

Thailand: Selected Issues



THAILAND

SELECTED ISSUES

September 2022

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Approved By
**Asia and Pacific
Department**

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PRIORITIES FOR A BALANCED CLIMATE TRANSITION STRATEGY¹

Thailand is both highly vulnerable to climate change and a relatively important producer of global emissions. The country has framed policies to adapt to and mitigate climate change and intends to reduce its greenhouse gas (GHG) emissions by 20 percent by 2030, achieve carbon neutrality in 2050, and net zero emissions in or before 2065. Like for most countries, the urgency to decarbonize weighs on important economic decisions, including for growth and investment. Identifying and managing the transition risks and building resilience to natural disasters is key for a stronger economy and improving people's lives.

A. Introduction

1. Thailand is both highly vulnerable to climate change and a relatively important producer of global emissions. Thailand is ranked as the ninth country in the world most impacted by extreme weather events in the last two decades. The 2011 flooding (Thailand's worst in half a century) was the world's fourth costliest disaster as of 2011; and the 2016 drought was the most extreme for the country in over a decade. Thailand accounts for about 0.8 percent of global emissions (but only 0.5 percent of global GDP). The country also faces looming challenges in energy security, an important area considering that decisions on energy security will impact GHG emissions.

2. The government acknowledges the intrinsic importance of climate change for sustainable development in both the Paris Agreement and Thailand's long-term low GHG emissions development strategy (LT-EDS). The strategy implies achieving carbon neutrality in 2050, and net zero emissions in or before 2065. In line with these commitments, Thailand is aiming for renewable energy sources to account for half of its power generation capacity by 2050 and for electric vehicles to account for about 70 percent of new vehicles in the market by 2035. It also intends to have removed 120 million tons of CO₂e in tandem with reducing biomass burning and regenerating natural forested areas by 2037.

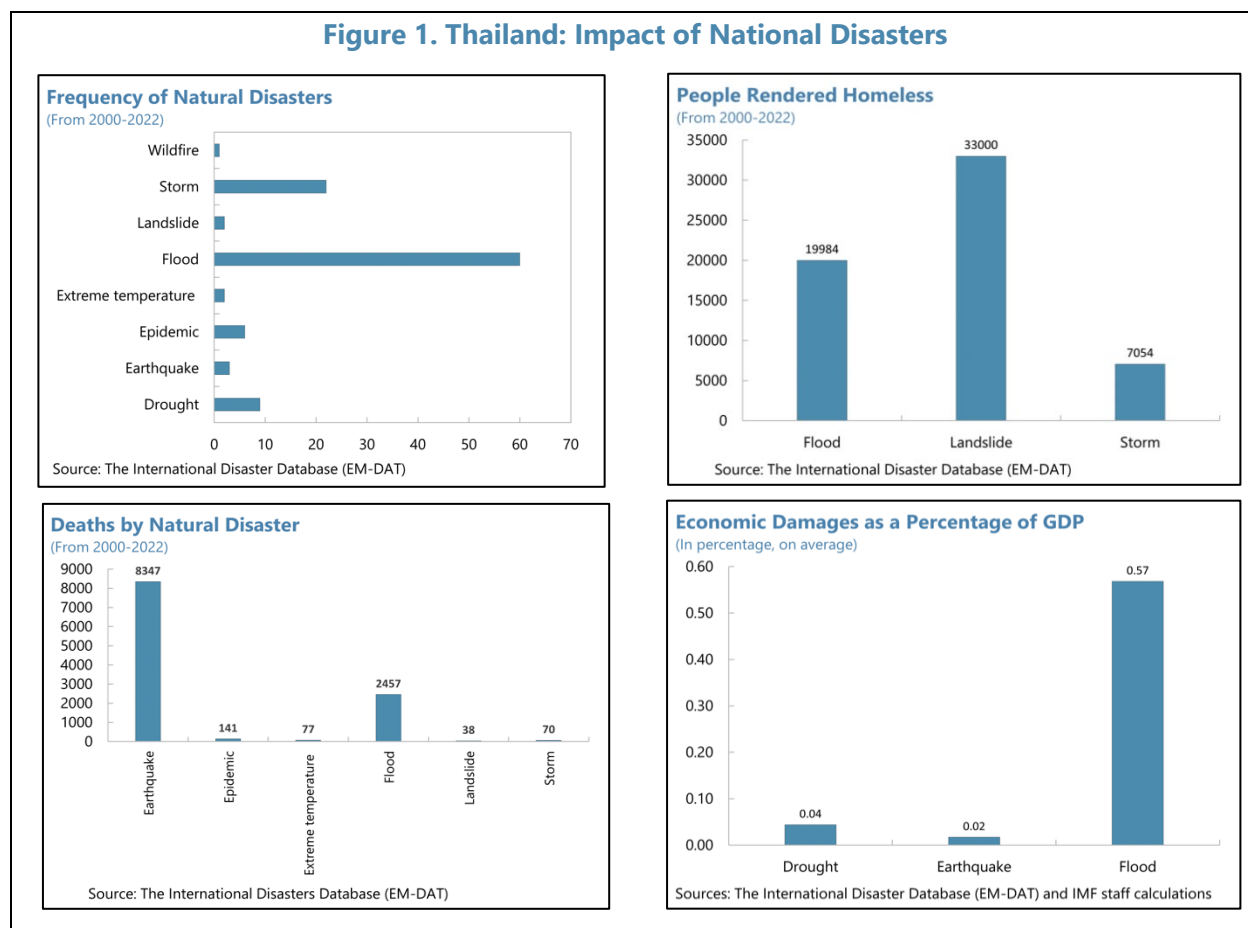
3. While Thailand is committed to climate action, significant challenges stand on the path to decarbonization.² First, Thailand must invest in climate adaptation to increase resilience to climate-induced disasters. Second, like for most countries, transitioning from cheaper high carbon options will weigh on growth and investment decisions. This chapter uses the Carbon Pricing Assessment Tool (CPAT) developed by the IMF's Fiscal Affairs Department to analyze the costs and benefits of various transition paths to lower net carbon emissions and derive policy recommendations.

¹ Prepared by Stella Kaendera, in collaboration with Karlygash Zhunussova (FAD).

² According to the Climate Action Tracker, Thailand's current policies fall short of its climate commitments, and the emissions targets are not consistent with the Paris Agreement.

B. Thailand's Climate Adaptation Challenge

4. Costs associated with natural disasters have been high. Thailand is highly exposed to flooding, tropical cyclones and their associated hazards and drought. Flooding accounts for nearly 100 percent of average annual losses associated with hazards. In 2011, a record-breaking flood caused widespread destruction and served as an example of the country's vulnerability to climate-related disasters. The flood, the result of an exceptionally-heavy monsoon season and the landfall of Tropical Storm Nock-ten, caused 815 deaths, affected 13.6 million people and damaged 20,000 km² of farmland. Economic damages reached US\$45 billion.



5. Financing large adaptation costs will challenge Thailand's fiscal space. It is therefore imperative to prepare and plan for adapting to the effects of climate change through well-articulated strategies with financing arrangements in place. IMF staff estimate that Thailand needs about 0.4 percent of GDP and 0.7 percent of GDP annually in investments for public and private infrastructure resilience respectively. Investing in climate-resilient infrastructure will require enhancing domestic revenue mobilization, reprioritizing investment plans or other spending, and enlisting the support of the donor community, or a combination of all these sources (Cevik and Nanda 2020; IMF 2019). Strengthening public financial management is essential to ensure effective progress on adaptation. To keep adaptation investment affordable, it is crucial to monitor asset

conditions and ensure efficient selection, execution and maintenance of investment projects. As the impact of climate change affects women and men differently, the design of adaptation programs should integrate gender sensitivity.

C. Emissions Trends and Mitigation Pledges and Policies

6. Thailand’s GHG emissions have grown considerably. Emissions, estimated at 159.7 Mt in 1990 increased to 368.7 Mt in 2019 driven by population, economic (income) growth, growth in emissions-intensive economic sectors (structure), and the increased use of emissions-intensive technology (fuel mix). CO2 emissions per capita of Thailand increased from 0.48 tons of CO2 per capita in 1971 to 3.68 tons of CO2 per capita in 2020 growing at an average annual rate of 4.44 percent with a global share of 0.85 percent. Emissions are expected to increase further over the current decade as the economy continues to grow.

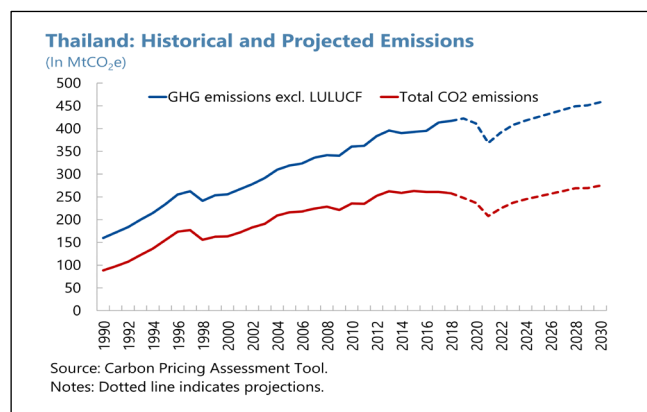
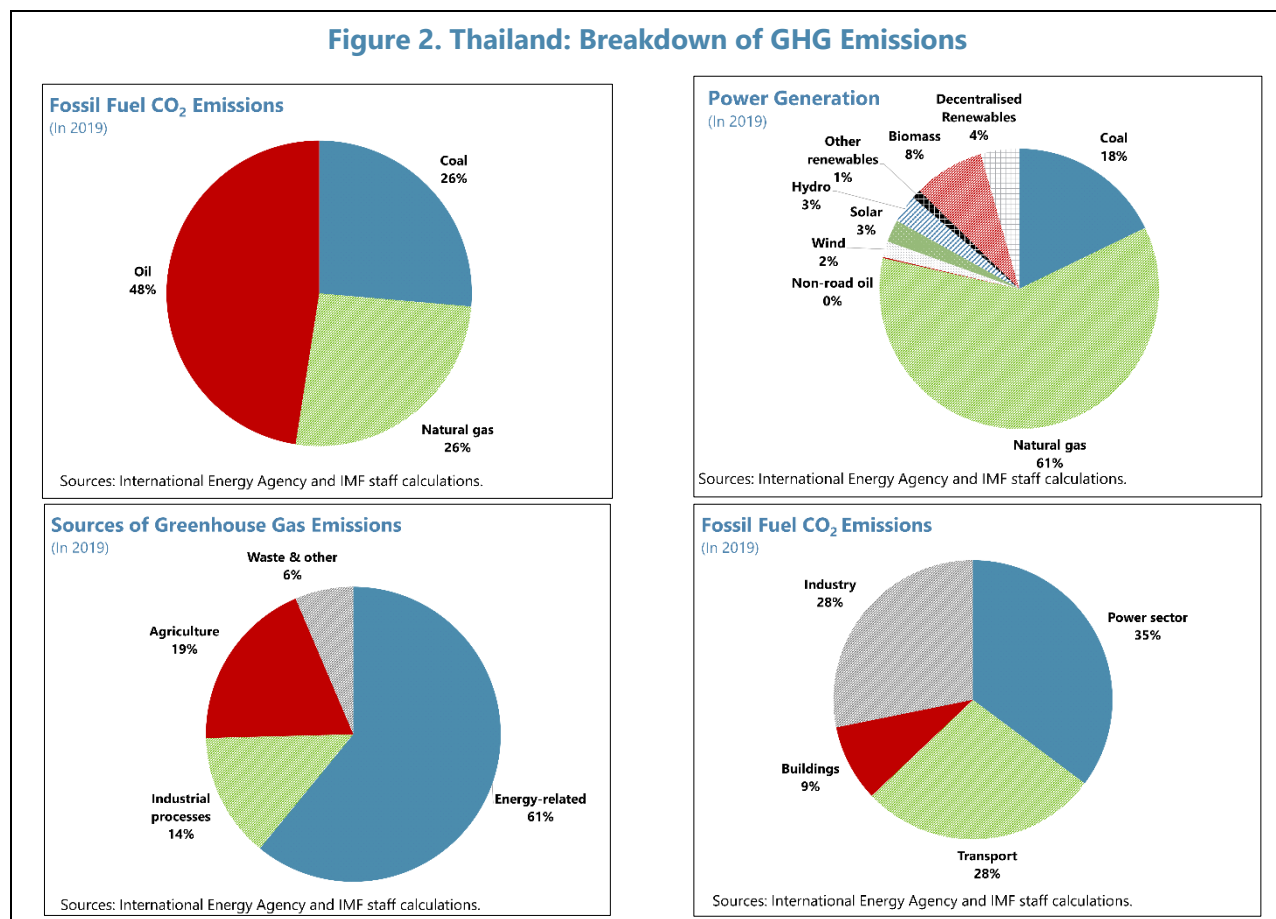


Figure 2. Thailand: Breakdown of GHG Emissions



7. One of the key challenges for Thailand is transforming the electricity generation mix.

Thailand's power generation is driven by fossil fuels and accounted for 35 percent of fossil fuel CO₂ emissions in 2019. By fuel type, oil accounted for 48 percent of fossil fuel emissions in 2019, coal 26 percent, and natural gas 26 percent. And in the power sector, fossil fuels account for 79 percent of the share of electricity generation (including coal-powered plants), hydro and solar at 3 percent each, and 15 percent from renewables including imported hydropower and domestic biomass which account for more than half of the country's renewable generation. This requires accelerating improvements in fuel mix and energy efficiency to contribute to curtailing CO₂ emissions.

