

**ERIA
PUBLICATIONS
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—— The Economic Research Institute for ASEAN and East Asia publishes books, research reports, discussion papers, and policy briefs to share and disseminate its research findings and policy recommendations. These publications cover a wide range of subject matter on deepening economic integration, narrowing development gaps, and sustainable development – the three pillars under which ERIA conducts research.

ERIA is also highly involved in energy-related research. In addition, this is the third year ERIA has been conducting research on healthcare, the environment, and agriculture. The global coronavirus (COVID-19) pandemic remained a key focus of our research activities in fiscal year 2021. ERIA published numerous reports, policy briefs, and discussion papers on its implications for the economy (trade, investment, and fiscal policy), energy, and the environment. ERIA also co-publishes with first-rate global publishers.



In FY2021, ERIA co-published three books with Routledge, one with Springer, and one with Edward Elgar.

ERIA also published the '13th Asia Europe Meeting: Multilateral Cooperation for a Resilient, Sustainable, and Rules-Based Future for ASEM' which was officially launched by H.E. Prak Sokhonn, Deputy Prime Minister and Minister for Foreign Affairs and International Cooperation, Kingdom of Cambodia.

In fiscal year 2021, ERIA produced a total of nine books, 26 research project reports, 62 discussion papers, and seven policy briefs.

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Books



Policy Briefs



Discussion papers



Research
Project Reports





COVID-19

Economic Policies to take Advantage of the Vigorous Private Dynamism in AMS and India during the COVID-19 Crisis

ERIA Policy Brief 2021 No.2

by Keita Oikawa, Yasuyuki Todo, Masahito Ambashi, Fukunari Kimura, Shujiro Urata

The coronavirus disease (COVID-19) pandemic has created unprecedented difficulties for the economies of the Association of Southeast Asian Nations (ASEAN) Member States (AMS) and India. It has provided three types of shocks – negative supply shocks, negative demand shocks, and positive demand shocks – to the AMS and Indian economies.

In this mixed environment of positives and negatives, AMS and India have shown vigorous private dynamism in their ability to recover from the COVID-19 pandemic downturn and advance to a growth path. To take advantage of private dynamics, firstly, the labour market should be flexible enough so that firms may employ the necessary workers and use the COVID-19 shock to improve their businesses. Secondly, encouraging firms to invest in digital technology to enhance supply chain resilience is necessary in order to maintain and increase regional industrial competitiveness during and after the COVID-19 pandemic.

Lastly, human resources development, in particular strengthening digital skills, is critical. Governments should provide firms, particularly small and medium-sized enterprises, with technical and financial assistance to enhance employees' digital skills through education and training.

The COVID-19 Pandemic, Air Transport Perturbation, and Sector Impacts in ASEAN Plus Five: A Multiregional Input–Output Inoperability Analysis

ERIA Discussion Paper No. 368

by *Tamat Sarmidi, Norlin Khalid, Muhamad Rias K. V. Zainuddin, Sufian Jusoh*

This study simulates the sector impacts of demand-side perturbations on air transport sectors due to the COVID-19 pandemic, focusing on ASEAN members plus Australia, China, Japan, the Republic of Korea, and New Zealand. This study involves (i) the generation of a multiregional input–output table from the latest Global Trade Analysis Project data, (ii) a network analysis to determine the importance of the air transport industry in each country, (iii) multiplier and linkages analyses, (iv) determinations of sector impacts from demand-side perturbations on air transport sectors due to the COVID-19 pandemic, and (v) simulation of the effect of fiscal and monetary measures to mitigate the pandemic's impact.

This study demonstrates that the aviation industry is a key sector in domestic and regional economic activities, and the reduction in air transport consumer demand due to the pandemic is estimated to cause gross domestic product (GDP) reductions from 0.4% to 2.1%. Government intervention, through fiscal and monetary policies, has, however, mitigated severe impact, moderating GDP and value-added losses. Thus, a viable policy prescription for the aviation industry is of utmost importance.

COVID-19 and Services Trade in ASEAN+6: Implications and Estimates from Structural Gravity

ERIA Discussion Paper No. 369

by Anirudh Shingal

Given the importance of services for economic activity in general and the salience of reducing service link costs for overcoming the economic and health challenges emanating from COVID-19, we examine the implications of the pandemic for services trade in the original group of ASEAN+6 countries that began negotiating the Regional Comprehensive Economic Partnership agreement.

Our analysis reveals that with the exception of the Philippines and Viet Nam for services exports, and Cambodia and India for services imports, up to half of total services trade for all other sample countries could be adversely affected by the pandemic. In the absence of bilateral services trade data for 2020, we proxy the impact of COVID-19 on services trade using bilateral data on announced greenfield investment in services sectors from fDi Markets. Structural gravity estimates suggest that a 1% increase in COVID-19-related deaths in the source country may have reduced ASEAN+6 bilateral greenfield investment by US\$0.15 million in 2020 relative to the corresponding value in 2019.



The Effect of the COVID-19 Pandemic on Global Production Sharing in East Asia

ERIA Discussion Paper No. 370

by Archanun Kohpaiboon, Juthathip Jongwanich

This paper examines the effect of the COVID-19 pandemic on global production sharing in ASEAN Member States. Product-level analysis – on hard disk drives, air conditioners, microwaves, televisions, washing machines, and automotive parts – is undertaken to examine trade patterns between January 2019 and October/November 2020. The key finding suggests that the pandemic caused parts shortages, but this effect has been short-lived. There is no strong evidence that multi-national enterprises have altered their supply chains or means of sourcing parts and components in response to the pandemic. There is some indication that multi-national enterprises are moving away from China, but whether this reflects a ‘COVID-19 effect’ or the trade war between the United States and China is not clear. COVID-19, a once-in-a-century event, may not alone be a compelling reason to restructure supply chain management relating to global production sharing, which has been a structural phenomenon driving economic globalisation.



COVID-19 and Socio-Economic Inequalities in Indonesia: A Subnational-level Analysis

ERIA Discussion Paper No. 371

by Aloysius Gunadi Brata, Eusebius Pantja Pramudya, Esther Sri Astuti, Heffi Christya Rahayu, Heronimus Heron

This study examines if COVID-19 has worsened socio-economic inequalities across provinces in Indonesia, and if it has affected the spatial disparity in provincial-level socio-economic indicators. Secondary provincial-level data are used from BPS for March 2015 to March 2020. Results indicate that provinces with more COVID-19 cases tend to have increased inequality in urban areas, but inequality in rural areas decreases, as measured by the Gini Index. Also, provinces with many COVID-19 cases tend to have a decrease in their poverty headcount ratios. Thus, COVID-19 may have various implications on the spatial inequality of the Gini Index and poverty headcount ratio.

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Facilitating Trade in Pharmaceuticals: A Response to the COVID-19 Pandemic

ERIA Discussion Paper No. 372

by Ben Shepherd

This paper reviews trade in pharmaceutical products, focusing on ASEAN countries. Trade in this sector is of singular policy importance as a result of the COVID-19 pandemic. First, the paper shows that pharmaceuticals are traded within Global Value Chains, which in turn means that international linkages are complex. Second, the paper shows that policy reforms can help boost trade in the sector, which has important human development implications during the pandemic period.

Could the COVID-19 Crisis Affect Remittances and Labour Supply in ASEAN Economies? Macroeconomic Conjectures Based on the SARS Epidemic

ERIA Discussion Paper No. 373

by *Alberto Posso*

Debates on resilience to economic shocks in the ASEAN region focus on what policymakers can do to mitigate negative impacts associated with financial-economic crises. The COVID-19 pandemic has made it clear that the region is also vulnerable to health-economic crises. This study applies a difference-in-difference strategy to data from the 2003 SARS epidemic to shed light on how a global pandemic can affect labour supply and remittances in ASEAN economies. Findings suggest that even a relatively short-lived epidemic can have long-lasting effects on labour supply.



Financial Market Responses to Government COVID-19 Pandemic Interventions: Empirical Evidence from South-East and East Asia

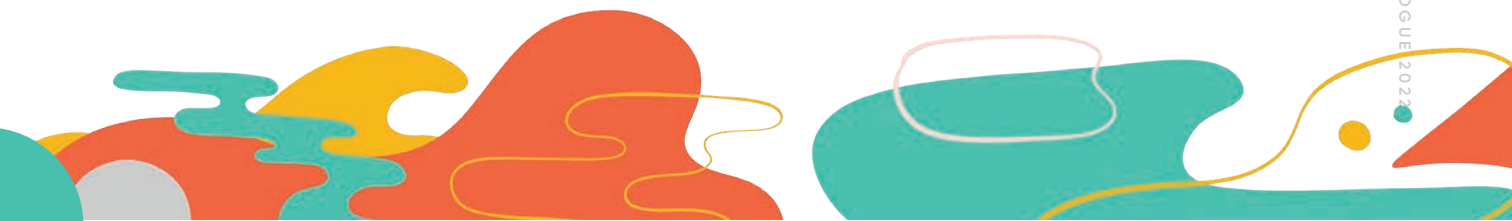
ERIA Discussion Paper No. 374

by Hai Anh La, Riyana Miranti

This study investigates the impact of various government interventions on the spread of COVID-19 as well as stock markets in South-East and East Asia. It finds that stricter interventions – including gathering restrictions, public event cancellations, and mask requirements – helped mitigate the severity of the pandemic significantly in the region.

Total border closures had a moderate effect on flattening COVID-19 spread, especially during the onset of the pandemic.

Other policies, such as school closures or stay-at-home orders, worked effectively later in the pandemic. The study also shows evidence of herding behaviours in regional stock markets during the pandemic. School closures, gathering restrictions, stay-at-home orders, domestic travelling bans, robust testing policies, and government income support programmes tended to reduce herding behaviour. More stock market integration is found during the onset of the pandemic, compared to the periods before and later in the pandemic, implying the short-term impact of a sudden shock from COVID-19.



How ASEAN Can Improve Its Response to the Economic Crisis Generated by the COVID-19 Pandemic: Inputs drawn from a comparative analysis of the ASEAN and EU responses

ERIA Discussion Paper No. 375

by Antonio Fanelli

This paper conducts a comparative review of the evolution of the economic crisis generated by the coronavirus disease (COVID-19) pandemic and the responses enacted by the Association of Southeast Asian Nations (ASEAN) and the European Union. It highlights differences and common elements in the strategic approaches, the intensity of the interventions, and governance structures. In the final section, it identifies short- and medium-term actions, inspired by the comparative analysis, which could contribute to improve the ASEAN response.

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East Asian Production Networks Amidst the COVID-19 Shock

ERIA Discussion Paper No. 377

by Ayako Obashi

In the East Asian context, previous studies showed that trade occurring through production networks remained relatively steady amidst an economic shock and recovered faster and stronger once the shock was over.

