balance	Percent of GDP	-1.2	0.2	-0.9	-0.1	0.4
Current account balance	Percent of GDP	-0.4	-1.2	3.8	8	11.9
Export of goods and services	Percent of GDP	69.8	68.1	69.4	69.1	68.9
Imports of goods and services	Percent of GDP	68.7	65.3	62.6	57.5	54.2
Net FDI (inflows)	Percent of GDP	3.2	3.8	1.2	2.3	0.75
External debt	Percent of GNI	35.2	34.6	35.4	35.2	31.4
Gross reserves	Percent of total external debt	135.2	121.8	116.2	120.7	141.4
Domestic credit to the private sector	Percent of GDP	136.2	142.3	146.2	149.8	147.4
Unemployment	Percent of active population	0.6	0.8	0.8	0.7	0.6
GDP per capita	PPP (constant 2011 intl$)	14,448	14,778	14,853	15,237	15,682

Source: World Bank (2017) World Development Indicators; IMF (2017) World Economic Outlook.