Table 1. Thailand: Mitigation Measures Under Thailand's NDC Roadmap (2021-2030)

Sector	Mitigation Measure	Targeted Reduction (MtCO ₂ e)
Energy	<i>Energy Generation</i> (1) Increase power generation efficiency (2) Renewable energy generation <i>Energy Consumption in Households</i> (3) Increasing efficiency in household energy consumption (4) Using renewable energy in household <i>Energy Consumption in Buildings (Commercial and Public)</i> (5) Increasing building energy use efficiency	72
Transportation	(1) Avoid/Reduce traveling (2) Shift/maintain travel modes (3) Improve energy efficiency in transport	41
Waste management	(1) Reducing the amount of waste (e.g. reducing disposal rates, increasing recycling and waste utilization etc.) (2) Increasing biogas production from industrial wastewater through reutilization of methane (3) Industrial and municipal wastewater management	2
Industrial processes and product applications (IPPU)	(1) Clinker replacement (2) Refrigerant replacement/modification	0.6
	Total	115.6

8. The LT-LEDS sets out targets and measures to achieve net zero GHG emissions.

Thailand aims to reach its peak GHG emissions in 2030 at approximately 370 MtCO₂eq and net greenhouse gas emissions of approximately 200 MtCO₂eq in 2050, which is consistent with the global 2degree pathway. Beyond 2050 emissions will follow the IPCC 2degree pathways, with Thailand aiming to achieve carbon neutrality—a balance between GHG emissions by sources and removals by sinks—by 2065. Measures to be implemented to aid the transition include increasing the share of renewable electricity generation by at least 50 percent of new power generation capacity by 2050 and increasing the share of electric vehicles to at least 69 percent of all new vehicles by 2035.

9. A transition to a climate-neutral economy will require a strategy that balances a deep reduction in emissions and minimizes the impact on output and on businesses and

households. An assessment of macroeconomic output costs and risks will aid in designing climate consistent and growth-enhancing policies. While Thailand has made progress in creating voluntary carbon markets and is currently considering a national emission trading system (ETS), there has been little progress on implementing a broad-based carbon tax (see Box 1). The pilot ETS, as currently set up, does not fully exploit the fiscal opportunities from carbon pricing, which in turn can imply higher overall costs for the economy. The free allowance allocations reduce potential revenue and thus divert revenues away from the government budget. These revenues could be used to boost growth and employment.

Box 1. Thailand: Experience with Carbon Pricing

- The government established the Thailand Greenhouse Gas Management Organization (TGO) to implement and manage GHG emissions projects.
- In 2013, TGO launched the Thailand Voluntary Emission Reduction program and the Thailand Carbon Offsetting Program for public and private organizations and projects to reduce emissions annually and to calculate their carbon footprint and buy carbon credits to offset their unavoidable emissions. By 2020, there were 91 registered projects on the platform committed to reducing emissions by 5.28 metric tons of carbon dioxide equivalents (Mt CO₂eq).
- In 2015, TGO launched the Thailand Voluntary Emission Trading Scheme as a pilot, setting up the infrastructure to develop a national emission trading system and identify gaps and opportunities.
- The Climate Change Act is expected to facilitate the development of economic instruments that enhance GHG emissions reduction by private sector, with a cabinet decision expected in 2022.

D. Impact Assessment of Carbon Pricing

10. The analysis uses the CPAT to consider Thailand’s transition policies under three medium-term scenarios. The scenarios consider three different transition paths up to 2030: the business-as-usual (BAU) scenario, the US\$50 carbon tax scenario, and the subsidy phase out scenario. The scenarios present estimate the transition’s effects on growth, fiscal revenues, the environment such as air pollution mortality, and economic welfare. The scenarios show that a US\$50 carbon price by 2030 would be consistent with Thailand’s intermediate emissions objectives, in the absence of other mitigation measures. The carbon price could raise substantial government revenues (about 3 percent of GDP), while imposing relatively modest economic efficiency costs, and generating substantial domestic environmental co-benefits. Recycling the revenues in high impact spending could generate a positive growth impact, estimated at 1 percent of GDP above the baseline. Additionally, the policy would have significant impacts on energy prices, facilitating a transition to greener options. Complementing the carbon tax with a phasing out of energy subsidies generates additional benefits with the growth impact estimated at 2 percent above baseline over the long term.

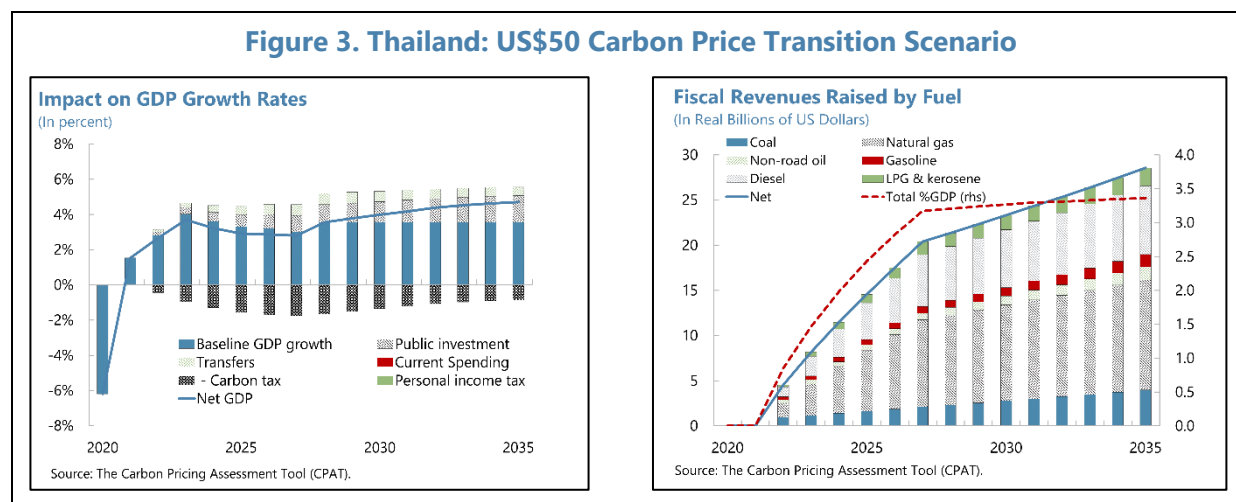
The Baseline Scenario (BAU)

11. Without significant mitigation policies, emissions are projected to continue growing beyond 2030, diverging from the net zero emissions pathway. Economic growth projections

determine the expected growth of emissions, and therefore the effort needed to reduce emissions. The business-as-usual projections (baseline) shows that current policies cannot offset the forces of population and economic growth that are driving emissions. While projections are inherently uncertain, both the business as usual and the 2030 path do not match the ambitions of the net zero pathway.³ More stringent carbon pricing or other mitigation policies may be required to attain long term goals. The war in Ukraine compounds the challenges to Thailand's near-term mitigation goals.⁴

NDC Targets Carbon Price Scenario

12. Projections suggest that a carbon price of at least US\$50 per ton by 2030 is needed to meet Thailand's NDC target for 2030, in the absence of new measures or tightening of existing ones. The latest NDC for Thailand translates into a limit of 444 MTCO₂ by 2030 excluding LULUCF. Overall, different policy mixes are likely needed including reinforcing sectoral instruments (given differences in price elasticities across sectors). However, the analysis focuses on a unilateral carbon tax beginning at US\$20 per ton in FY2022 and gradually rising to US\$50 by 2030.⁵ The carbon tax alone in this scenario is sufficient to achieve Thailand's mitigation targets. The policy achieves 23.8 percent reduction on the BAU and about 3.3 percent of GDP in revenues by 2030 (Figure 3). However, without revenue recycling policies, a carbon tax on its own would entail a negative growth impact throughout the period peaking at -1.8 percent of GDP in 2027. Recycling the revenue from the carbon tax through high-impact spending, with an assumed split of 50 percent in investment spending and 50 percent in transfers could boost growth to slightly 1 percent above baseline over the medium term.



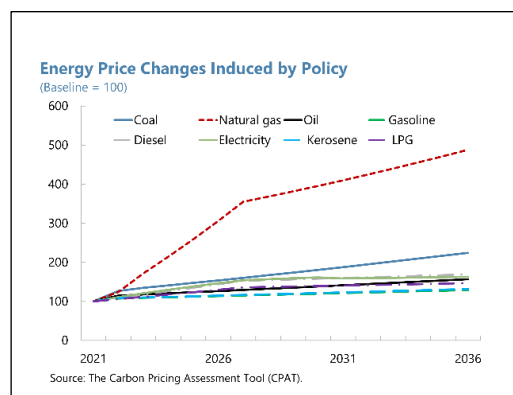
³ The 2030 path refers to the targeted pathway to reduce emissions by 20 percent relative to the baseline (BAU).

⁴ The country's recent shift in power sector planning from a dependency on coal to natural gas over the next two decades lowers overall emission pathways but nevertheless exacerbates fossil-fuel (gas) lock-in, and delays meaningful decarbonization efforts.

⁵ A cap-and-trade system with auctioned permits is similar to a carbon tax from the perspective of regulated firms. Similarly, a carbon tax system with tradable tax exemptions for a specified quantity of emissions (the tax is levied only on emissions above a threshold), can mimic a cap-and-trade system with freely allocated permits.

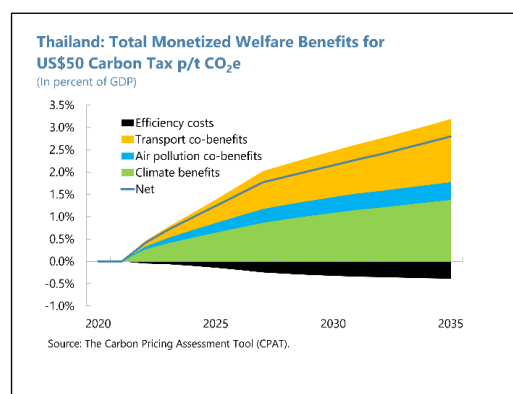
13. The carbon price would induce increases in fuel prices, thus providing a powerful incentive for energy efficiency.

Carbon pricing reduces emissions by raising the relative price of high-carbon energy relative to low-carbon energy, leading to a reallocation of investment. However, the responsiveness of emissions to carbon prices differs greatly across sectors. The impact of carbon pricing on sectoral emissions depends on how carbon pricing affects future energy prices and assumptions about the price responsiveness of the use of fuel and electricity in each sector. In terms of energy use adjustment, the industrial sector adjusts the most with possible implications on employment.



14. In terms of welfare, a US\$50 carbon price would impose an economic efficiency cost of 0.3 percent of GDP in 2030.

However, this would be more-than-fully offset by environmental benefits, leading to net welfare gains of 2.2 percent of GDP in 2030. The economic efficiency impact reflects the value of foregone consumption to fossil fuel users, less savings in fuel supply costs, and is a standard approach to measuring the costs of environmental and broader policies. However, the policy also reduces local air pollution-related losses worth about 0.4 percent of GDP by 2030. It also reduces expected future climate damages from cuts in emissions, worth about 1.1 percent of GDP by 2030.⁶

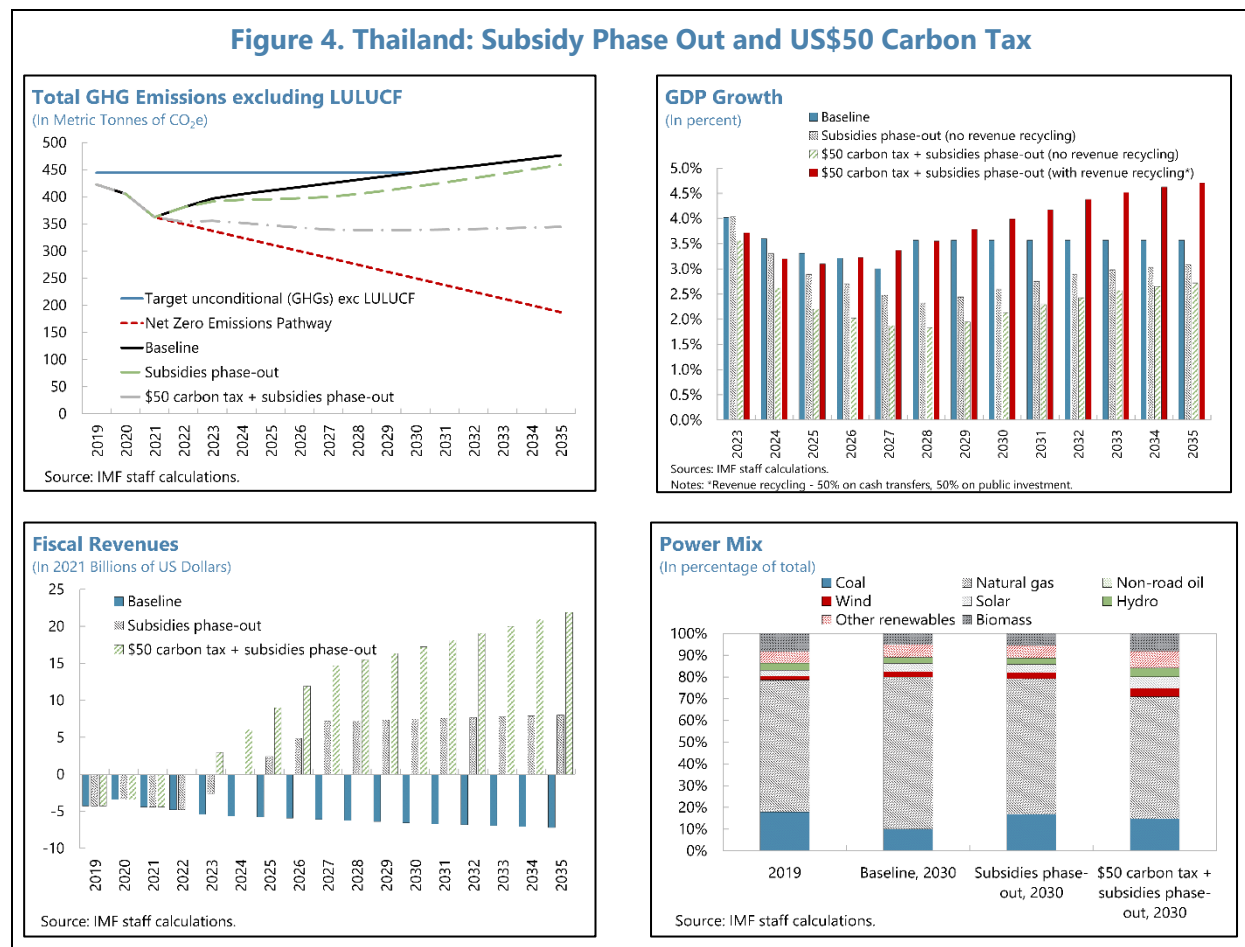


Energy Subsidy Phase-Out Scenario

15. **Reinforcing the carbon tax with an energy subsidy phaseout generates higher and more positive impacts.** Assuming a phasing out of about 2 percent of GDP in energy-related subsidies over a five-year period beginning in 2022 and a targeted recycling of both the carbon tax and subsidy resources would increase growth to about 4.7 percent of GDP in 2035 relative to the baseline of about 3.0 percent. Both policies contribute to reducing the carbon intensity of energy, and increasing energy efficiency, delivering rapid and substantial emission reductions. Recycling revenue towards green investments and redirecting/targeting subsidies to green transfers as well transfers to vulnerable households increases aggregate demand. Over time, green investments boost productivity of low carbon sectors and incentivize more private investments in low-carbon

⁶ The valuation of climate benefits is based on a globally target-consistent social cost of carbon (SCC) estimate of about \$60 in 2020, rising to \$75 by 2030. These accord to the midpoint of the global carbon price needed to achieve 2C in 2020 (\$40-80) and 2030 (\$50-100) according to the High-Level Commission on Carbon Pricing – refer to Stiglitz and others (2017). Welfare implications should not be confused with GDP impacts.

sectors (Figure 4).