Using finely disaggregated product-level monthly bilateral trade data, we examine whether network trade in the East Asian region has been robust and resilient in face

of the COVID-19 crisis, as well as in normal times, by conducting a series of survival analyses. We find a new set of empirical evidence suggesting the robustness of East Asian network trade in normal times and its resilience even amidst the COVID-19 shock.

A 'She-session'? The Impact of COVID-19 on the Labour Market in Thailand

ERIA Discussion Paper No. 378

by Sasiwimon Warunsiri Paweenawat and Lusi Liao

This paper studies the impact of COVID-19 on different demographic groups in the Thai labour market using the Labour Force Survey in 2018 and 2019. We construct a new set of COVID-19 impact indicators capturing both the degree of risk in industries and degree of occupational flexibility in the Thai context. Our results show that the impact of the COVID-19 pandemic is highly unequal across demographic groups and it may further worsen the pre-existing inequality in the Thai labour market as a result of the composition of industrial sectors and occupations.

The results suggest that education attainments and income levels play a significant role in protecting individuals from the current crisis, indicating the important contribution of human capital. In addition, marriage affects men and women differently in the COVID-19 crisis, with married women suffering more. Finally, our study highlights the need for government supports that target vulnerable groups, including workers with low education, informal workers, private employees, older women, and the young, who are more likely to be affected by COVID-19.

COVID-19 Tourism Recovery in the ASEAN and East Asia Region: Asymmetric Patterns and Implications

ERIA Discussion Paper No. 379

by Stathis Polyzos, Anestis Fotiadis, Aristeidis Samitas

The aim of this paper is to produce forecasts for tourism flows and tourism revenue for ASEAN and East Asian countries after the end of the COVID-19 pandemic. By implementing two different machine-learning methodologies (the Long Short Term Memory neural network and the Generalised Additive Model) and using different training data sets, we aim to forecast the recovery patterns for these data series for the first 12 months after the end of crisis. We thus produce a baseline forecast, based on the averages of our different models, as well as a worst- and best-case scenario.

16 We show that recovery is asymmetric across the group of countries in the ASEAN and East Asian region and that recovery in tourism revenue is generally slower than in tourist arrivals. We show significant losses of approximately 48%, persistent after 12 months, for some countries, while others display increases of approximately 40% when compared to pre-crisis levels. Our work aims to quantify the projected drop in tourist arrivals and tourism revenue for ASEAN and East Asian countries over the coming months. The results of the proposed research can be used by policymakers as they determine recovery plans, where tourism will undoubtedly play a very important role.

How Do Sectoral Employment Structures Affect Mobility during the COVID-19 Pandemic?

ERIA Discussion Paper No. 380

by *Donny Pasaribu, Deasy Pane, Yudi Suwarna*

As people's mobility determines the spread of COVID-19 virus, this paper scrutinises factors that drive their mobility responses during the pandemic. Utilising Google mobility data, labour force statistics and daily COVID-19 data, this study finds that mobility changes are induced by various heterogeneous behavioural responses across provinces in Indonesia.

Variations in the pre-pandemic labour structure, people's perception of health risks and local policy settings define the mobility changes. In addition, behavioural responses are larger in the early pandemic phase, indicating the importance of arrangements to manage the situation in the early period.

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Tracking the Ups and Downs in Indonesia's Economic Activity During COVID-19 Using Mobility Index: Evidence from Provinces in Java and Bali

ERIA Discussion Paper No. 385

by *Yose Rizal Damuri, Prabaning Tyas, Haryo Aswicahyono, Lionel Priyadi, Stella Kusumawardhani, Ega Kurnia Yazid*

A timely and reliable prediction of economic activities is crucial in policymaking, especially in the current COVID-19 pandemic situation, which requires real-time

decisions. However, making frequent predictions is challenging due to the substantial delays in releasing aggregate economic data. This study aims to nowcast Indonesia's economic activities during the COVID-19 pandemic using the novel high-frequency Facebook Mobility Index as a predictor. Employing mixed-frequency, mixed-data sampling, and benchmark least-squares models, we expanded the mobility index and used it to track the growth dynamics of the gross regional domestic product of provinces in Java and Bali and performed a bottom-up approach to estimate the aggregated economic growth of the provinces altogether.

Our results suggested that the daily Facebook Mobility Index was a considerably reliable predictor for projecting economic activities on time. All models almost consistently produced reliable directional predictions. Notably, we found the mixed data sampling-autoregressive model to be slightly superior to the other models in terms of overall precision and directional predictive accuracy across observations.

Is the COVID-19 Pandemic Recasting Global Value Chains in East Asia?

ERIA Discussion Paper No. 386

by Nobuaki Yamashita, Kiichiro Fukasaku

This paper assesses how the current COVID-19 pandemic is shaping global value chains in East Asia after the formidable disruptions inflicted by the health crisis. Some have expressed the view that global value chains would readjust and production processes would move home, i.e. reshoring, facilitated by the recent movement of protectionism measures in the post-pandemic world. We evaluate such concerns and examine the role of policy with a focus on non-tariff measures in East Asia.

Domestic Tourism as a Pathway to Revive the Tourism Industry and Business Post the COVID-19 Pandemic

ERIA Discussion Paper No. 392

by Jennifer Chan

This research aims to explore the potential of domestic tourism as a means to revitalise the tourism industry from the perspectives of local residents and tourism players. A quantitative online survey focused on domestic travel behaviour, motivation, places of interest, travel preferences, and willingness to travel within Malaysia; it was answered by 219 Malaysians.

Interview data were collected using structured, open-ended interview questions through emails to eight respondents from tourism associations, five from the hotel sector, and two from the travel and tour sector. Data collection was carried out from 10 January to 15 February 2021. The findings reveal that domestic tourism has the potential to revive the tourism industry. A high percentage of respondents indicated the desire to travel domestically and being motivated by attractive tour packages at discounted prices. COVID-19 has impacted tourist behaviour and attitudes towards travelling, and people prefer to travel domestically rather than overseas.

Furthermore, tourism players acknowledged the potential to revive the tourism industry and business via domestic tourism. Despite this, declarations of health, safety issues, flight availability, travel restrictions, and quarantine durations are key barriers to stimulating domestic tourism and rebuilding the tourism industry.

A Firm-level Analysis of the Impact of the Coronavirus Outbreak in ASEAN

ERIA Discussion Paper No. 397

by Wasim Ahmad, Rishman Jot Kaur Chahal, Shirin Rais

This study examines the impact of the coronavirus pandemic on economic integration in the ASEAN-6 region. The study finds that the pandemic's impact can be easily traced using stringency, bilateral exports, and tourist arrivals, indicating significant implications for the economic integration process. The firm-level analysis suggests that although the coronavirus outbreak's uniformly impacted firms, the extent of the effect varies across ASEAN-6 nations. Large firms are strongly impacted by the pandemic. Overall, the findings of this study are relevant for policymakers and academia.



COVID-19 and Regional Solutions for Mitigating the Risk of Small and Medium-sized Enterprise Finance in ASEAN Member States

ERIA Discussion Paper No. 399

by Farhad Taghizadeh-Hesary, Han Phoumin, Ehsan Rasoulinezhad

One of the significant challenges small and medium-sized enterprises (SMEs) face is their difficulty in accessing finance. One way to reduce the risk of lending to SMEs is through the credit guarantee scheme (CGS).

In this paper, we assess the determining factors of the optimal credit guarantee ratio for the banking industry in four Association of Southeast Asian Nations (ASEAN) countries, namely Indonesia, Singapore, the Philippines, and Malaysia, by employing statistical techniques and econometric models. The empirical findings prove that the loan default ratio (nonperforming loan/loan, or NPL/L) is the optimal credit guarantee ratio's main determining factor.

Our empirical findings confirm that in the ASEAN region, to help SMEs survive in the emergency stage of COVID-19, the credit guarantee ratio needs to be increased. Gradually, when moving to the new normal stage, the ratio needs to be lessened.

Our results show that the credit guarantee ratio should vary for different countries based on the macroeconomic climate and also for each bank or, in other words, for banks with similar financial soundness. Governments should give a higher guarantee ratio to sound banks, whilst less healthy banks should receive a lower guarantee ratio. The study also provides policy recommendations for establishing a regional credit guarantee scheme in ASEAN to promote regional economic cooperation at the SME level for greater economic integration.

Spillover Effects of Social and Economic Interactions on COVID-19 Pandemic Vulnerability Across Indonesia's Regions

ERIA Discussion Paper No. 409

by *Ernawati Pasaribu, Pugh B. Irawan, Tiodora H. Siagian, Ika Yuni Wulansari, Robert Kurniawan*

This research study focuses on measuring the possible spillover effects of socio-economic interactions on COVID-19 pandemic vulnerability across Indonesia's regions by utilising a spatial simultaneous model. The COVID-19 pandemic vulnerability level here is used to indicate the extent to which a region is susceptible to the spreading COVID-19 pandemic, as determined by not only the region's COVID-19 related epidemiological factors but also by its relevant socio-demographic and economic aspects, housing, environmental health, and availability of health facilities.

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High COVID-19 pandemic vulnerability levels were mostly found in districts in Java Island and southern Sumatera, suggesting high population density and mobility in both regions. It was revealed that 31 districts have low COVID-19 risk levels (from epidemiological indicators-related measurements), but they have high COVID-19 vulnerability levels (from epidemiological and socioeconomic indicators-based measurements). Labour productivity was found to have a reciprocal relationship with COVID-19 vulnerability, proving that the COVID-19 pandemic has a significant impact on labour productivity and vice versa. On the other hand, regional independence affects COVID-19 vulnerability, but this does not apply the other way around. Moreover, this study has also proven that COVID-19 pandemic vulnerability levels have socio-economic spillover effects on neighbouring areas in Indonesia.



CONNECTIVITY

13th Asia-Europe Meeting (ASEM) Summit

Edited by Anita Prakash



The Asia-Europe Meeting (ASEM) is a unique cooperation initiative, bringing in scope for transnational cooperation between Partner countries, through regional and sub-regional activities. ASEM is wide enough to accommodate global and inter-continental development priorities. And yet, it localises connectivity amongst Partner countries for economic growth, trade and investment, digital economy, inclusive growth, and sustainable development.

As the shadow of the COVID-19 pandemic holds sway in both Europe and Asia, the hosting of the 13th ASEM Summit (ASEM13) in Cambodia assumes much greater significance as it envisages an inclusive and prosperous growth pathway for the Asia-Europe region, through multilateral cooperation and sustainable development.

The study brings together scholars and practitioners from Asia and Europe who have put forth their academic and

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practical wisdom in their respective chapters, covering the multidimensional nature of Asia–Europe cooperation and connectivity. Partnership for economic growth, trade and investment, digital economy, quality infrastructure, skills development, education, women and youth, labour mobility, sustainable development, multilateralism, and global governance are some of the important themes covered in this study.

The study captures the rich experiences amongst Partner countries that are productive and replicable. It summarises the unique role and vision of Cambodia as the host of the ASEM13, and the need to carry these into the 14th ASEM Summit in Europe. This book fulfils this purpose and establishes a pathway for making ASEM an active, efficient, and influential multilateral platform for cooperation and connectivity between Asia and Europe.

Feasibility Study on the Transmission Highway in ACMECS

ERIA Research Project Report 2021 No. 17

by Shigeru Kimura, Keisuke Ueda

The Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy (ACMECS) currently has varying energy resources, but abundant resources – especially hydropower – are underutilised because ACMECS countries have no existing bulk transmission network covering their entire area. The high-voltage transmission network can bring multiple benefits, including reduced fuel costs of thermal power generation, reduced CO₂ emission, improved electricity access, and the ability to consolidate higher shares of variable renewable energy.

For this report, a cost–benefit analysis on utilising high-voltage cross-border interconnections for power trade in ACMECS was carried out. The study was conducted with the support of experts from Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam, who shared relevant data. Following the outcome of this study, ACMECS countries need to continue exploring how they move the regional grid towards a more accessible, affordable, and sustainable future power sector through the transmission highway concept.



Maritime Policy and Eastern Indonesia Development

ERIA Research Project Report 2021 No. 24

by Fauziah Zen, M. Halley Yudhistira

President Joko Widodo launched a Maritime Highway program (tol laut) in 2015 to reduce price gaps between the east and west regions of Indonesia. The impact of this program is positive but partial. It has decreased the cost of shipping goods, contributed to a downwards trend in the inflation rate in the east, and had a varied impact on decreasing price disparities. This report identifies several contributing factors to that limited impact, namely the exclusion of the whole logistic system into the program, the performance of ports, the design of the routes that are typically too long and hampered by irregular schedules of the shipping, and a less competitive market structure in the east.

Therefore, the suggestions are to modernise ports, reorganise routes and lines, build the capacity, expand the program to general commodities, foster new economic centres in the east, and develop an integrated national logistics system prioritising the maritime sector.

Feeling the Pulse of Global Value Chains: Air Cargo and COVID-19

ERIA Discussion Paper No. 390

by Christopher Findlay, Hein Roelfsema, Niall Van De Wouw

This paper focuses on air cargo market development, with special attention to the connections between countries in Asia, the European Union, and the United States. Before the coronavirus disease (COVID-19) crisis, we show that participation in global value chains played a crucial role in how countries in Asia increased their exposure to the European Union market, which was hit hardest by the COVID-19 crisis.

Analysing the effects of the crisis in 2020- using a fuzzy set complexity approach and recent high-frequency data on air cargo transport - we show that such demand effects, together with domestic contraction conditions, explain a large share of variation in air cargo dynamics across countries in Asia. However, we also show that implementing best practices in pandemic control positively impacts air cargo recovery for countries that cannot rely on export market rebounds.

After reviewing the convergence in air cargo business models since 2010, the paper continues to assess recovery options. The main conclusion is that business models will converge on long haul point-to-point models that combine passengers and cargo, moving away from the current hub and spoke system.

Aviation Market Development in the New Normal Post the COVID-19 Pandemic: An Analysis of Air Connectivity and Business Travel

ERIA Discussion Paper No. 400

by Xiaowen Fu, David A. Hensher, Nicole T. T. Chen, Junbiao Su

This study quantifies the effects introduced by the COVID-19 pandemic on air connectivity and passenger travel behaviour. Our analysis suggests that the pandemic has led to significant connectivity loss at all airports, especially at large hubs and tourism destinations. Low-cost carriers' operations at these airports, whose main targets are price-sensitive, non-business travellers, have been significantly reduced, too.

There is preliminary evidence that network carriers at hub airports played more important roles amid the pandemic, likely due to the benefits associated with their hub-and-spoke networks. Connectivity losses at the smallest airports tended to be temporary and limited. These airports had limited aviation services to start with and, thus, it was not too costly to maintain the minimum connectivity.

Empirical results obtained from a passenger preference study indicate that traveller subgroups are impacted in different ways. When there is no online meeting option, nearly 80% of the respondents prefer, and are willing to pay for, pandemic control measures. These 'pro-control' passengers perceive such measures and the associated high costs/fares as valuable and necessary to lower the health-related risks during air travel. When there is an online meeting option, the share of such passengers decreases to 44.5%, with the remaining 55.5% exhibiting disutility for the increased price and time associated with pandemic control measures. The average willingness-to-pay for pandemic control measures decreases significantly, whereas the value of time saved at health checkpoints increases significantly.

The aviation industry thus faces a 'double-hit' problem: operation costs will increase due to pandemic control measures, and the resultant inconvenience and extra time and costs further reduce travel demand. Unlike previous short pandemics, business travel is likely to suffer with an extended decline until the pandemic is fully controlled.

These results call for financial and operational support for aviation services, especially at major airports and tourism destinations. Because these large airports are expected to be profitable post the pandemic, they may resort to low-cost finance from the capital market in the short term. Because the value of time saved at checkpoints is very high, it is more important for government agencies to make the pandemic control and health measures efficient and smooth. For operations such as vaccination records, stakeholders in different countries should cooperate to facilitate seamless control and pleasant air travel experiences.

COVID-19, Air Transportation, and International Trade in the ASEAN+5 Region

ERIA Discussion Paper No. 401

by Anming Zhang, Xiaoqian Sun, Sebastian Wandelt, Yahua Zhang, Shiteng Su, Ronghua Shen

This paper provides an in-depth description of the coronavirus disease (COVID-19) pandemic and its interactions with air transportation in the Association of Southeast Asian Nations (ASEAN)+5 region, and then links the changes in air connectivity to trade using a gravity regression model. We find that almost all the countries probably reacted too late in their decision to reduce flights in the early stage of the pandemic. As the pandemic evolved, most countries have significantly cut the number of flight connections, especially international flights.

The reduced connectivity is found to have a significantly negative impact on trade for time-sensitive merchandise that is essential to consumers and businesses. This points to the importance of the region seeking alternative arrangements to restore air connectivity. We offer a way to construct optimal travel bubbles by using risk indexes introduced here. Other policy issues such as uniform standards and regulations, and regional 'open skies', are also discussed.





ENERGY

Rethinking Asia's Low-Carbon Growth in the Post-COVID World: Towards a Net-Zero Economy

Edited by Venkatachalam Anbumozhi, Kaliappa Kalirajan, Xianbin Yao



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Asia's historical development is at a crossroads. Twenty months into the coronavirus pandemic, the cumulative economic and financial impacts are estimated to be much worse than those of the 1997 Asian economic crisis and the 2008 global financial crisis. Governments across ASEAN and East Asia have deployed a significant amount of emergency capital in their response to the pandemic, with an initial focus on protecting livelihoods. As countries move towards long-term deep decarbonisation and a circular Net Zero economy, recovery from the pandemic has offered a rare opportunity to realign energy, innovation, trade, and fiscal policies into macro-economic planning and national budgets towards a new sustainable development paradigm. This book reviews and assesses the low-carbon green growth policies, practices, and economic recovery packages and identifies implementation gaps and new opportunities.



The detailed analyses embedded in the chapters cover a wide range of impact strategies at sectoral level and identify immediate economy-wide actions required to realise the Net Zero future. Based on a review of countries' experiences, this volume concludes that past climate actions have entailed progressive bottom-up, sectoral, low-carbon, green growth initiatives that are relatively fast and easy to implement and that provided incremental co-benefits.

Realising the Net Zero Future by 2050 will require much higher levels of technology absorption, crowding in finance, and strong institution building. It urges public and private actors to harness the potentials of regional cooperation based on market principles, which will reduce the cost of transformation to the Net Zero economy.

Strengthening Emerging Asia's Power Sector

ERIA Research Project Report 2021 No. 2
by The National Bureau of Asian Research

Growth in electricity demand in South and Southeast Asia is amongst the fastest in the world. Yet questions remain about how countries across this region might be able to individually or collectively meet their demand requirements, while also navigating complex economic, environmental, and energy security considerations. Success will largely depend on the ability of countries to address unmet infrastructure, human capacity, and investment needs across the region and leverage existing or new opportunities for collaboration at the national, regional, and international levels. This report explores key challenges and strategic opportunities for strengthening power sector outlooks in South and Southeast Asia. In doing so, it aims to identify potential needs, requirements, and roles for greater US, Japanese, and East Asia Summit engagement.

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Promotion of Electromobility in ASEAN: States, Carmakers, and International Production Networks

ERIA Research Project Report 2021 No. 3
by Martin Schroder, Fusanori Iwasaki, Hideo Kobayashi

This volume seeks to fill the void of scholarly research on electric vehicles (EVs) production and sales in emerging countries besides China by focusing on Association of Southeast Asian Nations (ASEAN) member countries' automotive policies with special attention to EV support. The diversity of ASEAN Member States in terms of population, geographic size, wealth, and industrial development offers the opportunity to highlight

different challenges for countries with differing characteristics in the transition towards electromobility. In the chapters of this volume, the authors assess not only the EV-related issues of individual countries but also highlight country-specific challenges in developing the automotive industry.

Establishment of Energy Statistics Regulation in Lao PDR

ERIA Research Project Report 2021 No. 5

by Ministry of Energy and Mines, Lao PDR, Shigeru Kimura, Han Phoumin

The preparation of the Lao PDR's energy statistics regulation is consistent with the objective of the Ministry of Energy and Mines (MEM) of Lao People's Democratic Republic (Lao PDR), to enhance energy data and statistics to support policy planning and actions for the energy related sectors. In recent years, the Ministry has emphasised the importance of having accurate energy statistics in place to guide the development of energy policy in Lao PDR. Accurate energy statistics are fundamental to establishing appropriate energy policies that can promote energy efficiency and conservation (EEC), deployment of renewable energy, affordable energy supply, maintenance of energy supply security, and investment in clean technologies and clean fuels.



Global Situation of Small Modular Reactor Development and Deployment

ERIA Research Project Report 2021 No. 7

by Tomoko Murakami, Venkatachalam Anbumozhi

Small modular reactors (SMRs) are nuclear fission reactors that are smaller than conventional reactors. They can be manufactured at a plant and brought to a site to be installed. Modular reactors allow for less on-site construction, increased containment efficiency, and enhanced safety due to passive nuclear safety features.