E. Conclusion and Transition Priorities

15. Action on climate change can generate inclusive economic growth in the short term, in addition to securing longer-term growth and well-being for all citizens. Results suggest that a well-designed transition can boost long-run output by about 2 percentage points compared to the baseline trajectory by introducing a US\$50 carbon price, phasing out broad-based subsidies and recycling revenues in high-impact spending and targeted subsidies. Thailand can not only build strong growth but also avoid future economic damage from climate change with a decisive transition strategy toward a low carbon economy. The modelled growth effect is driven by a combination of investment in low-emission, climate-resilient infrastructure; additional fiscal initiative to fund climate-consistent non-energy infrastructure; pro-growth reform policies to improve resource allocation and shield vulnerable households.

16. Carbon pricing is a critical element of a policy package to net-zero emissions. Carbon pricing has several environmental, fiscal, economic, and administrative advantages over other mitigation instruments. Carbon pricing provides across-the-board incentives for firms and households to reduce energy consumption and shift to cleaner fuels without favoring any specific

energy matrix, other than discriminating by its carbon content (by reflecting the cost of carbon emissions in the prices of fuels, electricity, and other intermediate and final goods). It also automatically minimizes mitigation costs by equalizing the cost of the last ton reduced across fuels and sectors (“marginal abatement cost”), mobilizes valuable revenues, and generates domestic environmental benefits (e.g., reductions in local air pollution mortality). Furthermore, carbon pricing is administratively straightforward, at least for countries with mature institutional capacity. However, some sectors face structural issues and are characterized by a low responsiveness of emissions to carbon prices. In these cases, carbon prices would need to be complemented by other policies.

17. For the industrial transition, the policy challenge is to minimize the impact on workers and poorer households. Economic growth and the low-carbon transition will both depend on the development and diffusion of new technologies and efficient reallocation of resources towards both low-carbon and high-productivity economic activity. To this end, the low-carbon transition highlights the need for a mix of policy instruments. These include instruments that support scaling technology deployment and green innovation and policies that improve access to new economic opportunities (education, vocational training) and provide an adequate social safety net to workers.

18. Energy subsidy reform is warranted, particularly with regard to getting prices right in energy and transportation systems to reflect market and environmental costs. Subsidies tend to encourage over-consumption and inefficient use of energy. Investment decisions may also be altered by changes in relative prices, thereby discouraging energy diversification and creating disincentives for building necessary energy infrastructure. Thailand could consider replacing the energy subsidies with targeted green spending in the short term to lift aggregate demand, boost productivity in low carbon sectors, increase profitability and trigger more significant private investment in these sectors. This policy would also create more employment in low-carbon sectors, supporting the employment transition out of high-carbon sectors. Adverse impacts of the removal of subsidies on low-income households could be mitigated by an expansion of well-targeted safety nets.

19. The transition will not succeed unless the low-carbon economy is inclusive. The authorities should aim for transparency and work with relevant stakeholders, sectors and communities to develop economically-sustainable alternatives and gain political and social support for policy measures. To make pro-climate growth policies politically feasible, their implications for both households and businesses need to be taken into account. Beyond a well-functioning tax and welfare system, targeted measures can compensate for any potentially regressive impacts of climate policies on poor households.

20. Finally, investing in climate-resilient and sustainable infrastructure is critical for both adaptation and mitigation. This however requires resources and a reprioritization of investment plans or other spending. Thus, boosting domestic revenue mobilization is a priority as well as the availability of green and sustainable financing.

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LABOR MARKET IMPLICATIONS OF THE POST-PANDEMIC SECTORAL CHANGES¹

Worldwide, the COVID-19 pandemic has had a very heterogeneous impact across sectors. Contact-intensive sectors were hit the hardest and still struggle to recover, while digital or financial services have seen a substantial expansion. Based on advance signals from financial markets, the resource reallocation away from contact-intensive sectors towards financial or ICT services is expected to continue post-pandemic. This is likely to be challenging as low-skilled workers will find it difficult to integrate into the expanding sectors that demand mostly high skills. The situation could be aggravated by the fact that acquiring new skills is costly and requires time. This chapter assesses the pandemic-induced sectoral reallocation in ASEAN countries, including Thailand. The analysis points to large skill mismatches due to the expected sectoral reallocation since the differences in skills demand between shrinking and expanding sectors are large. Given the considerable cost and time required to achieve occupational mobility, policies aimed at nurturing and attracting talents, including through capitalizing on the ongoing digital and green transformations can facilitate the needed reallocation and minimize transition costs.

A. What is the Potential Impact of the Pandemic on Sectoral Reallocation?

- 1. The impact of the COVID-19 pandemic was not uniform across sectors.** This is true globally, including for ASEAN countries. Two years into the pandemic, contact-intensive sectors in ASEAN countries saw their share in GDP decline in favor of financial and ICT services and manufacturing. While the impact on employment was milder, probably due to policy support measures, a broadly similar pattern is observed there too (Figure 1). Thailand is not an exception: the 2021 share of the accommodation and food services sector in GDP was about 3 percentage points below its level in 2019, while financial and ICT services and manufacturing sectors gained about 1 percentage point each. In terms of employment, the share of accommodation and food services declined by only 0.2 percentage points in 2021 compared with 2019. Interestingly, manufacturing and financial services also reduced their shares in employment, probably reflecting the ongoing digital transformation, a trend that was accelerated by the pandemic. The agriculture sector emerged as the biggest winner in terms of employment, since it acts as an employer of last resort in Thailand.
- 2. The pandemic seems to have induced a sizable resource reallocation.** The sectoral stock return dispersion—a widely used indicator of reallocation—almost doubled at the onset of the pandemic (Barrero and others, 2020). In addition, firm-level earning projections by institutional brokers suggest that contact-intensive sectors will only barely surpass their 2019 level earnings in 2026, while earnings of manufacturing, ICT and financial services sectors will expand rapidly compared with 2019. The literature on the link between firm-level earnings forecasts and sectoral gross value added suggests that firm-level earnings forecasts are good predictors of future sectoral

¹ Prepared by Ting Lan and Ara Stepanyan.

gross value added (IMF, 2021). Given the unfavorable earnings forecast for contact-intensive sectors, Asian economies, including Thailand, will likely see considerable sectoral shifts with notable implications for labor demand in the medium term.

Figure 1. ASEAN Countries: The Impact of COVID-19 on Sectoral Shares of GVA in GDP

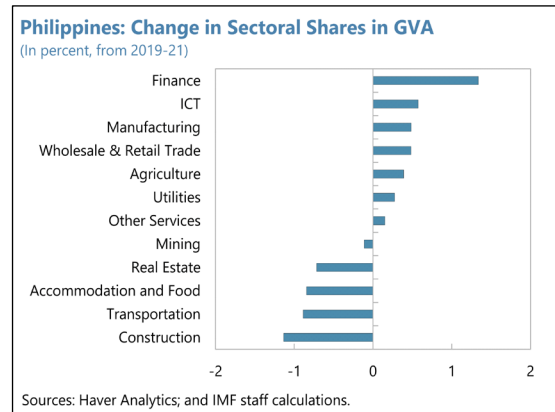
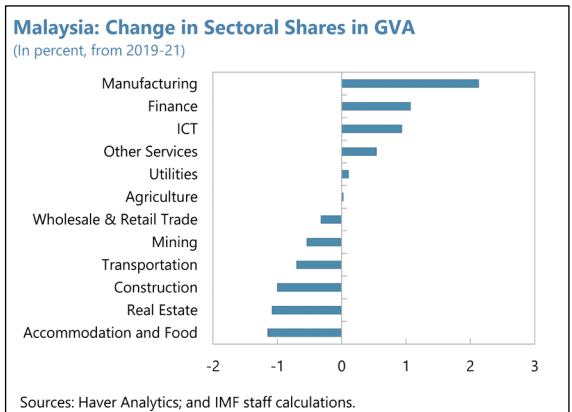
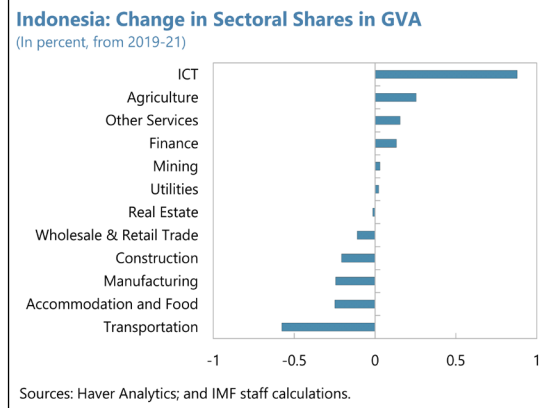
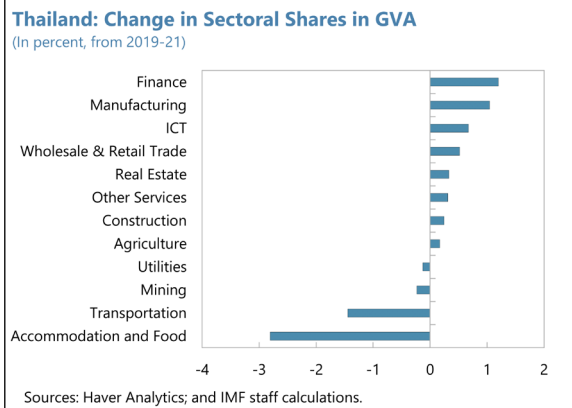


Figure 2. ASEAN Countries: The Impact of COVID-19 on Sectoral Shares of Employment

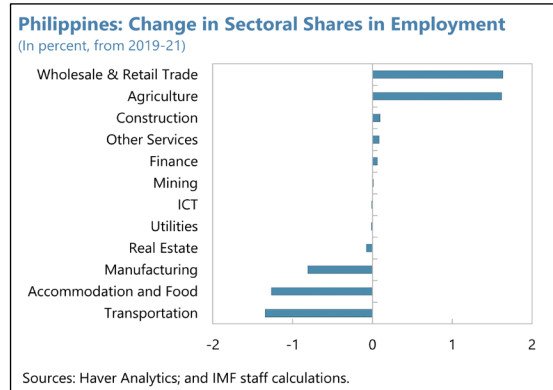
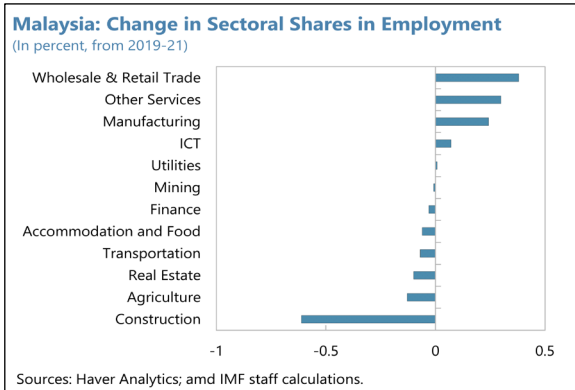
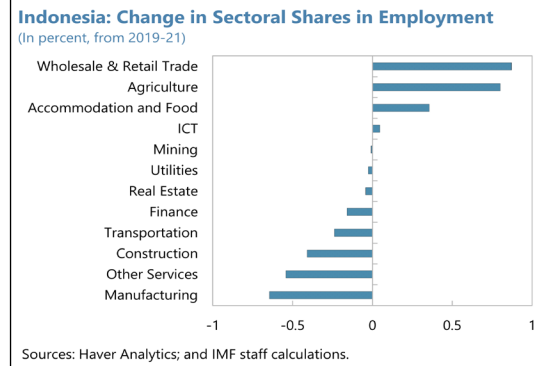
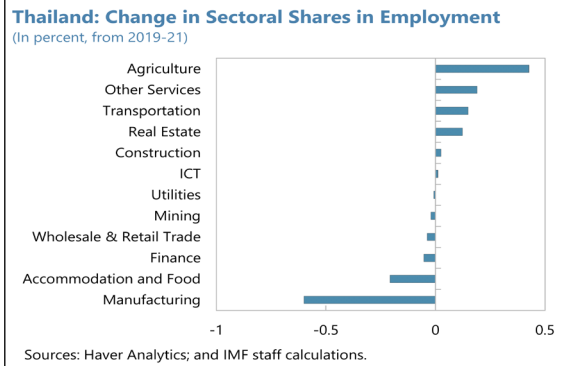
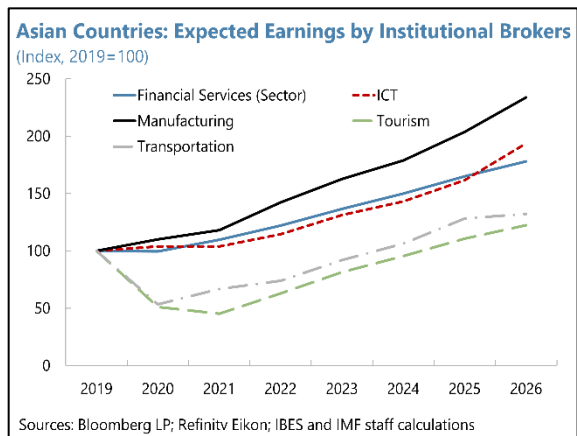
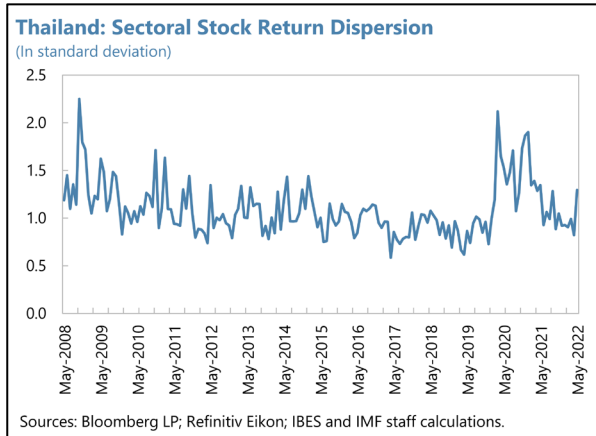