SMRs have been proposed as a way to bypass financial and safety barriers that have inhibited the construction of large conventional nuclear reactors in recent decades. This interest in SMRs is driven both by a desire to reduce the impact of capital costs and to provide power away from large grid systems.

This report examines the applicability of SMRs in the context of ASEAN. Since small reactors are envisaged as replacing fossil fuel plants in many advanced countries, it reviews the market conditions and licensing requirements in those countries and the regulatory and safety imperatives needed in developing economies of ASEAN for the commercial deployment of SMRs. The report recommends international cooperation between the SMR-producing countries and potential newcomer countries in the fields of nuclear energy planning, conducting feasibility studies, and new low-carbon infrastructure development.

A Study on the Impact of Financing Restrictions on New Coal-Fired Power Plants in the Asian Region

ERIA Research Project Report 2021 No. 10

by Tetsuo Morikawa, Shigeru Kimura, Han Phoumin

The study on financial restrictions on coal-fired power is timely and of crucial importance for providing Asia's leaders with a view of how to support ASEAN's energy transition in line with a global trend of addressing climate change, and while coal still plays a significant role in the power mix.

Countries in Asia will see CO₂ emissions continue to rise in the foreseeable future as coal remains in use for energy security in the region. Without coal power, there would be a huge increase in gas demand that the world liquefied natural gas (LNG) system could not absorb. It is important, therefore, that the countries of the Asian region balance economic efficiency, energy access, energy security, and the environment in their respective energy policies. Relatively developed countries like Malaysia and Thailand are on a track towards lower dependency on coal. But India, Indonesia, Myanmar, the Philippines, and Viet Nam still need low-cost electricity like coal-fired power generation to support economic growth.

Therefore, financing of efficient ultra-supercritical (USC) coal power plants and clean coal technologies like integrated coal gasification combined cycle (IGCC) should continue, but less efficient plants should be excluded from coal financing. The remaining emissions should be tackled by carbon capture, utilisation, and storage (CCUS) in the context of Asia's energy transition towards carbon neutrality.

The Economics and Risks of Power Systems with High Shares of Renewable Energies

ERIA Research Project Report 2021 No. 13

by Matsuo Yuji, Alloysius Joko Purwanto

Using a mathematical model, this study examines the possibility and risks of realising high shares of variable renewable energies (VRE) through the planned extension of power grid interconnection in Southeast Asia. It arrives at three main conclusions. First, VRE will be diffused in the region only if people accept strong policy measures to combat climate change, such as feed-in tariff systems. Second, the currently planned grid interconnection expansion would increase power trade in the region, work as massive regional batteries, and help maximise the use of unevenly distributed hydropower resources. Third, the optimal energy mix may change with explicit consideration of higher fossil fuel prices, the health effects of fossil fuels, and economic development levels.

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Technical Guidelines for Energy Efficiency and Conservation in Commercial Buildings

ERIA Research Project Report 2021 No. 14

by Shigeru Kimura, Leong Siew Meng

Energy efficiency and conservation (EEC) is a top priority energy policy in ASEAN Members States to achieve a low-carbon energy transition. Promotion of EEC is really a technology-oriented programme under appropriate EEC acts or law formulated by governments; thus, this report introduces EEC technologies that consist of passive and active technologies for commercial buildings which have been significantly increasing

their share of energy consumption, especially electricity. Regarding EEC regulatory requirements, this report provides a guide on 'energy standard and labeling systems' for building energy performance and benchmarking. As promotion of EEC is bound to result in economic benefits under market energy prices, economic evaluation methods are also introduced in the report.

A Flexible LNG Market and Promotion of Investment

ERIA Research Project Report 2021 No. 15

by Hiroshi Hashimoto, Fangchia Lee

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The global LNG market has seen fast growth over the past 10 years, underpinned by strong demand in Asia and abundant supply from the United States and Australia. However, several issues and challenges also emerged along the growing path, such as obstacles in terms of infrastructure and pricing, and pressure from decarbonisation. To sustain the development of the LNG market and further accelerate the use of LNG in Asia, this report identifies the challenges and proposes policy recommendations for paving the way to a flexible LNG market in the ASEAN region.



Analysis of Future Mobility Fuel Scenarios Considering the Sustainable Use of Biofuels and Other Alternative Vehicle Fuels in EAS Countries

ERIA Research Project Report 2021 No. 18

by Shinichirou Morimoto, Shabbir Gheewala, Nuwong Chollacoop, Venkatachalam Anbumozhi

Greater efforts than ever before are now being made to decarbonise the transport sectors in the ASEAN and East Asia Summit countries. With a quarter of total carbon dioxide emissions coming from transport energy use, there are roughly three options to reduce emissions – reducing transport energy demand, improving vehicle fuel efficiency, and replacing mobility fuel with low-carbon approaches such as use of biofuel and electricity.

This report analyses the future scenario of mobility in selected East Asia Summit countries, which strongly contributes to the Sustainable Development Goals (SDGs) in consideration of the necessary balance to be achieved between transport sector CO₂ reduction, biofuel use, and mineral resources demand stimulated by electrification of vehicles. The policies and strategies for biofuels and mobility electrification were examined along with documenting the existing research on sustainable use of biofuels.

Databases were created to evaluate the availability of mineral resources such as neodymium and cobalt as well as the carbon emission reduction potentials of biofuel in India, Indonesia, the Philippines, Malaysia, and Thailand.

Hydrogen Sourced from Renewables and Clean Energy: A Feasibility Study of Achieving Large-scale Demonstration

ERIA Research Project Report 2021 No. 19

by Yanfei Li, Han Phoumin, Shigeru Kimura

China is emerging as one of the leading markets for hydrogen energy and fuel cell technologies. However, it is surprising to find that most of the demonstration projects of fuel cell electric vehicles in the country are actually running on the supply of hydrogen from fossil fuel sources. Feasibility studies and implementation plan studies are thus called for to help accelerate the development of large-scale green or clean hydrogen energy demonstration. The study consisted of sub-projects covering technical, economic, financial, institutional, regulatory, and policy issues related to enabling large-scale hydrogen energy demonstration projects in China. Feasibility studies of the selected demonstration projects were also conducted in collaboration with several industrial and academic entities. Findings from the above-mentioned sub-projects provide a basis for discussion to identify the key barriers as well as proper solutions, together with an agenda for actions necessary to realise the selected demonstration projects. The sub-projects were conducted by a working group made up of experts from both academia and industry, such as the Institute of Energy Economics, Japan (IEEJ), China Hydrogen Alliance (CHA), University of Technology Sydney, Huazhong University of Science and Technology, Foshan University of Science and Technology, Dalian University of Technology, Grantham Institute of Imperial College London, Tokai University, Japan, Singapore University of Social Sciences, Green World Low-carbon Economy & Technology Center, China, China Energy Engineering Group Co. Ltd (CEEC), and Foshan Institute of Environment and Energy, China.

Cambodia Petroleum Master Plan 2022-2040

ERIA Research Project Report 2021 No. 21

by Ministry of Mines and Energy, Cambodia, Han Phoumin, Shigeru Kimura

Cambodia saw fast-growing demand for petroleum, especially oil, which had the highest share of total primary energy supply, in 2018 (42%). As a result, the oil supply rose at an average of 6% per year from 2010–2018. From 2017 to 2018 growth in demand for petroleum was nearly 10%, indicative of a rapid increase in oil transport demand (gasoline and diesel oil). Currently, all petroleum products are imported, and most are shipped by tankers from Thailand, Singapore, and Viet Nam. However, LPG can be imported by tanker-trucks from Thailand and Viet Nam, so the import route is different from gasoline and diesel oil. As petroleum demand is expected to grow to meet end-use demand, the transportation routes, receiving terminals, and distribution terminals of petroleum products must be adequately studied and assessed to ensure efficient logistics costs in Cambodia's petroleum supply chain. The Ministry of Mines and Energy (MME) of Cambodia realises the need for a properly designed Petroleum Master Plan for the country to understand the entire petroleum supply chain in terms of logistics, storage, and distribution.

Public Attitudes Towards Energy Policy and Sustainable Development in ASEAN Countries

ERIA Research Project Report 2021 No. 22

by Hisashi Yoshikawa

To further encourage the diffusion of Renewable Energy (RE) in ASEAN countries, a certain level of policy support is needed based on the extent to which citizens

accept the cost burden. This study examines the willingness to pay (WTP) for RE and electric mobility in ASEAN countries, using discrete choice experiments (DCEs) and the contingency valuation method (CVM). It targets Malaysia, the Philippines, Thailand, and Viet Nam.

Respondents preferred higher RE shares, and the RE share coefficients in all three cities were positive and significant at the 1% level. The WTP for RE is only a few percent in most cases, and the highest value is about 20% for solar in the Philippines. The WTP corresponds to recognition and evaluation, with a higher price for solar PV and a lower price for biomass energy. Consumer preferences for sustainable transportation were explored by estimating the WTP for electric motorcycles in Viet Nam.

Study on the Potential for Promoting Carbon Dioxide Capture, Utilisation, and Storage (CCUS) in ASEAN Countries Vol. II

ERIA Research Project Report 2021 No. 25

by Shigeru Kimura, Kikuko Shinchi, Ulysses Coulmas, Ayami Saimura

This report was prepared under the Asia CCUS Network umbrella and focuses on the cost of Carbon Capture and Storage (CCS) and the legal framework of CCUS. To analyse the cost of CCS, we use a model case in central Java, Indonesia with the following assumptions: a) capture of CO₂ emitted from a 500MW coal power plant (ultra-supercritical) applying chemical absorption using amine, b) transport of CO₂ to the storage site through a 50km long pipeline, and c) storage of CO₂ in sandstone formation of about 1000m. Costs of capture, transport, and storage – both capital and operation costs – are surveyed referring to existing publicly available literature.

The cost of this model case is estimated at US\$60–US\$70 per CO₂ ton and 70% of the cost results from the capture of CO₂. The legal framework emphasises that deployment of CCUS will be implemented under appropriate regulations. Hence, surveys of the existing CCS regulations of European countries, Australia, and the United States are undertaken to come up with appropriate CCUS regulations for the Asia region.

Finally, as an important regional policy framework, this report suggests an Asia Collective CCUS Initiative to start design of a business model of the CCUS value chain in the Asia region.

Assessment of Electric Vehicle Penetration in the Lao People's Democratic Republic

ERIA Research Project Report 2021 No. 26

by Shigeru Kimura, Alloysius Joko Purwanto, Keisuke Ueda, Takahisa Hiruma, Alloysius Joko Purwanto, Keisuke Ueda, Takahisa Hiruma

This report analyses the impacts of shifting from internal combustion engine to electric vehicles (EVs) in the Lao PDR. First, shifting to EVs will reduce total final energy consumption in the country. Second, the additional electric power needed due to the penetration of EVs would come from domestic hydro or coal-fired power generation. Third, the decline of gasoline and diesel fuel use and import caused by the shift to EVs should increase the country's gross domestic product (GDP). Total CO₂ emissions would be reduced if the maximum rate of coal-fired power generation is kept below 50%. Finally, oil companies would experience a drop in revenue whereas the electricity sector would see an increase in investment and employment.

The study highlights the important roles of government support in the penetration of EVs with the assistance of the international community, the defined penetration targets of EV charging stations, energy saving, CO2 reduction, energy supply security, GDP growth, and the role of domestic and foreign investment in the EVs and power sectors.

Impacts of COVID-19 on the Energy Demand Situation of East Asia Summit Countries

ERIA Discussion Paper No. 389

by Shigeru Kimura, Ikarii Ryohei, Endo Seiya

The coronavirus disease (COVID-19) pandemic has brought us a 'New Normal' life style and the lockdown has severely harmed economic growth, with many countries estimated to record negative economic growth in 2020. Due to the high correlation between energy demand and economic growth, energy demand is also affected. Against this background, ERIA analyses how energy demand has decreased as a result of the COVID-19 pandemic using East Asia Summit (EAS) energy outlook models that are regularly updated by ERIA and apply an econometric approach.

The outlook models cover the Association of Southeast Asian Nations (ASEAN) 10 countries plus seven countries – Australia, China, India, Japan, Republic of Korea, New Zealand, and the United States. According to gross domestic product (GDP) growth estimates for EAS countries in 2020, only three countries – China, Lao PDR, and Viet Nam – show positive growth, though less than 2%, and the others show negative growth. Total Final Energy Consumption (TFEC) of the EAS countries fell in 2020, but it is expected to rebound in 2021 and projected to return to the originally forecast trend of energy demand up to 2050. Once official energy statistics become available, a comparison between model results and actual statistics will be made to understand how the energy outlook models trace the impact of the pandemic on energy demand.



EDUCATION, TRAINING, AND HUMAN CAPITAL

Social Enterprises and Disability: Promoting Inclusion, Innovation, and Entrepreneurship in ASEAN

ERIA Policy Brief 2021 no.6

by Nicola Crosta, Allison Sanders, Giulia Ajmone Marsan, Lina Maulidina Sabrina

This policy brief highlights the role of social enterprises in promoting social impact and inclusion for people with disabilities in the Association of Southeast Asian Nations (ASEAN) region. It explains how the disproportionate number of people with disabilities are still lagging behind in society and how social enterprises can foster innovation for promoting disability inclusion and rights. Despite the benefits that social enterprises offer, some existing challenges remain to expand their social and economic mission. This calls for a framework of action involving multiple stakeholders. This policy brief is based on the Economic Research Institute for ASEAN and East Asia research project report, 'Social Enterprises and Disability: Fostering Innovation, Awareness, and Social Impact in the ASEAN Region'.

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Understanding Relevant Sustainable Development Goal Targets Related to Labour Migration in the Association of Southeast Asian Nations During the Coronavirus Disease Pandemic

ERIA Research Project Report 2021 no. 4

by Shivakumar Srinivas, Satya Sivaraman

Over the past 2 decades, regional labour migration has emerged as a significant driver of economic growth and development in countries of origin and destination within the Association of Southeast Asian Nations. However, the coronavirus disease (COVID-19) pandemic is disproportionately affecting migrant workers, who constitute one of

the most vulnerable populations in the region. Economic downturns, restrictions on recruitment and travel, and lack of access to social welfare systems are having a severe impact. Even before the pandemic, most of the region's roughly 9.9 million international migrant workers had unstable wages; poor work conditions; and limited or no access to social welfare systems, health care, human rights, or options for upward mobility.

This publication explores the potential impacts of the COVID-19 pandemic on regional migrant workers, using the Sustainable Development Goals as a benchmark. First, we examine the status of social protection and welfare systems in origin and destination countries in the Association of Southeast Asian Nations in the context of regional labour migration. Then, we track the progress of various indicators before and after the COVID-19 crisis to gauge the pandemic's potential impact on migrant workers. We find that in the short term, Sustainable Development Goal targets may not be met. However, if governments learn the right lessons, compliance with different treaties and guidelines on migrant workers can be improved and resources targeted more efficiently. We conclude that the pandemic should be seen as an opportunity to further reinforce regional cooperation on migrant labour standards.

Social Enterprises and Disability: Fostering Innovation, Awareness, and Social Impact in the ASEAN Region

ERIA Research Project Report 2021 no. 12

by Nicola Crosta, Allison Sanders

In 2021, the Economic Research Institute for ASEAN and East Asia (ERIA) – together with Impact46, a social impact consulting, conducted a study on Social Enterprises and Disability. This study aims to analyse the role of social enterprises as key actors to foster innovation, awareness, and inclusion for people with disability in the ASEAN region. It brings together the perspectives of various social enterprises across the ASEAN region.

This study summarises the key findings and provides policy recommendations for relevant stakeholders to contribute to a fully inclusive socio-economic development in ASEAN.

Education for All? Assessing the Impact of Socio-economic Disparity on Learning Engagement During the COVID-19 Pandemic in Indonesia

ERIA Discussion Paper no. 408

by Samuel Nursamsu, Wisnu Harto Adiwijoyo, Anissa Rahmawati

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This paper attempts to shed light on the impact of socio-economic disparity on learning engagement during the COVID-19 pandemic in Indonesia. Utilising search intensity data from Google Trends, school data from Dapodik (Education Core Database), and socio-economic data from the National Socioeconomic Survey, we conduct descriptive analysis, an event study, and difference-in-difference estimations. First, school quality differs in terms of the regions' development level, especially between western and eastern Indonesia. However, densely populated and well-developed areas generally have lower offline classroom availability.

In addition, the quality of public schools is generally lower than private schools. Second, our estimation results show that only online-classroom related search intensity that increased significantly after school closures on 16 March 2020, not in self-learning related search intensity. Further the analysis shows that socio-economic disparity within provinces widens the gap in online learning engagement, albeit with weak evidence from per capita expenditure. Interestingly, provinces with a higher inequality and rural population tend to have higher self-learning related search intensity due to students' necessity to compensate for low learning quality from schools.

In addition, technology adoption does not seem to give much of an increase to online-classroom related search intensity but contributes to lower self-learning related search intensity due to increased academic distraction. Our study provides evidence for the Indonesian government to make more precise policy in improving learning quality during the pandemic.





FINANCE AND MACRO- ECONOMICS

Firms' Financial Distress during the COVID-19 Pandemic and Fiscal Incentives

ERIA Policy Brief 2021 no.7

by Tri Mulyaningsih, Malik Cahyadin, Tamat Sarmidi

The COVID-19 pandemic as an exogenous shock has affected the business sector by disrupting production and shrinking demand due to strict physical distancing. This study aims to measure firms' financial distress during the pandemic and examine the potential impact of fiscal incentives on financial performance in two countries, i.e. Indonesia and Malaysia, which have different fiscal policy incentives. A rich dataset comprising quarterly panel data of publicly traded companies between 2015 and 2020 finds that firms experienced increased financial distress during the pandemic. Moreover, despite government interventions to ease corporate tax burdens, companies still rely on debt to support their operations due to a lack of internal financing from retained earnings.

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Central Banks' Responses to COVID-19 in ASEAN Economies

ERIA Discussion Paper no. 398

by Charan Singh, Pabitra Kumar Jena

The effect of the COVID-19 pandemic on public health, social life, economic conditions, and financial markets has been significant for Association of Southeast Asian Nations (ASEAN) economies. The main objective of this study is to understand the response of central banks to COVID-19 in 10 ASEAN economies, i.e., Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam.

In this study, panel data as well as time-series data have been used to see the impact of COVID-19 on macroeconomic variables and financial variables. The period of the study ranges from 23 January 2020 to 11 December 2020.

The first part of the study shows the trend analysis of macroeconomic variables of ASEAN economies and a descriptive analysis of various measures taken by the central banks of ASEAN economics. Further, a comparative analysis of monetary measures with advanced countries is depicted. Further, empirical findings of ARCH and GARCH indicate that recent as well as past COVID-19 news has a significant impact on stock market volatility in select ASEAN countries.

The Global Economic Impact of the COVID-19 Pandemic: The Second Wave and Policy Implications

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ERIA Discussion Paper no. 404

by Gyeong Lyeob Cho, Minsuk Kim, Yun Kyung Kim

This paper examines the macroeconomic impact of the COVID-19 pandemic through the Computable General Equilibrium model. Due to a second wave and a subsequent delay in economic recovery, the pandemic could lead to a permanent shock in capital accumulation and productivity. This implies that the shock may not merely affect the short-term growth rate but also negatively impact the future economic growth path from its pre-pandemic trend. Through simulations, in the mild scenario, countries lose 0.10% to 0.31% of their future economic growth rates; in the severe scenario, they lose 0.21% to 0.69%.

Policy Strategies to Strengthen the Travel and Tourism Sectors from the COVID-19 Pandemic Shocks: A Computable General Equilibrium Model for the Indonesian Economy

ERIA Discussion Paper no. 406

by Irlan Adiyatma Rum

The travel and tourism sectors have become the most vulnerable sectors to the COVID-19 pandemic. Studies have shown that most tourist-destination countries will experience economic shocks due to the pandemic. This study analyses the impact of the COVID-19 pandemic shock and the implications of policies taken by the government to strengthen the travel and tourism sectors. As the largest travel and tourism economy in ASEAN, this study uses Indonesia as a case study. It uses a computable general equilibrium (CGE) model using a detailed national input–output table for the creative sectors. The study develops baseline scenarios (low and lower–middle recovery), general policy scenarios (moderate and highly effective support) and specific policy scenarios for the travel and tourism sectors. Through changes in export demand, the impact of the pandemic depends on the existing conditions and policy interventions.

The pandemic causes the nominal gross domestic product at the national level to decline by an interval of [–1.99%, –2.97%] and for tourism and travel sectors by [–6.81%, –10.38%] depending on the recovery period. If the recovery is low (all annual inbound tourism expenditure is removed), the Indonesian macroeconomy will be worse than under the lower–middle recovery, given the same government intervention. Thus, effectiveness becomes an important factor for creating a better impact. Adding capital stimulus into the tourism sector helps to further reduce output decline in the travel and tourism sectors, but it is not enough to help the economy recover from the pandemic. The best policy strategy is to make sure that the mitigation plan will be implemented effectively.