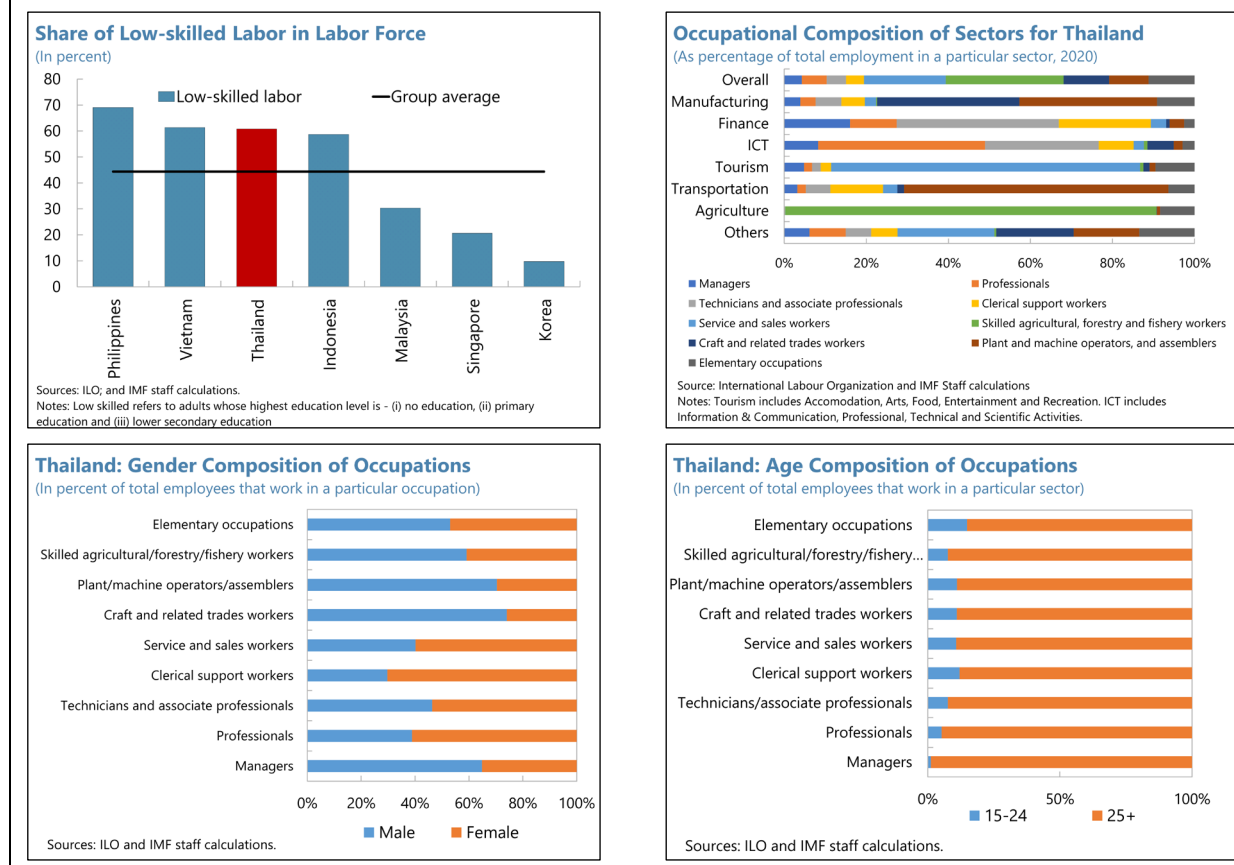
Figure 3. Thailand and Selected Asian Countries: Advance Signs of Resource Reallocation



B. Will Currently-Available Skills Meet the Demands of the Post-Pandemic Economic Structure?

3. High-skilled workers are in great need in the sectors that are expected to expand post-pandemic, while Thailand’s labor market is mainly composed of low- and middle-skill requiring occupations. In 2020, more than 48 percent of the employed in Thailand were service and sales or agricultural workers, and about 22 percent of workers were employed in low skill requiring occupations. Only 15 percent of workers were managers, professionals, and technicians. Women are overrepresented in clerical support occupations, as services and sales workers and professionals, while the share of young people is relatively high in elementary and clerical support occupations, and as plant and machine operators. In the tourism sector, about 75 percent were service and sales workers, and 11 percent low skilled workers. In the agricultural sector that accounts for about 30 percent of total employment, 90 percent of the employed are agricultural, forestry and fishery workers. In contrast, professionals and managers are the key labor force in the high-tech sector, about 50 percent, followed by technicians (28 percent). The financial sector, while mainly composed of technicians (40 percent) and clerks (22 percent), requires a considerable number of professionals and managers (27 percent).

Figure 4. Thailand and Selected Asian Countries: Skill and Occupational Composition of Labor Force



C. What Does it Take to Move Across Occupations?

4. Labor mobility across occupations is a function of the transferability of skills between the origin and destination occupations. The labor literature suggests that the likelihood and cost of labor mobility across occupations largely depends on the similarity of the skill sets required by the origin and destination occupations (Shaw, 1984; Violante, 2002; Macaluso, 2017 Zuniga and Yuen, 2020). Following Gathmann and Schonberg (2020), we construct a measure of skill distance between occupation pairs, capturing the degree of skill dissimilarity required by the two occupations. The skill distance between low-skilled occupations and the managers and professionals is quite high about 0.8, indicating skills obtained by these workers do not line up with the skills required by professionals and managers (Table 1)². Similarly, the skill distance between agricultural workers that account for a large share of Thailand's employment, and managers and professionals, is quite high at about 0.6.

Table 1. Thailand: Skill Distance Across Occupations

Occupations	Managers	Professionals	Technicians and Associate Professionals	Clerical Support Workers	Services And Sales Workers	Agricultural, Forestry and Fishery	Related Trades Workers	Machine Operators and	Elementary Occupations
Managers	0.02								
Professionals	0.24	0.24							
Professionals	0.34	0.37	0.41						
Clerical Support Workers	0.47	0.54	0.49	0.08					
Services And Sales Workers	0.49	0.55	0.54	0.26	0.25				
Skilled Agricultural, Forestry and Fishery Workers	0.58	0.69	0.59	0.15	0.21	0.00			
Craft and Related Trades Workers	0.81	0.68	0.61	0.68	0.63	0.57	0.18		
Plant and Machine Operators and Assemblers	0.87	0.80	0.66	0.47	0.46	0.31	0.25	0.10	
Elementary Occupations	0.83	0.79	0.67	0.47	0.41	0.29	0.30	0.16	0.11

Sources: O*NET OnLine and IMF staff calculations
 Note: Skill distance index measures the degree of skill dissimilarity required by two occupations. Skill distance=0 if two occupations require exactly the same skill set and =1 if

5. Bridging the skill distance is costly. On average, the mobility cost to move to high-skill occupations from mid-to low skilled occupations is prohibitively high. For example, the cost of moving from services and sales occupation to technician is about 80 percent of Thailand's average annual wage, while to manager it is 150 percent. On the other side, mobility cost between low skilled workers is not that high. For example, the cost of moving from agriculture to services is only 20 percent. (Table 2). Cross-occupation labor mobility costs largely depend on the skill distance between the sourcing and destination occupations, the worker's initial skill levels, and the destination occupation's entry cost. Naturally, it is more costly for the low-and-middle skilled workers to move to high-skilled-requiring occupations than the other way around.

² Following Gathmann and Schonberg (2010), the skill distance index is constructed to measure the skill similarity required by occupations. Skill distance = 0 if two occupations require exactly the same skill set and = 1 if two occupations require entirely different skill sets.

Table 2. Thailand: Mobility Costs Across Occupations

(In percent of annual wage)

Occupations (move from) \ Occupations (move to)								
	Managers	Professionals	Technicians and Associate Professionals	Clerical Support Workers	Services And Sales Workers	Plant and Machine Operators and Assemblers	Skilled Agricultural, Forestry and Fishery Workers	Elementary Occupations
Managers	7							
Professionals	47	65						
Technicians and Associate Professionals	90	110	67					
Clerical Support Workers	161	193	70	11				
Services And Sales Workers	151	175	82	54	39			
Plant and Machine Operators and Assemblers	281	276	105	92	62	11		
Skilled Agricultural, Forestry and Fishery Workers	189	229	97	43	21	55	1	
Elementary Occupations	268	273	106	92	57	12	12	10

Source: IMF staff calculations.

6. The skill upgrade needed to achieve occupational mobility also takes time.

Occupational training provides the chance for low-and-median skilled workers to update the existing skills and develop new professional competencies. However, this takes time. For example, for a service and sales worker to upgrade skills to move to a technician occupation takes on average 15 months, but to move to manager or professional it takes 26-33 months on average. For an agricultural worker, it will take more than 50 months to upgrade skills required for professionals. (Table 3).

Table 3. Thailand: Mobility Costs Across Occupations

(In months of additional training)

Occupations (move from) \ Occupations (move to)								
	Managers	Professionals	Technicians and Associate Professionals	Clerical Support Workers	Services And Sales Workers	Plant and Machine Operators and Assemblers	Skilled Agricultural, Forestry and Fishery Workers	Elementary Occupations
Managers	0.9							
Professionals	5.4	9.8						
Technicians and Associate Professionals	8.4	13.9	5.3					
Clerical Support Workers	12.3	3.7	5.5	2.5				
Services And Sales Workers	26.1	33.4	14.8	19.1	1.7			
Plant and Machine Operators and Assemblers	34.4	40.9	16.4	26.4	2.2	0.6		
Skilled Agricultural, Forestry and Fishery Workers	45.9	55.8	32.6	24.4	7.5	12.8	0.4	
Elementary Occupations	29.9	36.9	13.1	23.7	2.1	0.7	3.4	1.4

Source: IMF staff calculations.

D. How Can Policies Facilitate the Sectoral Reallocation of Labor?

7. Investments in education will help to bridge the gap in occupational composition and facilitate the needed cross-occupation mobility. Scaling-up in public spending on education for outcome-orientated occupational and on-the-job training will be needed to achieve skill upgrading.

In this regard, the recent decision by the government to provide about 70,000 new graduates and unemployed with on-the-job training in the bio-circular and green (BCG) sector is timely. Increasing the attractiveness of training programs targeted to older people would mitigate the job losses among the elderly due to automation and digitalization (World Bank, 2021).³ Cooperation with employers will be critical for the success of these efforts. Achieving greater synergies between higher education and future skill needs and strengthening science-business linkages would also be important.

8. Talent attraction should complement skill upgrading, as nurturing talent often takes time. Recruitment of high-skilled non-resident workers can help close the skill gap. The synergy between the high-skilled non-resident workers and local workers can facilitate knowledge spillovers. Thus, streamlining the administrative barriers for hiring high-skilled non-resident workers will help Thailand better compete for external talents. The government acknowledges the need to attract high-skilled workers and recently launched a new long-term residence visa system for skilled professionals.

9. Leverage opportunities offered by the digital transformation. Thailand could leverage opportunities offered by the digital transformation to access the large pool of skilled labor abroad and offshore some economic activities.

³ The old age dependency ratio is expected to more than double by 2050 (World Bank, 2021. "Aging and the Labor Market in Thailand.")