Implicit Subsidies for Infrastructure and Their Implications for Contingent Liabilities in Selected East Asian Countries

ERIA Discussion Paper no. 427

by Astrid Dita, Sandy Maulana

A government's investment decision for infrastructure development is a form of budget commitment which results in direct liabilities and possible contingent liabilities. The latter is often overlooked when the project preparation is weak where potential risks are insufficiently identified and mitigated and its impact on budget sustainability may worsen in the absence of sound surveillance. Infrastructure projects may thus lead to unmitigated fiscal risk without proper investment decision-making and monitoring framework particularly in the presence of less-than-mature fiscal systems and low public investment management capacity (e.g. as demonstrated by the inability to develop sound project business cases or distinguish project financing from funding issues).

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Projecting Infrastructure Needs and the Financing Mechanism: A Review of Estimations by ADB, McKinsey, and the OECD

ERIA Discussion Paper no. 428

by Fauziah Zen, Michael Regan

How much does a country, a region, and the world need to spend on infrastructure development to fulfil demand? This question has been asked frequently because governments try to see it as a reference for budget allocation and evaluation of development progress. Since infrastructure consists of a wide range of types, qualities, and sizes, it is difficult to come up with a number that represents these variants.

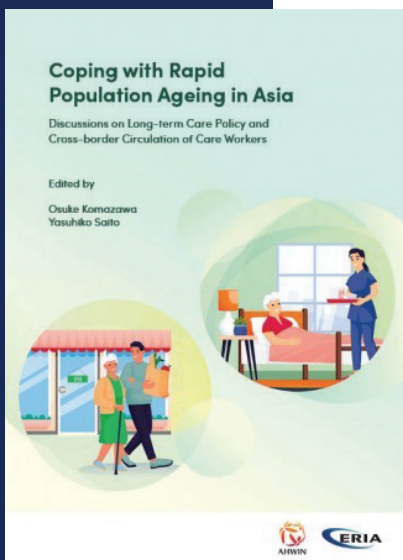
Several widely cited attempts have been made to provide estimations of infrastructure needs. This paper aims to assess the features, scope, methods, and suggested financing mechanism of the projections made by the Asian Development Bank (2017), the Organisation for Economic Co-operation and Development (2017), and the McKinsey Global Institute (2016). It is not meant to focus on the limitations of these projections, but to understand the process used to put these estimates together and the extent to which they provide comparative information.



HEALTHCARE AND AGEING SOCIETY

Coping with Rapid Population Ageing in Asia

by Osuke Komazawa, Yasuhiko Saito



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Can you imagine the life of octogenarians, nonagenarians, or centenarians? It may be difficult if you do not have any limitations on daily activities. But we are much more likely than our ancestors – even our parents or grandparents – to live to such an age. The increase in the number of older adults is accompanied by a rise in the number of people with care needs. How can we cope with the expanding care needs in the era of population ageing?

This book deals with two critical issues that accompany population ageing: long-term care systems (discussed in Part I of the book) and the cross-border movement of long-term care workers (Part II of the book) – focusing on Asia, where the population is ageing at the fastest pace in the world. The book provides basic information that will be useful for further dialogue and international collaboration on improvement of the quality and sustainability of long-term care systems without leaving any older adult behind.

Population Ageing in Thailand

ERIA Research Project Report 2021 no. 6

by Duangjai Lorthanavanich, Narumol Nirathron, Surat Teerakapibal, Nopadol Rompho, Arunee Tanvisuth, Osuke Komazawa

Thailand is one of the fastest-ageing countries in the world. The proportion of the population aged 60 and over is projected to increase from 13% in 2010 to 33% in 2040. The Ageing Business and Care Development Centre (ABCD Centre) of Thammasat University, established in 2019 to recommend policies and guidelines on population ageing, spearheaded this project.

The report consists of five studies focusing on social and business approaches to population ageing: 1) Long-term Care Model in Thailand: Review of Population Ageing Practices and Policies; 2) Informal Workers' Preparedness for Active Ageing: A Case Study of Motorcycle Taxi Drivers in Bangkok; 3) Risk Preference of Ageing Consumers: Evidence from Financial Decisions; 4) Business Start-up Survey for the Healthcare Industry; and 5) Market for Products and Services Targeting Older People in Thailand.

Several methods were employed in this study from literature reviews to field surveys, such as a questionnaire survey, focus group discussions, key informant interviews, etc., to achieve a comprehensive understanding of what is being done in Thailand to cope with rapid population ageing.

Qualifications Framework for Long-term Care Workers in India, Japan, and the Philippines

ERIA Research Project Report 2021 no. 9

by Takeo Ogawa, Osuke Komazawa

Due to a steadily ageing global population, demand for care workers for older people is growing worldwide. In most societies and cultures, older people have traditionally been taken care of by family members, but shrinking family size has been making this difficult and businesses providing care for older people are emerging. Countries with aged populations are increasingly relying on foreign care workers.

This study focuses on a comparison of vocational qualifications frameworks in India, the Philippines, and Japan. It aims to contribute to the promotion of policy dialogue with a view to creating more skilled workers and to establish systems that can fairly recognise their competencies, so that their vocational skills can be much better utilised in any country.



Pioneering Chronic-phase Rehabilitation and Nutritional Management in Cambodia, the Lao People's Democratic Republic, and Viet Nam: Promotion of a Broad-based Healthcare System

ERIA Research Project Report 2021 no. 20

by Masaki Nishio, Mihoko Nakayama, Chika Hamasaki, Osuke Komazawa

The second part of this project focuses on chronic-phase rehabilitation and nutritional management at hospitals in Cambodia, Lao PDR, and Viet Nam in line with the concept of a 'broad-based healthcare system' based on the Asia Health and Wellbeing Initiative of the Government of Japan.

This study shows the potential of chronic-phase rehabilitation and nutritional management as specific strategies for a 'broad-based healthcare system.' In the countries studied it was often difficult to provide sufficient rehabilitation and nutritional support for patients due to staff shortages. Greater human resources are needed to establish a 'broad-based healthcare system', at least in terms of chronic-phase rehabilitation and nutritional development. Considering the diversities in the social, cultural, and political backgrounds of the countries covered in this study, it is important to gain a deep understanding of the real needs for the services, as presented in this project, to promote a 'broad-based healthcare system.' Multilateral cooperation amongst Cambodia, Japan, the Lao PDR, and Viet Nam has great potential to achieve the development of reliable and affordable healthcare systems. This would be in line with universal health coverage as referred to in the 2030 Agenda for Sustainable Development of the United Nations, through mutual sharing of practices and lessons from different backgrounds. Health for all without leaving anyone behind is indispensable for creating mutually beneficial relationships amongst the countries in the region and indeed for enhancing economic development.

Trauma Care in India and Japan: Current Situation and Future Prospects

ERIA Research Project Report 2021 no. 23

by *Rajesh Malhotra, Yasumitsu Mizobata*

As trauma deaths have increased whereas age-standardised mortality rates have declined, improving trauma care is an issue of crucial importance for both developed and developing countries. The All India Institute of Medical Sciences, the Japanese Association for Acute Medicine, and the Japanese Association for the Surgery of Trauma jointly initiated this project between India and Japan, with as a first phase finding a way of creating benefits and synergies for limiting the social burden that results from trauma deaths.

Through the human exchange programme as part of this project, the members from Japan suggested combining the ideas utilising trauma care techniques and systems to improve its quality in both countries, while the members from India were able to learn about the management systems and programmes relevant to trauma and how to leverage them optimally in India.

These activities resulted in the setting up of intensive communication amongst doctors, nurses, and medical staff to encourage the exchange of ideas and the sharing of experiences. The setting up of training programmes tailored to each country's needs has contributed to improving trauma care in each country.



INDUSTRY & MANUFACTURING

Global Value Chains and COVID-19: An Update on Machinery Production Networks in East Asia

ERIA Policy Brief 2021 no. 4

by Mitsuyo Ando, Kazunobu Hayakawa

Although global value chains (GVCs) are prone to the contagion of shocks through supply chains, machinery international production networks (IPNs), a sophisticated version of GVCs, have proven their robustness and resiliency in past shocks in East Asia. During the coronavirus disease (COVID-19) pandemic, worldwide machinery exports significantly declined in April and May 2020. Compared with the general and electric machinery and precision machinery sectors, the negative effects were by far more serious for the transport equipment sector, particularly in North America and Europe. These exports, however, returned to their pre-pandemic levels by September 2020, showing a rapid V-shape recovery in all three machinery sectors.

Machinery IPNs, particularly those in East Asia, tend to be robust and resilient, with positive demand shocks that partially mitigate negative supply and demand shocks. In 2021, GVCs have faced several challenges, including a shortage of containers and semiconductors as well as the emergence of the delta variant of COVID-19. Although some countries and sectors have faced sporadic declines recently, East Asia has maintained its machinery exports beyond the pre-pandemic levels, at least at the regional level until August 2021, unlike in other regions. Maintaining the active utilisation of GVCs may be important as one of the key development strategies for East Asia.

Identifying the Impact of Supply Chain Disruption Caused by COVID-19 on Manufacturing Production in Japan

ERIA Discussion Paper no. 405

by Tadashi Ito

COVID-19 has disrupted all aspects of our lives, including international trade. This paper investigates the effect of supply chain disruption on production activities, in particular by exploiting the difference in the timing of the lockdowns in China and Japan. Using monthly production data, monthly export and import data, Japan's input-output tables, and international input-output tables, the analyses find evidence of a negative impact of supply chain disruption by COVID-19 on Japan's manufacturing production activities.

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Spillover Effects of Foreign and Domestic Exporting Firms on Export Decisions of Local Manufacturing Firms: Evidence from Viet Nam

ERIA Discussion Paper no. 410

by Quang Hoan Truong, Van Chung Dong

Our paper investigates the spillover effects generated by foreign and domestic exporting firms on export decisions of local manufacturing firms in Viet Nam – a developing economy – over 2010–18. In the export participation, we find positive spillover effects from foreign and domestic exporting firms on domestic firms' export participation, while negative spillover effects are detected with the backward channel. Estimation shows the positive forward spillover effects from domestic exporting firms

on domestic counterparts' export participation; on the contrary, the forward spillover effects generated by foreign direct investment exporting firms are negative. In addition, we discover the opposite spillover effects from foreign direct investment and domestic exporting firms on the probability of export exit of domestic firms, with the negative impact under the horizontal channel and the positive one under the backward channel. There are also effects of firms' characteristics such as labour productivity, wage, firm size, and capital intensity on the export participation and export exit of domestic firms. From empirical evidence, the paper provides policy implications to strengthen linkages between foreign and domestic exporting firms with local firms in Viet Nam.

Market Entry, Survival, and Exit of Firms in the Aftermath of Natural Hazard-related Disasters: A Case Study of Indonesian Manufacturing Plants

ERIA Discussion Paper no. 411

by Arlan Brucal, Shilpita Mathews

By combining plant-level data from the Indonesian Manufacturing Survey and localised disaster data from the Emergency Events Database for the period 1990–2015, we were able to exploit both temporal and spatial variation to investigate the global market entry, survival, and exit of plants in the aftermath of a major flood event at the kabupaten (regency) level. Results from the combined propensity score matching and difference-in-difference approach suggest no strong evidence of instantaneous and persistent detrimental effects of initial experience of flooding on overall and female employment, but with delayed effect on output and output per worker. Plants that are connected and foreign-owned experienced a persistent decline in output per worker relative to their domestic counterparts in the aftermath of a flooding event. On average, flooding was not found to have a significant impact on plant entry.

The results highlight that international trade has unintended consequences for firm resilience to flooding. Trade-offs and complementarities between globalisation and other SDGs, such as gender equality and poverty reduction, are discussed.

Global Value Chains and Premature Deindustrialisation in Malaysia

ERIA Discussion Paper no. 423

by Cassey Lee

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Malaysia has experienced premature deindustrialisation since the early 1990s. The decline in the relative contribution of manufacturing to the economy has been underpinned by structural changes in the electronic, electrical, and machinery industries. There is evidence of a decline in the country's backward global value chain (GVC) participation in the manufacturing sector.

Although its position in GVCs has been upgraded, the country's attractiveness as an outsourcing base has weakened. The contribution of foreign value-added in the manufacturing sector's export growth has also declined. Micro-level evidence points to weaknesses in terms of human capital and technology.

East Asian Production Networks Go Beyond the Gravity Prediction

ERIA Discussion Paper no. 425

by Mitsuyo Ando, Fukunari Kimura, Kenta Yamanouchi

This paper provides empirical evidence that supports the continuing importance of machinery international production networks (IPNs) in East Asia. We first confirm their robustness and resilience, even during the coronavirus disease (COVID-19) pandemic, as well as the significance of East Asian countries as suppliers of machinery final products and parts and components for the world. Then, we demonstrate how deeply East Asian countries are committed to machinery IPNs by applying a gravity equation to pre-pandemic bilateral machinery trade and comparing actual values with fitted values of the estimated equation. The gravity estimation exercise indicates that machinery trade is basically regional – within Factory Asia, Factory America, and Factory Europe – but Factory Asia also has strong inter-regional linkages. It also verifies that the Association of Southeast Asian Nations (ASEAN) has played an important role in Factory Asia, going far beyond the gravity prediction, for the development of machinery IPNs.



INNOVATION AND TECHNOLOGY

ASEM's Role in Promoting Asia–Europe E-Commerce

ERIA Policy Brief 2021 no. 3

by Lurong Chen

Asia and Europe have significant potential in the e-commerce market, and the Asia–Europe Meeting (ASEM) has an important role to play in helping both regions harness such potential. Promoting digitalisation and e-commerce is a top priority in the drive to further connectivity and cooperation between Asia and Europe. One of the basic requirements for achieving economic success in the digital era is data connectivity. In particular, the Asia–Europe Meeting must collaborate in facilitating free flow of data with trust.

Digital Asia: Facing Challenges from GVCs Digitalisation, US–China Decoupling, and the COVID-19 Pandemic

ERIA Policy Brief 2021 no. 5

by Lurong Chen

Digitalisation, US–China decoupling, and the coronavirus disease (COVID-19) pandemic represent the three remarkable sources of changes faced by the world economy. Asia's response to these challenges will determine its economic prosperity and regional stability, as well as the reconstruction of global value chains (GVCs) and the establishment of a new world order. Digital transformation is not just about disruptive innovation and technology adoption. More importantly, it represents a new wave of massive technological progress that will drive socio-economic transition and the changes in international relations in the 21st century.

This policy brief proposes ways in which Asia could harness the digital economy as part of its response to the long-term, medium-term, and short-term challenges of regional development.

Research on Patent Examination Practices for Emerging Technologies in ASEAN Member States

ERIA Research Project Report 2021 no. 16

by Kazuo Hoshino, Yuji Okuma, Hitoshi Nishimura

Mandated by the Ninth ASEAN–Japan Heads of Intellectual Property Offices Meeting, ERIA conducted a research project and produced a report titled ‘Research 2019–2020 on Patent Examination Practices for Emerging Technologies in ASEAN Member States.’

The aim of the project was to assist the intellectual property (IP) office in each ASEAN Member State (AMS) with the further development and advancement of patent examination guidelines focusing on emerging technologies such as artificial intelligence (AI).

Thanks to the close cooperation with ERIA of the AMS counterparts responsible for patent examination or its rule-making in the respective IP offices, the report was able to cover many aspects of ‘patentability’ of AI-related inventions, which are assessed in this study.

The research also revealed that the ASEAN IP offices have made great efforts to establish and improve patent examination guidelines for state-of-the-art technologies. The report includes comments by the ASEAN IP offices that show how they struggle with newly emerged and unfamiliar technologies in the patent examination.

ERIA hopes the report may suggest areas for possible future assistance to be provided for the ASEAN IP offices concerned.

The research report was prepared by Shobayashi International Patent & Trademark Office in Tokyo, under the instruction of and with the cooperation of ERIA.

Exploring Digital Economic Agreements to Promote Digital Connectivity in ASEAN

ERIA Discussion Paper no. 391

by Sarah Y Tong, Yao Li, Tuan Yuen Kong

This paper explores modules and articles on cooperation concerning the digital economy that are applicable for Association of Southeast Asian Nations (ASEAN) countries under certain circumstances. It investigates the progress of and obstacles to ASEAN's digital connectivity, as well as features of existing Digital Economic Agreements and digital economy-related articles in other agreements. We propose the use of a differentiated strategy and steps to promote integration for ASEAN countries covered in this research.



The Role of Digitalisation in Shaping India's Global Value Chain Participation

ERIA Discussion Paper no. 376

by Subash Sasidharan, Ketan Reddy

This study investigates the role of digital infrastructure in shaping the global value chain (GVC) participation of Indian manufacturing firms. To examine the digitalisation and GVC nexus, a rich, firm-level, unbalanced panel of 4,875 manufacturing firms from the past 2 decades is employed to detail the rising importance of digital infrastructure in the Indian context and then to examine empirically the relationship between digitalisation and GVCs. Employing a logit model, a positive, significant impact of digitalisation is found regarding firms' GVC participation. Further, subsample results highlight that digitalisation promotes integration of small firms and firms from low-technology industries into the GVC. The findings of the analysis are robust to alternate measures of the GVCs.

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Innovation, Product Sophistication and Export Market Survival: A Study of Indian Manufacturing

ERIA Discussion Paper no. 412

by Subash Sasidharan, Ketan Reddy

The present study investigates the role of innovation on global market survival of Indian manufacturing firms. Specifically, the study examines whether research and development (R&D) investment enables firms to survive longer in export markets and global value chain markets. To achieve this objective, we source information on firms

trading behaviour and R&D investments from the CMIE–Prowess database for the period 2001–18. Using a complementary log–log model, we find that firms investing in R&D experience a lower probability of exiting international markets. In addition, multiple sub–sample analysis indicates that importance of R&D becomes even more prominent for small and medium–sized firms. Based on the empirical findings, the study proposed policy suggestions for India.

Digital Technology Adoption and Indonesia’s MSMEs during the COVID-19 Pandemic

ERIA Discussion Paper no. 426

by Teguh Yudo Wicaksono, Andre Simangunsong

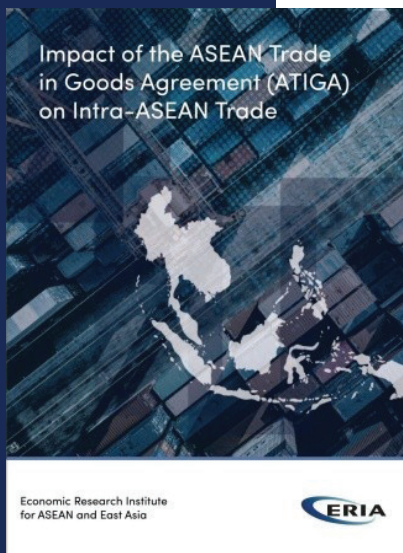
The coronavirus disease (COVID-19) pandemic has hit micro, small, and medium–sized enterprises (MSMEs) hard. The estimated economic impact of COVID-19 could exceed the fiscal stimulus package as a percentage of gross domestic product (GDP). Digital technologies have helped them to better navigate the situation. Yet Only 13% of MSMEs adopt the internet for marketing and delivering their products and services. This paper discusses Indonesia’s MSMEs during the COVID-19 pandemic and the digital transformation they pursue. We also discuss policy responses and government support to help MSMEs navigate the worst public crisis in our lifetime.



TRADE AND INVESTMENT

Impact of the ASEAN Trade in Goods Agreements (ATIGA) on Intra-ASEAN Trade

Edited by Salvador Buban, Rashesh Shrestha



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This report is an outcome of ERIA's quantitative assessment of the impact of the ASEAN Trade in Goods Agreement (ATIGA) on intra-ASEAN trade. The study was conducted according to the mandate given by the ASEAN Coordinating Committee on ATIGA (CCA) and with support from the ASEAN Member States, who shared relevant trade and tariff data. The assessment of the performance of ATIGA is conducted through a descriptive analysis of tariff liberalisation; an examination of the margin of preference (MOP) between ATIGA and Most Favoured Nation (MFN) tariffs and the ATIGA utilisation rates; and econometric analysis using the gravity model. As a direct consequence of ATIGA, tariffs on intra-ASEAN trade have been reduced to zero for almost all tariff lines. However, only a subset of these tariff lines offers a margin of preference high enough to incentivise firms to utilise ATIGA when trading within ASEAN.

Furthermore, the cost of compliance with ATIGA provisions reduces the likelihood of utilisation when MOP is low. For these reasons, the impact of ATIGA is limited to certain sectors and products where MOP remains high (due to high MFN tariffs). Moreover, assessing the effectiveness of ATIGA by examining the relative growth of overall intra-ASEAN trade would be misleading due to the reliance of AMS on imports from non-AMS, especially China and Japan, to produce their imports, and the availability of many other preferences such as the ASEAN Plus One FTAs.

Our quantitative analysis finds that the utilisation rate of ATIGA, which is defined as the percentage of imports under ATIGA preference out of total imports of products that have positive MOP, is increasing for those products and sectors where MFN tariffs remain high. These include the agriculture and automotive sectors. The gravity estimates done at the (HS 3-digit) product level show that only a handful of products have positive coefficient on ATIGA, indicating a trade creation effect of ATIGA in only a few sectors. However, the trade creation effect is larger for products where the utilisation rates of ATIGA are greater due to a higher MOP. The larger priority integration sectors (PIS) where ATIGA utilisation has increased markedly include agriculture, processed agriculture, and automotive.