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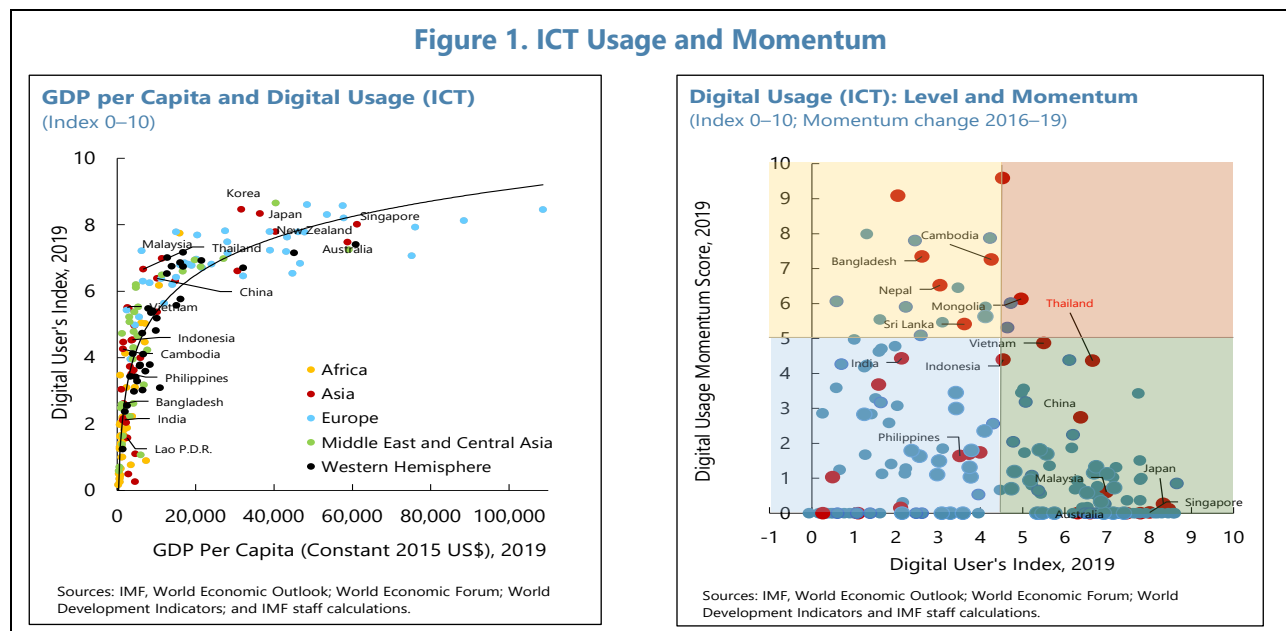
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DIGITALIZATION AND EXPORT SOPHISTICATION: MOVING TO A RESILIENT GROWTH MODEL¹

Thailand has made significant progress in digital development, including through its industrial transformation policy (Thailand 4.0). In line with the global trend, the COVID-19 pandemic and associated safe distancing measures have further accelerated the digital revolution. Empirical analysis, using granular product-level export data, suggests that digitalization (ICT infrastructure and usage, industrial robot installation and patents) is positively associated with higher export sophistication. While digitalization has been increasing in Thailand, there is sizable scope to further expand digital infrastructure and research and development. The analysis suggests that a multi-pronged approach with emphasis in three key dimensions—technology, investment and training—is needed to appropriately reap the benefits from digitalization.

A. The Digital Economy Landscape in Thailand

1. Holistic measures of digitalization are still lacking. A narrow definition of digitalization refers to the information and communication technology (ICT) sector. IMF (2018) proposed a broad definition of the digital economy that includes both the ICT sector and parts of traditional sectors that have been integrated with digital technology. Considering the diversity of digital innovations—and its pervasiveness across various dimensions of economic activity—this chapter assesses the digital landscape in Thailand across various aspects – ICT sector, digitalization of production (robotics), digitalization of consumption (e-commerce) and digitalization of finance (digital payments).²

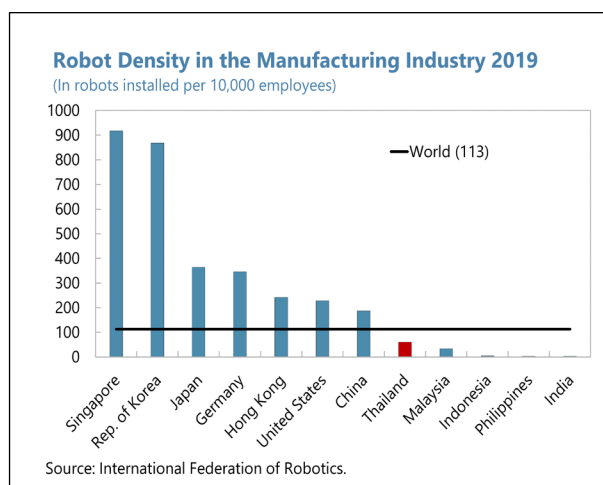


¹ Prepared by Umang Rawat.

² The empirical analysis focuses on a subset of these digitalization measures due to data limitations.

2. Thailand is making considerable strides in terms of ICT digital usage. The digital user's index, which captures various aspects of mobile and internet usage, highlights that Asia as a region has the highest dispersion in digital technologies (Figure 1).³ Thailand's digital usage is in line with other emerging market economies in the region, although much lower than the Asian advanced economy frontier. However, Thailand is making significant strides as reflected by a relatively high level of momentum (Figure 2).

3. While the digitalization of production through industrial robots is still under development, the outlook is promising. Industrial robots are higher-end digitalization products predominantly used for automation in the manufacturing sector. Thailand's stock of operational robots in the manufacturing sector has rapidly increased in the past decade, from about 1,500 robots in 2008 to above 21,000 robots in 2018. However, the robot density in Thailand in 2019, at 60 per 10,000 employees, was significantly lower than the world average of 113. By industry, robotics usage in Thailand is concentrated in the automotive industry (50 percent of all industrial robots in 2019), with another 30 percent in the electrical and electronics sectors. The adoption rate of robots is highly correlated with higher wages and human labor shortages. In Thailand, for example, demand for robots is expected to surge as wages rise and labor supply falls with the aging population.

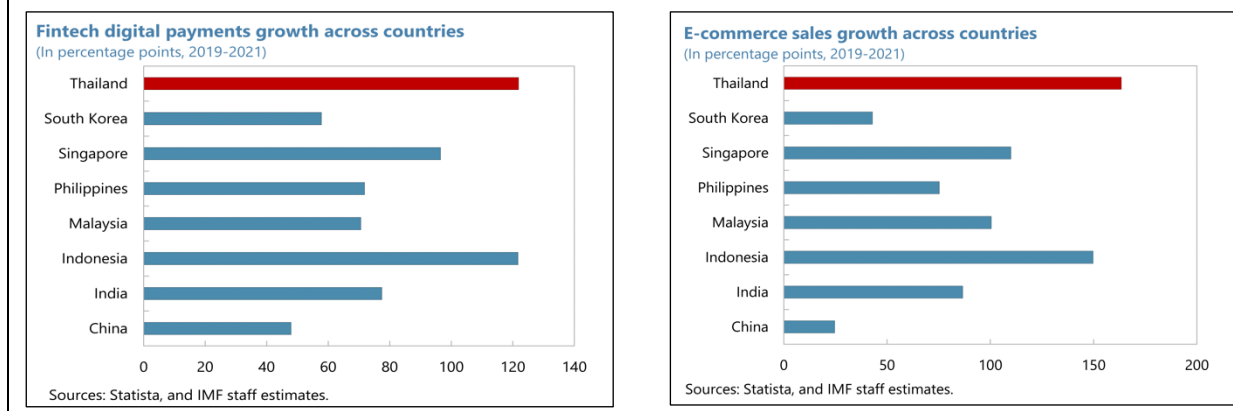


4. E-commerce has grown manifolds in recent years, including in response to the pandemic, and supported by growth in digital payments. E-commerce sales grew from less than 1 percent of GDP in 2017 to around 4 percent of GDP in 2021. The acceleration in e-commerce growth picked up after the pandemic. Between 2019 and 2021, e-commerce sales grew by over 140 percent in Thailand (highest in ASEAN-5 region). The recent acceleration in e-sales, including in response to the COVID-19 pandemic, may last longer, supported by a conducive digital environment and growth in digital payments (that have thrived since the launch of PromptPay in 2017).⁴

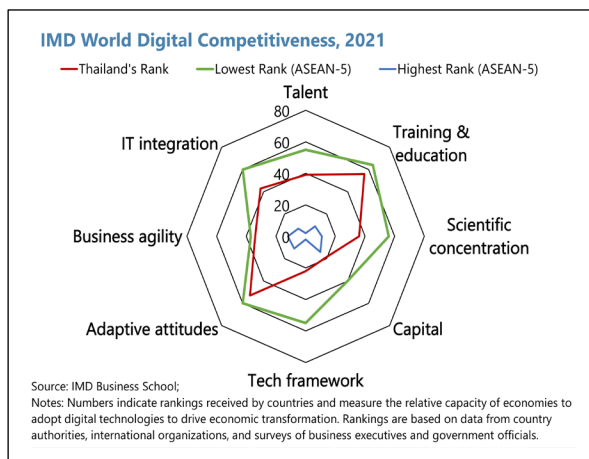
³ The Digital User's Index is a composite index created by IMF staff that consists of the average of six indicators: mobile phone subscriptions in terms of subscriptions per 100 population; percentage of individuals using the Internet; percentage of households with a personal computer; percentage of households with Internet access; fixed broadband Internet access in terms of subscriptions per 100 population; and mobile-broadband subscriptions in terms of subscriptions per 100 population.

⁴ PromptPay is a real-time electronic fund transfer system, which was part of a national strategy aimed at the development of an integrated digital payment infrastructure. It enables consumers, businesses and government agencies to make real-time payments in Thai baht. PromptPay has also facilitated a real time cross-border QR payment linkage with Malaysia, Singapore and Indonesia.

Figure 2. Selected Asia: Digital Payments and E-Commerce



5. While Thailand ranks well on digital capital and technological frameworks, significant work is needed to build digital skills. Thailand ranks 38 among the 64 countries surveyed as part of the IMD digital competitiveness survey (10 among 14 Asian countries surveyed). Thailand has performed well with regards to investment in telecommunications and in the use and distribution of robots, but it ranks particularly low on training and education with low public expenditure on education and low share of scientific and technical employment. The rapid pace of digitalization underscores the importance of reskilling and upskilling to provide complementary high-skilled labor as automation replace low-to-mid skilled jobs.



B. Sophistication of Exports in Thailand: Key Facts

6. We create a measure of export sophistication based on Rodrik (2006) and Hausmann et. al. (2007). The authors defined PRODY and EXPY indexes to compute sophistication levels for individual goods and a country's overall export basket, respectively. The formula of the PRODY index is denoted in Equation (1):

$$PRODY_k = \sum_j \frac{x_{jk}/X_j}{\sum_j x_{jk}/X_j} Y_j \tag{1}$$

where the PRODY of product k is the ratio of the export share of k in country j (x_{jk}) to the sum of the export shares of k in all countries weighted by their per capita incomes (Y_j) of the countries that export the product. Accordingly, a higher PRODY score indicates a higher sophistication level. Based on the PRODY index, the sophistication level of a country's overall export basket (EXPY) could be

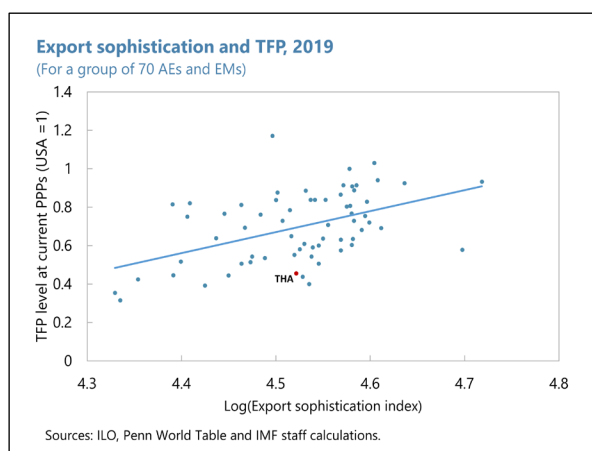
calculated as the weighted average of the sophistication index of all export products in this country. Equation (2) denotes the calculation of EXPY:

$$EXPY_i = \sum_l \left(\frac{x_{il}}{X_i} \right) PRODY_l \quad (2)$$

As a product of the PRODY index, a higher EXPY index also indicates higher sophistication level⁵.

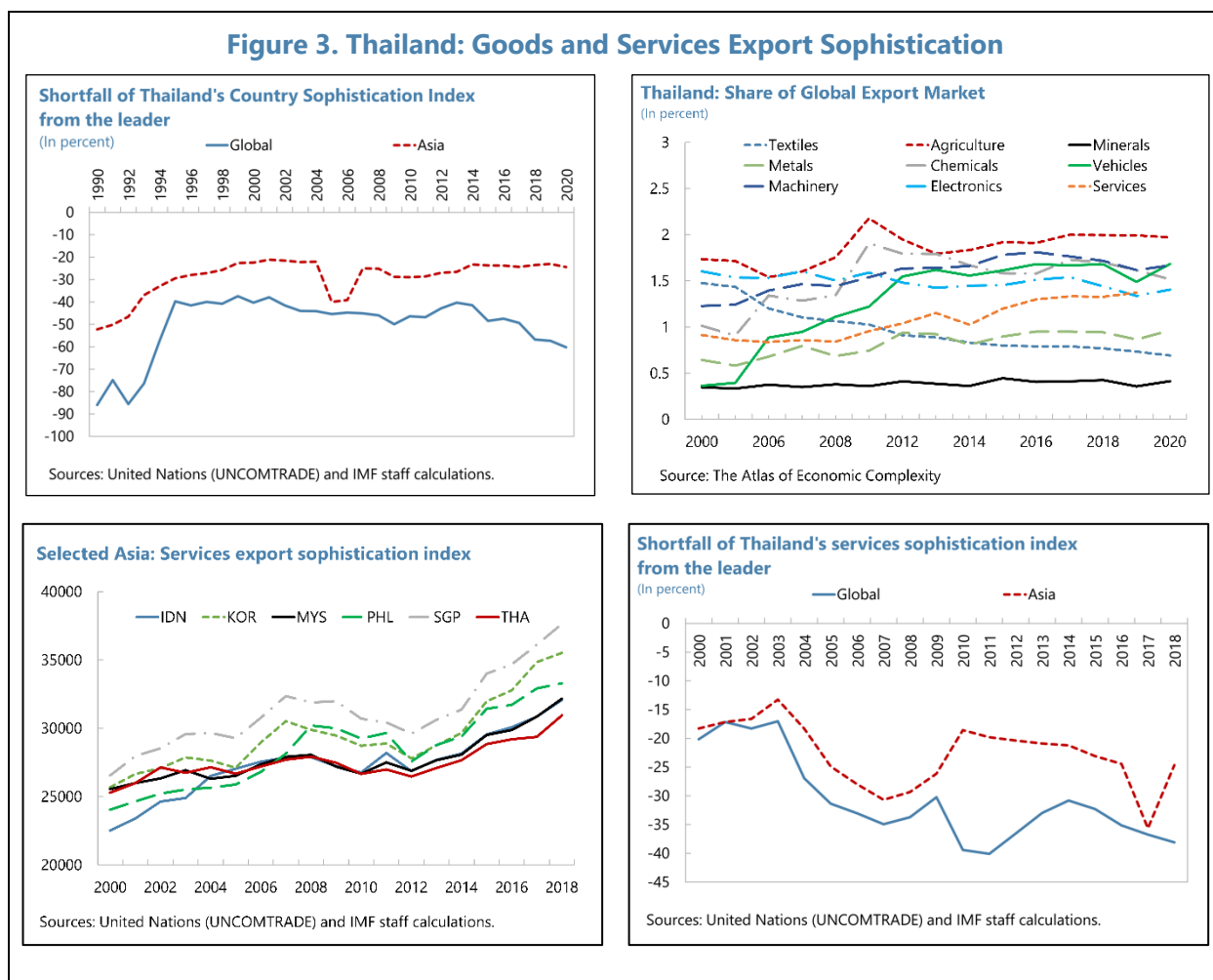
7. After having significantly improved in past decades, Thailand's export sophistication has stagnated more recently. At its peak Thailand's goods export sophistication was 37 percent lower than the global frontier and 21 percent lower than the frontier in Asia (based on the index). Thailand's key high-tech goods' exports include computer parts and accessories, integrated circuits, auto parts and accessories, and petro-chemical products. However, after about a decade of stagnation, the gap from the global frontier has widened in the recent past. This underlies an increase in export sophistication outside Asia as the gap from the Asian frontier has remained relatively stable. While overall export sophistication has increased in all ASEAN-5 countries, Thailand continues to be at the lower end of the spectrum. The stagnation in goods export sophistication is also reflected in Thailand's declining share in global export markets. Export sophistication in the services sector has performed worse than in the goods sector. Thailand's services export is largely concentrated in low value-added tourism services with lowest sophistication in ASEAN-5 region. Further, the distance from sophistication frontier in the services sector has been on an increasing trend. This implies that Thai economy can gain significantly from moving towards more sophisticated products (Figure 3).

8. There is a positive correlation between export sophistication (EXPY) and productivity growth. For example, Felipe, Kumar and Abdon (2012) find that countries unable to upgrade and diversify their exports may become caught in a middle-income trap. Jarreau and Poncet (2012) similarly find that regions specializing in more sophisticated goods in China grew faster subsequently. We find that our export sophistication index is positively correlated with both labor productivity and total factor productivity.



⁵ The product-based sophistication index (PRODY) is calculated using product (at the four-digit level comprising of 1260 products) export data collected from UNCOMTRADE.

Figure 3. Thailand: Goods and Services Export Sophistication



C. Digitalization and Export Sophistication: Empirical Analysis

9. This section explores the role of digitalization in promoting export sophistication. The determinants of export sophistication are analyzed using data for 76 advanced and emerging market economies over the period 1990-2020.⁶ In particular, we estimate the following regression using system GMM:

$$LEXPY_{it} = \alpha_0 + \alpha_1 LEXPY_{it-1} + \gamma_1 D_{it} + \beta X_{it} + \delta_i + u_{it}$$

Where $LEXPY_{it}$ is the log of export sophistication index, D_{it} is a measure of digitalization, X_{it} is a vector of control variables including FDI inflow, tertiary education enrolment (human capital), and access to credit. Country fixed effects are included to control for unobserved country characteristics.

10. The results indicate that various measures of digitalization (ICT, patents, robots) are positively related with export sophistication. An increase in both ICT infrastructure and its usage

⁶ Please see annex table I for list of countries.

is associated with an increase in export sophistication. Similarly, countries with higher patent applications are likely to have higher export sophistication. Finally, installations of industrial robots also are associated with greater export sophistication.

Table 1. Thailand: Determinants of Export Sophistication

Dependent Variable: Log (Export sophistication) - Goods					
<i>L.export sophistication</i>	0.683***	0.803***	0.791***	0.806***	0.967***
<i>FDI inflow</i>	0.004	-0.014	0.007	0.046*	0.126**
<i>Tertiary enrollment ratio</i>	0.057*	0.021*	0.022**	0.063**	-0.004
<i>Domestic Credit/GDP</i>	0.021*	0.002	0.006	0.011	-0.004
<i>Internet users (% of population)</i>	0.001**				
<i>Digital user index</i>		0.009***			
<i>ICT</i>			0.004*		
<i>Log (Patent applications)</i>				0.007***	
<i>Log (Robot installations)</i>					0.003*
Constant	3.156**	1.979***	2.087**	1.905***	0.344
Observations	1,371	1,156	1,084	1,336	762
Number of country_code	75	75	74	74	56
AR(2)	0.995	0.138	0.137	0.730	0.0613
Hansen	0.149	0.347	0.518	0.308	0.174
Dependent Variable: Log (Export sophistication) - Services					
<i>L.export sophistication</i>	0.527***	0.676***	0.462***	0.524***	0.845***
<i>FDI inflow</i>	0.047***	0.048***	0.042***	0.042***	-0.0113
<i>Tertiary enrollment ratio</i>	0.023*	0.01	0.01	0.046**	0.021
<i>Domestic Credit/GDP</i>	0.008	0.0007	0.004	0.0141	0.006
<i>Internet users (% of population)</i>	0.0009***				
<i>Digital user index</i>		0.007**			
<i>ICT</i>			0.005***		
<i>Log (Patent applications)</i>				0.006***	
<i>Log (Robot installations)</i>					0.0004
Constant	4.835***	3.329**	5.486***	4.815***	1.551
Observations	1,018	1,035	1,007	954	650
Number of country_code	74	74	74	71	56
AR(2)	0.584	0.520	0.612	0.386	0.922
Hansen	0.168	0.0900	0.176	0.280	0.102

*** p<0.01, ** p<0.05, * p<0.1

11. FDI and Human capital, proxied by tertiary enrollment, are also important determinants of export sophistication. Our results indicate that higher FDI also leads to greater sophistication of exports. This implies positive knowledge spillovers to domestic firms from foreign firms. In this respect, liberalizing regulations on FDI inflow, easing to do business, promoting rule of law and securing property rights might be good policies to attract FDI. However, technology and knowledge diffusion require that local firms are able to absorb new information. To ease absorption,

investments in physical and digital infrastructure should be complemented with investments in education to make the work force better prepared for a transition to digital economy.

D. Policy Implications

12. The analysis illustrates that reaping the benefits of digitalization would require concerted policy actions along various dimensions. A multi-pronged reform strategy is needed to leverage on evolving trends in digitalization to move to high-income status. This includes policy actions along three key dimensions – technology, investment, and training. Thailand’s ambitious 20-year strategy (Thailand 4.0)—designed to promote innovation, research and development, advanced and green technologies—should remain a priority.

13. There is a need to leverage on the existing manufacturing base to rise up the value chain through production of more complex products and greater linkages to services. In the near term, there is scope to diversify into related products in industries where Thailand currently has competitive advantage (particularly in machinery and electronics). However, overtime Thailand should use its established manufacturing core to diversify into related but higher-value-added global innovator services (finance, ICT, and professional services).⁷

14. Expanding R&D and access to digital technologies can expand channels for innovation, boost product sophistication, and ultimately result in higher productivity. The adoption of high-tech and digital technologies would help in product sophistication and hence advanced participation in global value chains. In this regard, the development of 5G network infrastructure, providing impetus for innovation implementation (including via enhanced mobile broadband, connectivity/internet of things (IoT), and a reliable form of communication technology) are welcome. The authorities should continue with their plans to develop EECi (R&D and innovation infrastructure in EEC) and the EEC tech park to provide a R&D oriented innovation hub as well as EECd to nurture and promote digital industry ecosystem.

15. Government can play a catalytic role in promoting investment in advanced technologies and digital solutions, as is currently envisaged under the EEC development. The Thai government has provided various incentive packages, as part of the EEC, to promote private sector investment in high-tech industries. These include tax holidays and 50 percent reduction in corporate income tax for knowledge-based activities, high-tech activities and activities using advanced technology as well as non-tax incentives such as granting ownership of land and residence and foreign entry. However, in the medium-term, the design of these schemes can be improved based on lessons learnt from EEC and eventually expand the scheme to all firms to level the playing field with non-promoted companies, particularly SMEs.

⁷ Nayar et. al. (2021) note that services increasingly account for much of the value added in the supply chain of manufactured goods. This servicification of manufacturing implies that leading firms in high-income countries have typically retained the more skill intensive parts of the chain, such as the upstream (such as R&D and product design services) and downstream services (such as branding and advertising services), while outsourcing the labor-intensive assembly of manufactured goods to low- and middle-income countries.

16. Further liberalization of FDI restrictions, particularly in services sectors, is needed to foster greater convergence towards Thailand 4.0. According to the OECD FDI regulatory restrictiveness index, Thailand's primary and services sectors remain particularly restrictive to foreign investment. To achieve Thailand 4.0, the service sector will need to be further developed to match servicification of manufacturing activities seen in high-income countries.⁸ In addition to restrictions on foreign entry, Thailand also maintains a stringent regulatory regime as measured by the OECD services trade restrictiveness index (capturing restrictions on movement of people, barriers to competition, regulatory transparency and other discriminatory measures). The authorities should continue with their reforms to remove activities from the list of restrictive business categories that require obtaining a foreign business license under the Foreign Business Act (FBA), particularly those in digital industries crucial to the Thailand 4.0 vision.⁹

17. Finally, human capital needs to be ready to support the transition to a digital economy. The digital competitiveness ranking highlights the skills gap in Thailand as a major deficiency. This partly reflects low and inefficient public investment in education. According to a recent study, in 2020, 42 percent of the workforce in Thailand were at high risk of being supplanted by automation, with the largest threat to the accommodation, food services, and manufacturing sectors. Medium-skills jobs, which comprise the largest pool of workforce available in Thailand, are at the highest risks of elimination. While disruptive technology skills are in high demand, their availability is still limited posing a major constraint to the adoption of technology (World Bank 2022). Labor force upskilling and reskilling should be a priority to ensure that human capital is developed to address the changing needs of the ongoing digital revolution.

⁸ Services account for about 30 percent of the value added embedded in its manufacturing exports in Thailand, which is only slightly below the OECD average, but only about half of it is domestically generated (the rest being imported), against about 90 percent in OECD economies (OECD, 2021).

⁹ In 2019, the foreign business commission identified four activities to be removed from the restrictive list, namely: (i) telecommunications business; (ii) treasury centres in accordance with exchange control act; (iii) certain aircraft maintenance; (iv) high value-added software development activities.

Annex I. List of Economies Used in Analysis

Annex I. Table 1. List of Economies

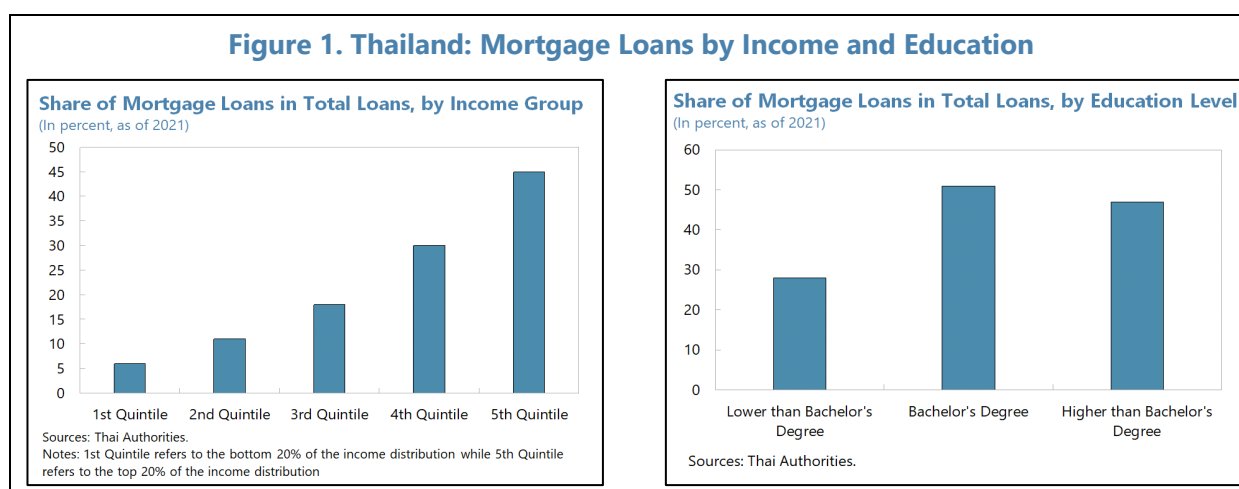
Australia	Azerbaijan	Korea	Mongolia	
Austria	Bulgaria	Netherlands	Morocco	Romania
Belgium	Bahrain	New Zealand	Nigeria	Russia
Canada	Belarus	Norway	Peru	Saudi Arabia
Cyprus	Brazil	Georgia	Portugal	Serbia
Czech Republic	Chile	Ghana	Singapore	South Africa
Denmark	China	Hungary	Slovak Republic	Thailand
Finland	Colombia	India	Slovenia	Tunisia
France	Croatia	Indonesia	Spain	Turkey
Germany	Ecuador	Iran	Sweden	Ukraine
Greece	Egypt	Jordan	Switzerland	United Arab
Hong Kong SAR	Iceland	Kazakhstan	Taiwan POC	Emirates
Albania	Ireland	Kenya	United Kingdom	Uruguay
Argentina	Israel	Malaysia	United States	Vietnam
Armenia	Italy	Maldives	Philippines	
Bangladesh	Japan	Mexico	Poland	

PRIVATE DEBT RESTRUCTURINGS—LESSONS FROM INTERNATIONAL EXPERIENCES¹

Private debt—both corporate and household—is high in Thailand. Elevated private debt is an important source of financial sector vulnerability and could be a drag on growth. A strong insolvency regime can help facilitate the exit of non-viable firms and restructure private debt in an orderly manner. This chapter reviews (i) Thailand’s insolvency regime by identifying its main strengths and areas of improvement; (ii) discusses key principles for corporate and household debt restructuring; and (iii) offers cross country experiences regarding private debt restructurings.

A. The Pandemic and Private Sector’s Balance Sheets in Thailand

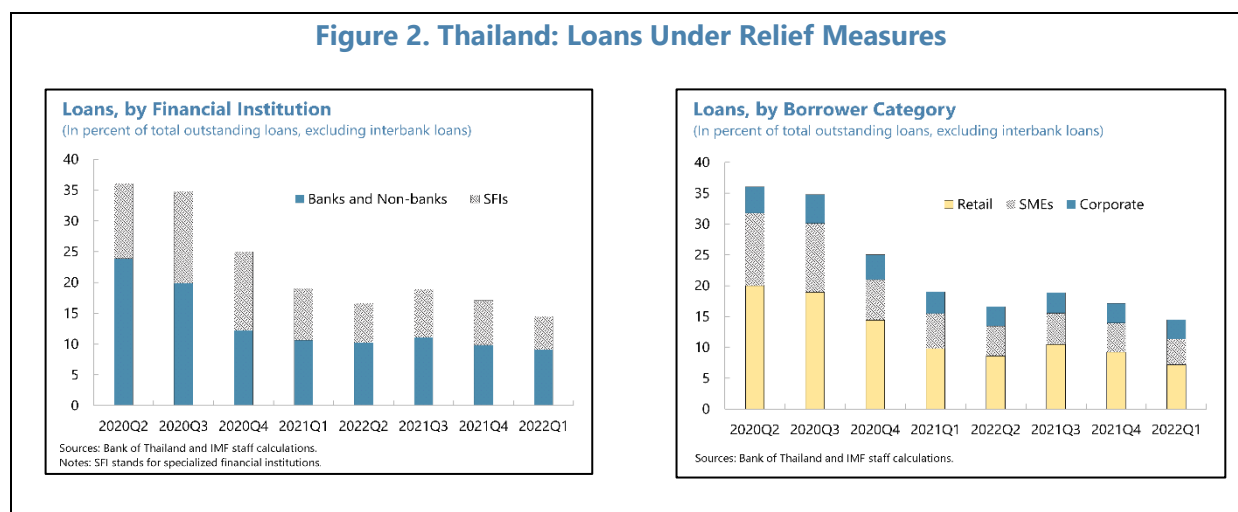
- Household and corporate debt levels have increased during the COVID-19 pandemic and could be a drag on growth.** Private debt levels in Thailand are at record highs. The sharp increase in debt levels is particularly pronounced for households, reaching 89.7 percent of GDP in 2021Q3. However, non-performing loans (NPLs) barely increased since the onset of the COVID-19 pandemic owing to the effect of debt restructuring, regulatory relaxation measures on loan classification and management of NPLs on banks’ books. High private debt often exerts a drag on growth through reduced investment and distorted resource allocation (IMF, 2022). This is particularly the case for household debt in Thailand (IMF, 2019).
- Household debt is slightly skewed toward mortgages.** On the supply side, commercial banks, specialized financial institutions and saving cooperatives account for about 43, 28 and 15 percent of household debt, respectively. On the demand side, mortgages account for about 35 percent of household debt compared to an average of 72 percent in advanced economies and 45 percent in emerging markets. Car loans account for about 12 percent of household debt. Mortgage loans are overall held by high income and relatively well-educated households (Figure 1).



¹ Prepared by Jose Garrido (LEG) and Mouhamadou Sy (APD).

3. The Thai authorities have introduced a number of relief measures to help households and firms weather the COVID-19 shock. Overall, policy support shifted from broad-based measures at the onset of the pandemic to a more targeted and tailored approach since the beginning of re-opening period in May 2020 (see Table).

4. An orderly withdrawal of the pandemic relief measures is needed to limit the pressure on private sector's balance sheet while minimizing financial sector risks. The private sector's balance sheet are closely linked to the financial sector's balance sheet. For example, the debt payment deferment (e.g., six-month debt holiday for SMEs in April 2020, two-month debt holiday in July 2021 lockdown) and individual debt restructuring such as extension of debt repayment period, interest rate reduction, etc. are two sides of the same coin in the private and financial institutions balance sheets. The total amount of loans under relief measures (LUR)² in Thailand's financial institutions decreased from 36.6 percent of commercial banks, non-banks and specialized financial institutions' outstanding loans at the onset of the crisis to 16.6 percent at the end of 2021 and further declined to 14.1 percent in March 2022. On the supply side (chart), specialized financial institutions seem particularly exposed (they account for 42.5 percent of total loans under relief measures at the end of 2021 but only about 15.3 percent of total assets of financial institutions). On the demand side, SMEs but particularly households are the main beneficiaries of the relief measures (Figure 2).³ A large portion of the outstanding loans under relief measures will require debt restructuring if the economic situation deteriorates.⁴ A strong insolvency regime can help facilitate the exit of non-viable firms and restructure private debt in an orderly manner.



² Relief measures are credit assistance measures to support borrowers affected by COVID-19. They include, for example, debt repayment deferment, interest rate or principal reduction, debt restructuring with new financing, etc. The measures only target performing loans.

³ Mortgages (36 percent) and personal loans (53 percent) are the major components of households' loans that are under relief measures as of 2022Q1.

⁴ Even if the economic situation does not deteriorate, scarring from the pandemic could affect the financial situation of firms and households. See "Appendix III. Analysis of Broader Economic Scarring for Emerging Markets with Policy Options" in [IMF Country Report No. 21/97](#) for an analysis of scarring effect of COVID-19 pandemic for emerging markets.

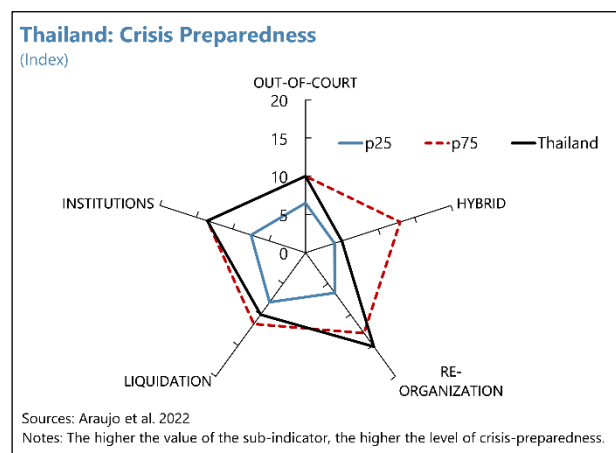
B. How Robust is Thailand's Insolvency Regime?

Enterprises Debt Restructuring and Insolvency in Thailand

5. The crisis preparedness of the Thai insolvency regime for enterprises has been recently assessed by Fund staff. This assessment is based on aspects of the international standard that are most relevant in the context of corporate debt crises. The Thai system shows some strengths, particularly in reorganization and in aspects of the institutional framework, but there are areas for improvement (chart).

6. There is a lack of informal and hybrid restructuring options. Thailand developed an enhanced debt restructuring mechanism to tackle the corporate debt overhang resulting from the Asian financial crisis (the so-called “Bangkok approach”). This mechanism lapsed, as it was conceived as an interim crisis measure,

but it left the positive legacy of a negotiating culture for debt restructurings. Informal debt workouts, however, can become challenging with many creditors with opposing interests.⁵ There are no hybrid restructuring solutions (i.e., restructuring procedures with limited court intervention), such as preventive insolvency procedures, or pre-packaged reorganization plans. Support and advice programs for SME restructuring would be useful.



7. Corporate reorganization is the strongest part of the Thai insolvency system. The procedure has proved valuable in the preservation of the going concern value of large enterprises. However, the use of reorganization procedures in Thailand is still low. Among the requirements to access reorganization is a minimum debt amount of THB 10 million. Reorganization includes critical elements such as a broad stay of creditor actions, the treatment of executory contracts, new financing, and the preparation and approval of a reorganization plan by the classes of affected creditors. There are technical aspects that could be improved, but the procedure is generally compliant with international standards.

8. The simplified procedures for the reorganization of SMEs can be further improved. In 2016, the law was amended to make reorganization accessible to SMEs. The debt threshold was reduced to THB 3 million, the preparation and approval of plans was simplified, and subject to a shorter implementation period. In August 2021, the Thai Cabinet approved a set of proposals for legislative amendments that could increase the functionality of these procedures, such as increasing the debt threshold up to a maximum of THB 50 million, allowing SMEs not registered as such to use

⁵ The Bank of Thailand recently set up the DR BIZ program to facilitate multi-creditor debt restructuring process.

the procedure⁶ and to commence reorganization without a prepared plan, and a faster procedure for approval of the reorganization plan (Crosio, 2021).

9. Corporate liquidation does not produce significant value for creditors. A peculiarity of Thai law is that the same regime applies for corporate and individual bankruptcy—and arguably, the regime does not work effectively for neither category of debtors. Liquidation or bankruptcy is only initiated at the creditors' request. In this way, liquidation operates as the last resort for creditors, who do not receive significant payments in it. The main reasons for the inefficiency of bankruptcy are that distributions are delayed for procedural reasons, and that the automatic stop of the business activities of the debtor, together with the freedom of secured creditors to enforce on collateral, make a going-concern sale of the business practically impossible.

Household Over-Indebtedness and Bankruptcy in Thailand

10. Bankruptcy of individuals is socially costly in Thailand. There is considerable stigma attached to bankruptcy. This explains why individual bankruptcy can only be requested by creditors and is used by them as the last resort to pressure debtors and obtain a payment. Only persons with debts of at least THB 2 million can be declared bankrupt.

11. Preventive policies to avoid bankruptcy are in place. Due to the serious consequences of bankruptcy, there are preventive measures that seek to restore the financial health of the debtor without undergoing a formal bankruptcy process.

12. The legal regime foresees an agreement as a last attempt to avoid the debtor's bankruptcy. Before a debtor is declared bankrupt, there is a possibility of reaching an agreement with creditors consisting of a repayment plan. If the plan is approved by creditors and confirmed by the court, the debtor will avoid being declared bankrupt.

13. Bankruptcy has severe consequences for debtors. Debtors who are declared bankrupt are dispossessed of their assets, cannot access credit, and cannot enter into any transaction related to their assets or business except with the permission of the receiver, the court, or the creditors' meeting. Most debtors' salary is garnished, and debtors cannot leave the country without the permission of the receiver or the court. Debtors can still reach an agreement with creditors once bankruptcy has been declared.

14. Personal bankruptcy is designed as a mechanism to collect debts but is not particularly effective. As bankruptcy is only initiated at the creditors' request, it is used as a debt collection mechanism, but is not particularly effective. Recoveries by creditors are low and the process tends to be protracted. The debtor's assets are sold by auction. Debtors, on the other hand, receive a debt discharge three years after the declaration of bankruptcy, or before, if 50 percent of the debts are repaid. In this way, the regime is not effective in achieving the main function of a personal bankruptcy regime, namely, providing a fresh start for over-indebted individuals. Because the debt

⁶ The only requirement would be that the enterprise qualifies as SME under the Ministerial Regulations of 2019. The classification is done according to the number of workers and the value of capital assets set for manufacturing, wholesale and retail traders, and service businesses.

threshold required to commence bankruptcy is high, the most vulnerable debtors always remain outside the scope of the bankruptcy regime and cannot obtain a discharge.

The Institutional Framework in Thailand

15. Thailand benefits from having specialized bankruptcy courts. The Bankruptcy courts were established in 1999. Thailand is one of the few countries in the world that has specialized bankruptcy courts for both companies and individuals. As the Central Bankruptcy Court has jurisdiction over the whole country, it can become overloaded with cases. The pandemic has accelerated the modernization of the technological means of the court, including the use electronic communications in insolvency cases.

16. The regime of insolvency professionals is not fully developed. There is not a comprehensive regime for insolvency professionals. In bankruptcies, an official receiver is appointed by the Legal Execution Department. Private insolvency professionals serve as reorganization planners or plan administrators. These are limited roles within reorganization proceedings (preparing and implementing reorganization plans) for professionals duly qualified and registered.

17. The Legal Execution Department (LED) performs multiple roles in the insolvency regime. The Department is part of the Ministry of Justice. Its main role is to assist the courts in the enforcement of civil judgments. In addition, the LED appoints official receivers in bankruptcy and reorganization cases and carries the registry of reorganization planners. The LED has ramped up its use of technology in the conduct of its functions.

C. How to Strengthen the Thai's Insolvency Regime?

18. Addressing the elevated levels of debt of enterprises and households requires a comprehensive strategy. The strategy must start with an analysis of the financial support measures currently in force and the plan for the withdrawal of such measures. Support programs for debtors can be considered, with proper design features to avoid moral hazard (Leuven and Laryea 2009).

19. Regarding enterprise debt, there should be a broader set of options for formal insolvency proceedings, particularly by SMEs. The corporate insolvency regime could benefit from the re-introduction of debt restructuring mechanisms, the streamlining of the liquidation regime, and the use hybrid restructuring (see Liu et al. 2020; Bauer et al. 2021). For SMEs, adoption of amendments to SME reorganization would improve the functionality of that procedure. The use of restructuring tools should be extended to SMEs, particularly the smaller ones, together with advice, mediation, and support programs (Japan, Korea and Malaysia can serve as useful models).

20. Addressing household over-indebtedness also requires reinforcing preventive measures. Since bankruptcy has severe social costs and does not generate significant benefits to creditors or debtors, efforts in promoting debt restructuring, such as the Debt Clinic, should be sustained. Reform of the bankruptcy regime needs to be implemented over the medium term, and this should include voluntary bankruptcy and lower debt thresholds.

21. On the institutional framework, the pressure on the courts could be relieved with a number of measures. Apart from the use of out-of-court and hybrid restructurings, other measures could relieve the workload of the courts, which should prioritize reorganizations (Diez et al, 2021). The courts should continue with the process of incorporating modern technology. The regime of insolvency administrators should be developed, and this would also allow the redeployment of other resources. The LED could take over most of the functions in personal bankruptcy to relieve the pressure on the courts (Jullamon 2012). Statistics should increase their coverage and detail to assess capacity and the effects of reforms (Garrido et al. 2019).

D. Private Debt Resolution: Key Principles

Principles for Corporate Debt Restructuring in Crises

22. Liu et al. (2020) and Araujo et al. (2022) distinguish three phases for a successful corporate debt restructuring. Phase 1 corresponds to the deployment of policy support to cushion the effect of the economic and financial crises on the economic activity and people. Phase 2 requires tackling large non-performing loans, defaults, and insolvencies. Finally, Phase 3 focuses on enforcing insolvency and debt contracts once policy support measures are phased out.

- *Freezing insolvency cases.* During the first phase of the crisis, the authorities' main objectives is to deploy support measures to limit the effect of the crisis. Therefore, they introduce regulatory flexibility, moratorium on debt enforcement, reduce and suspend insolvency system.
- *Transition phase:* Once the economy starts recovering owing to policy support, authorities should build an effective insolvency and restructuring framework. Key actions include: (i) proceed to a triage of firms to separate those who are not viable to those who are viable but need to be restructured; (ii) use out-of-court to tackle the large numbers of restructuring cases with a special track for SMEs.
- *Restoring normal procedures:* After both the economy and restructuring cases stabilize, countries should go back to standard resolution framework. Lenders bear the full losses of their exposures and firms clean up their balance sheets. Hybrid debt restructuring mechanisms can be maintained during this phase to accelerate the remaining restructuring cases.
- These phases correspond to the treatment of a crisis. Under normal circumstances, corporate debt restructuring operates according to the international standard.⁷

Principles for Household Debt Restructuring in Crises

23. There is a case for government intervention in household debt restructurings during crises. Governments often get involved in private debt resolution during times of crisis such as the current pandemic when restructuring involves large numbers of bankruptcies. Two broad approaches can be used to restructure household debt. The first approach is a case-by-case restructuring in which the government establishes the legal and institutional framework. The second

⁷ World Bank Principles for Effective Insolvency Regimes and the United Commission on International Trade Law (UNCITRAL) recommendations from the Legislative Guide on Insolvency Law.

approach involves the establishment of a sponsored debt restructuring program. Government can provide financial support to households or to the banks. However, any government intervention should primarily aim to restore the sustainability of households' balance sheets, minimize the cost for the budget and reduce the risk of bank failures. Key principles to achieve such objectives include (Leaven and Laryea 2009):

- *Objective and scope*: The program should be targeted to households that are hit hard and struggling to meet their debt service obligations.
- *Proportionality*: The scale of government intervention in the household debt restructuring should depend on its fiscal space and on the capacity of households and their creditors to absorb losses.
- *Participation*: Creditors' participation to the debt restructuring program should be voluntary.
- *Simplicity*: Household's debt restructuring involves many cases. Therefore, the design should be based on simple rules to speed up the restructuring and reduce the potential for abuse.
- *Transparency and accountability*: The debt restructuring program should include mechanisms (e.g., reporting and audits) that allow the authorities to ensure the accountability of participants.
- There is no international standard for household (personal) insolvency. But country experiences are useful for design of regimes that allow debtors to reduce their over-indebtedness and have a fresh start.

E. What Can Thailand Learn from Other Countries' Experiences?

24. Many Asia-Pacific countries amended their insolvency regimes prior or during the pandemic to facilitate a smooth deleveraging and restructuring of corporate debt. A special track for SMEs combined with simplified and faster out-of-court restructuring mechanisms are a common trend.

- *Australia* has revised its small business insolvency regime. The new regime includes new debt restructuring and simplified liquidation processes. Insolvent small firms have now 20 days to prepare a restructuring plan and creditors a maximum of 15 days to accept it or not after submission. The approval of the restructuring plan requires now only 50 percent of creditors' votes. The liquidation process is much faster and less costly for small businesses.
- *India* overhauled its insolvency regime prior to the pandemic. The new insolvency regime created a new regulator.⁸ The Central Bank of India oversees out-of-court restructuring mechanisms. During the pandemic, the authorities introduced a 12-month suspension of filing of new insolvency cases and simplified the small business insolvency regime with the aim to facilitate reorganization.
- Despite having one of the most advanced insolvency frameworks (the Debtor Rehabilitation and Bankruptcy Act), *Korea* continued to strengthen its insolvency system including during the pandemic. Recent reforms include further simplifying the insolvency process for SMEs.

⁸ The Insolvency and Bankruptcy Board of India (IBBI)

- *Malaysia* created a new agency (the Credit Counseling and Debtor Management Agency) to serve as a one-stop-shop for individuals and SMEs that request debt restructuring. Malaysia also refined the operational procedures for the Corporate Debt Restructuring Committee, the out-of-court mechanism that handles corporates.
- *Singapore*, through the COVID Temporary Measures Act (2020), simplified insolvency and restructuring procedures for SMEs. The authorities also introduced a temporary Simplified Insolvency Program (SIP) to speed up at lower cost restructuring procedures. The SIP has two components. The Simplified Winding Up Program (SWUP) enables SMEs to go into bankruptcy through a simplified winding up procedure. This applies when the company is insolvent, intends to cease business and opt to be wound up. The Simplified Debt Restructuring Program (SDRP) enables SMEs to restructure their debt while keeping their businesses.

25. There have been so far less changes in household restructuring and insolvency procedures.

However, experiences in the last two decades ([IMF 2009](#)) can provide useful references for situations of high household debt. The authorities should carefully monitor the levels of household debt, since over-indebtedness of households tends to have a much more negative effect than over-indebtedness of enterprises (see Jorda et al., 2020). The main goal of these programs was not only to restructure household debt to provide a temporary lifeline but also reduce the leverage of the most hit segments of the population.

- A credit card debt crisis affected *Korea* in 2002. Card debt reached 15 percent of GDP because of weak lending standards. The restructuration process involved: (i) loan write-offs; (ii) debt-to-equity conversion of credit card issuers' and (iii) roll over of delinquent credit card loans.
- In 2005 a credit card debt crisis affected *Taiwan Province of China* with NPLs for cash cards peaking at about 8 percent in 2006 from 2 percent in 2005. To restructure the credit card debt, the authorities offered better repayment terms covering thirty percent of the outstanding credit card loan balances.
- The sub-primes mortgage crisis increased the numbers of foreclosures from 2.7 million in the precrisis period (2003-06) to 7.8 million (2007-10) in the *United States*. The U.S. administration launched five programs (see Barr et al. 2020) to implement mortgage modification and refinancing. Prior to the failure of Lehman Brothers key element of the restructuring included: delay or limit interest payments; reduction of principal payments; write-downs of mortgage principal for eligible borrowers. Post Lehman, the loan-to-value ceiling was raised allowing hard hit borrowers to refinance their loans; further principal write-downs to address negative equity; and mortgage payments deferments to 12 months for unemployed persons.
- In 2008, the *United Kingdom* launched a program to support homeowners affected by home foreclosures. Hard hit homeowners could defer a portion of their payments up to 2 years. In addition, borrowers with mortgage balances up to £400,000 and with savings lower than £16,000 were eligible to pay their principal only when their economic conditions improve. The U.K. Treasury guaranteed the differed interest payments for banks participating in the program.

Table 1. Thailand: Financial Sector Support Measures to Mitigate the Impact of COVID-19

	2020	2021
Support measures for business	<p>April-October 2020</p> <p>Broad-based debt payment holiday schemes for SME borrowers. Credit line with each financial institution no more than 100 million baht if loan not yet classified as NPL as of 31 December 2019.</p> <p>BOT soft loan schemes of 500 billion baht for financial institutions to lend to SMEs with interest up to 2 percent per year.</p> <p>GSB soft loan guarantee schemes of 150 billion baht with a maximum of 2 percent interest per year.</p> <p>TCG's credit guarantee schemes of 150 billion baht.</p> <p>August 2020</p> <p>DR BIZ project to facilitate multi-creditor debt restructuring process</p> <p>October 2020</p> <p>Targeted measure for SME with credit line with each financial institutions no more than 100 million baht after the broad-based debt payment holiday expired:</p> <ul style="list-style-type: none"> • Enable financial institutions to freeze loan classification status for borrowers who are in the process of debt restructuring negotiation until the end of 2020. • Enable financial institutions to provide debt payment holiday schemes and freeze loan classification status for borrowers who are still severely affected and unable to clearly assess cash flows until the end of June 2021. <p>BOT soft loan: Extending the application period, modifying eligibility criteria to cover listed firms in Market for Alternative Investment (MAI), additional TCG credit guarantee from year 3 onwards under the Soft Loan Plus project (of 57 billion baht).</p> <p>GSB soft loan: Targeting SMEs in business sectors which take longer-than-expected time to recover, such as tourism-related businesses, under the existing budget of GSB soft loan schemes.</p>	<p>February 2021</p> <p>The Cabinet approved a THB 50 billion soft loan program (available until June 30, 2021, through SFIs) to provide low-interest rate loans for up to 3 years to informal workers and SMEs linked to the tourism sector.</p> <p>April 2021</p> <p>Two new measures designed to support and transform viable businesses for the post COVID-19 world. These measures include the special loan facility for business with credit guarantee scheme (totaling 250 billion baht) and debt restructuring through asset warehousing (totaling 100 billion baht) with buy-back options.</p> <p>June 2021</p> <p>Targeted debt payment holiday schemes and freeze loan classification status.</p> <p>August 2021</p> <p>Revise special loan measures to support SMEs affected by the COVID-19 pandemic to provide accessibility for debtors with higher risk.</p> <p>October 2021</p> <p>TCG's credit guarantee schemes of 175 billion baht.</p>
Support measures for households	<p>February 2020</p> <p>Debt Clinic extended to cover decided legal cases (pre-litigation).</p> <p>March 2020</p> <p>Introducing broad-based minimum assistance to ease debt repayment burden for retail borrowers, such as reduction of minimum payment rate or conversion to term loan for credit card and personal loans.</p>	<p>September 2021</p> <p>Additional measures to support households affected by the COVID-19 pandemic. The measures such as the reduction of minimum monthly repayment for credit card, increasing the credit limit on credit card and personal loans, the extension of credit limit and repayment period of digital personal loans and assisting debtors through long-term debt restructuring.</p>

Table 1. Thailand: Financial Sector Support Measures to Mitigate the Impact of COVID-19 (Concluded)

	<p>April 2020 Debt Exit Fastlane is an online platform developed in response to the COVID-19 pandemic. Retail and SME debtors in any status can submit a request for debt-related assistance, which will be sent to relevant lenders for consideration. Debtors who previously received impractical repayment schemes may also re-apply.</p> <p>June 2020 Extending coverage and duration of support measures for borrowers still being affected by COVID-19 and offering a wide range of minimum debt relief measures for borrowers to choose, as well as increasing credit line ceiling for credit card and personal loans for borrowers having good credit record.</p> <p>August 2020 Debt consolidation schemes to support borrowers having multiple loans within the same financial institution.</p>	<p>Debt Clinic</p> <ul style="list-style-type: none"> • Qualification adjustment is on-going to broaden the potential customer pool. At present NPLs before 1 April 2022 may apply. • The program is proposing scheme choices, among key improvement initiatives to attract more lenders and borrowers. <p>Debt Exit Fastlane To improve assistance to borrowers, since January 2022, the online platform has also provided linkage to the Multi-creditor Facility for SMEs (previously DR BIZ), and Debt Doctor facility.</p> <p>Online Debt Mediation Events</p> <ul style="list-style-type: none"> • In 2021 the BOT, in collaboration with some retail-debt lenders, launched 2 online debt mediation events to assist the borrowers affected by the COVID-19 pandemic. • Debtors were able to submit requests to their participating lenders via the BOT. • The restructuring schemes were pre-agreed in principle between the lenders and the BOT to ensure a level of minimum assistance. <p>November 2021 Refining Debt consolidation schemes by expanding the scope of debt consolidation measures to enable debt consolidation across different financial institutions.</p>
<p>Support measures for financial institutions</p>	<p>May 2020 The BoT reduced the rate of contribution from financial institutions to the FIDF to 0.23 percent of deposit base per annum from 0.46 percent until December 2022.</p> <p>Measures to sustain capital positions of financial institutions:</p> <ul style="list-style-type: none"> (i) Commercial banks were asked to prepare capital management plan and assess their financial positions and performances under stress scenarios (stress test analysis) during 2020-22. (ii) Financial institutions are prohibited to pay dividend more than the dividend payout amount of year 2019 or 50 percent of year 2020 net profit. Premature repurchase of stocks and debentures countable as tier 1 or 2 regulatory capital are also forbidden. (iii) The BOT has eased the eligibility criteria for banks' additional tier 1 and tier 2 regulatory capital to be on par with the international standards. <p>November 2020 The BoT provides guideline for 2020 dividend payment by allowing financial institutions to pay dividends for the year 2020 performance not exceeding previous year payout ratio and 50 percent of net profit of 2020.</p>	<p>October 2021 Temporarily easing of Loan-to-Value (LTV) regulations</p> <p>November 2021 The BoT relaxed the dividend payment policy for 2021 by unwinding the dividend payout limit (not exceeding the previous year payout rate). Financial institutions have been allowed to pay dividends for 2021 performance not exceeding 50 of the net profit of 2021.</p>
<p>Source: Bank of Thailand and Moody's. Note: The table does not include measures to stabilize the financial markets and fiscal measures.</p>		

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