As AMS further liberalise their economies unilaterally and as new multilateral agreements (e.g. the Regional Comprehensive Economic Partnership, RCEP) come into force, ATIGA needs to be updated to remain relevant. The key focus of reform should be on reducing the cost of compliance by, amongst other things, revamping the rules of origin or procedures for issuance of the certificates of origin. This would ensure that even small margins offered by ATIGA continue to be valuable to traders. Furthermore, the sectors where ATIGA is most effective due to high MOP are those where small and medium-sized enterprises (SME) are involved. So, ATIGA can continue to be an important driver of SME engagement in intra-ASEAN trade. But to ensure ATIGA's success in doing so, specific information on barriers to utilisation of ATIGA by these firms needs to be collected and underlying issues need to be addressed.

Impacts of the RCEP on ASEAN and ASEAN Least Developed Countries in the Post-pandemic Recovery

ERIA Policy Brief 2021 no. 1

by *Shandre Thangavelu, Shujiro Urata, Dionisius A. Narjoko*

This policy brief highlights the impact of the Regional Comprehensive Economic Partnership (RCEP) agreement on ASEAN and ASEAN least developed countries (LDCs) in the post-pandemic recovery.

RCEP has key elements that will be crucial for the post-pandemic recovery and regional transformation, such as (a) a single rule-of-origin framework for the 15 member countries, which could have an accelerating and enhancing impact on global value chains in the region; (b) the key element of the China–Japan–Republic of Korea effect, where the RCEP agreement sets the first free trade arrangement for trade and investment for these countries; (c) key elements for digital transformation and services liberalisation in key services trade in e-commerce, financial, professional, and telecommunication services; and (d) ASEAN centrality, which is critical for the post-pandemic recovery and structural transformation of the region in terms of sustainable and inclusive growth.

Global Value Chains and Investment: Changing Dynamics in Asia

ERIA Research Project Report 2021 no. 1

by Ben Shepherd, Anita Prakash

The emergence of global value chains (GVCs) during the last 2 decades has implications in many policy areas, starting with trade, investment, and industrial development. The East and Southeast Asia region are key players in the GVCs and account for 18.4% of the global inward foreign direct investment (FDI) stock. GVCs are becoming increasingly important in the services sectors, although they are still less developed than in manufacturing.

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GVC integration since the global financial crisis has continued to increase, but it is still too early to say to what extent GVC integration has been affected by the coronavirus disease (COVID-19) pandemic as rigorous data will only come out with a delay of some years.

Value chains are relatively robust to unexpected changes in trade costs. While the economic shocks related to COVID-19 are indeed severe, the implications of the pandemic are more macroeconomic in nature, with some differences across sectors. The incentive to source goods locally versus using foreign suppliers has not been fundamentally altered.

The policy risk related to reshoring and the change in production locations may also be low. A more likely scenario is targeted interventions in sectors that have assumed particular importance during the pandemic, such as health-related goods and vaccines. Policy responses to the COVID-19 pandemic must recognise the universal nature of the shock. It has affected all countries at essentially the same time, and had

broadly similar effects in each of them, at least in its early stages. In this context, trade and investment policies require special review. In the GVC context, trade facilitation can increase backward and forward linkages. Similarly, restrictions on FDI can impair backward GVC participation.

More domestically focused supply chains may not be the right approach to post-COVID-19 GVCs as they are poor shock absorbers. However, supply chain resilience is important for the production of public goods and public health necessities. Any policy intervention must balance the efficiency advantages of GVC production against social objectives.

East and Southeast Asia face a bigger risk in the slow recovery in large, high-income markets of Europe and the United States. Macro-level risks are relatively low, but at a micro level many countries continued use of non-traditional trade policies to introduce de facto discrimination against international suppliers may be a challenge ahead. The major potential change in conditions facing GVCs is the rise of the digital economy; East and Southeast Asia is well positioned to take advantage of these opportunities. Keeping markets relatively open, an effective supplier network, and integrated GVCs are important advantages for Southeast and East Asia in developing the GVCs of the future.

Towards Seamless Trade Facilitation in ASEAN Baseline Study

ERIA Research Project Report 2021 no. 6

by Dionisius A. Narjoko, Salvador Buban, Rashesh Shrestha, Doan Thi Thanh Ha, Edo Setyadi

The Economic Research Institute for ASEAN and East Asia (ERIA), together with the ASEAN Trade Facilitation Joint Consultative Committee (ATFJCC), has developed an ASEAN-specific trade facilitation indicator called the ASEAN Seamless Trade Facilitation

Indicators (ASTFI). The ASTFI is based on a survey of major trade-related government agencies of each ASEAN Member State. It includes measures on transparency and engagement with the private sector, the core trade facilitation measures of clearance and release formalities, as well as export and import formalities and coordination, and measures for transit, transport, and e-commerce facilitations. A report on the ASTFI Baseline Study was submitted to the ATFJCC in July 2018.

This public version of the report provides the status and progress of the trade facilitation environment in ASEAN and in ASEAN Member States, highlighting trade facilitation efforts and best practices in ASEAN, as well as in each ASEAN Member State as of 2018. The finding is that, by 2018, ASEAN Member States had done well in transparency and information on laws, regulations, and procedures, as well as in components related to communication with and active engagement with the private sector. Under these components, ASEAN Member States had established informative and user-friendly websites containing customs and trade-related laws and regulations. Best practices by leading ASEAN Member States in the region with respect to the engagement between the government and the private sector were also highlighted and these serve as benchmarks for other ASEAN Member States. Moderate progress was seen in the release and clearance formalities component, cross-border coordination and transit facilitation, and transport facilitation where ASEAN transport-related protocols had yet to be implemented.

Much remained to be done in many of the ASEAN Member States and in the region to move towards a seamless trade facilitation environment, but progress had been made. A follow-up ASTFI survey, being conducted in 2020 and 2021, will assess the progress in trade facilitation since the 2018 baseline and the attendant improvement in the trading environment in ASEAN.

UK-ASEAN Trade: Strengthening the Supply Chain Linkages

ERIA Research Project Report 2021 no. 11

by Anita Prakash, Alicia Garcia Herrero, David Martinez Turegano

The United Kingdom (UK) and the Association of Southeast Asian Nations (ASEAN) have commenced a Dialogue Partnership which foresees years of closer economic relations ahead. Against this backdrop, the UK and ASEAN have reinforced their mutual desire to work in partnership for rebuilding and recovery, and sustainable growth, in the post-COVID-19 era. The UK is looking towards greater integration into Asia and playing a significant role in the emerging economic architecture in the Indo-Pacific in which ASEAN has a central role.

The Economic Research Institute for ASEAN and East Asia (ERIA), based in Jakarta, has conducted this study for the UK, using data and evidence from its existing research and policy studies on trade and supply chains in the ASEAN region and East Asia. While the policy recommendations presented in the study are drawn up from the perspective of the UK-ASEAN Dialogue Partnership, they also offer a review of the current state of trade and value chain integration in the ASEAN and East Asia and provide pointers for the road ahead in post-COVID-19 recovery and rebuilding.

Since the onset of the pandemic, ASEAN, in its policymaking, has shown an unequivocal resolve to support the region's core economic dynamism, to strengthen long-term supply chain resilience and sustainability, and to remain committed to keeping the ASEAN market open for trade and investment. The ASEAN Comprehensive Recovery Framework (ACRF) is adopted for recovery and longer-term resilience and serves as the consolidated exit strategy from the COVID-19 crisis. The UK upholds a policy of keeping markets open for trade and investment as it deepens its economic relations with ASEAN and the larger Indo-Pacific region.

The ASEAN Economic Community is a natural partner for the UK in this exercise. Streamlining the investment facilitation process, eliminating non-tariff barriers, and creating regulatory coherence between the two economies (or at least with some ASEAN Member States initially) are important next steps as they will create a conducive environment for deepening and expanding the UK–ASEAN supply chain, and support the post-COVID-19 rebuilding process. The principle of ‘build back better’ leads the UK’s economic engagement with ASEAN for recovery in the near term while enhancing bilateral trade in goods and services on both sides.

The UK’s international policy to firmly establish itself as a global science and technology hub and a responsible cyber power would be achieved through investments and capacity building for greater participation of ASEAN in the supply chains of the digital economy. The UK is a global player in the services sector, and ASEAN offers significant markets in finance, logistics, and ICT, which have important roles in the digital economy as well as being a component of goods trade.

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ASEAN offers an important opportunity for greater integration of the UK in the trade flows of Southeast and East Asia. Overcoming the gravitational forces that dictate value chain participation would be possible through deft and forward-looking policy arrangements with ASEAN. For greater trade integration, the UK must closely follow ASEAN’s trading agreements, including ASEAN’s own mechanisms such as the ASEAN Single Window (now open for Dialogue Partners) and the Guidelines for the Implementation of ASEAN Commitments on Non-Tariff Measures on Goods.

Trade integration is very important for ASEAN, especially participation in global value chains (GVCs). As ASEAN is already a manufacturing hub, closer trade relations with ASEAN would improve the UK’s integration in GVCs outside the European Union, in particular those of Asia. GVCs are partial to efficiency, therefore product matching can be achieved only through supply chain efficiencies and market demand.

The UK's competitiveness in the digital economy, services components of goods trade, research and development, financial services, and low-carbon and green products is an important channel for integrating the UK economy into both existing and pipeline supply chains in ASEAN and East Asia. Accession to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) would be helpful in this regard. Bilateral trade agreements concluded with Japan and Australia, and the forthcoming one with India, would also matter.

A UK-ASEAN trade and economic cooperation plan must consider China – ASEAN's largest trading partner. Closer alignment with new supply chains emerging in the region – such as Australia-Japan-India, the Mekong Subregion, and India-Myanmar-Thailand – will be important for UK trade missions to maintain the UK's active interest in these emerging alignments.

For the UK and ASEAN, trade and investment facilitation will be crucial as it can increase backward and forward linkages and deepen trade integration. Nurturing the business environment would also play a role in structuring trade relations. Reviving the UK's historical presence in the businesses of Southeast Asia through contemporary and future-ready trade facilitation and investment plans – and promoting ASEAN's core competency in manufacturing in the UK – is the practical direction ahead for UK-ASEAN bilateral trade.



The Effect of Non-Tariff Measures on Global Value Chain Participation

ERIA Discussion Paper no. 382

by Upalat Korwatanasakul, Youngmin Baek

This study examines the impact of non-tariff measures (NTMs) on global value chain (GVC) participation and the underlying mechanisms. Our study employs a novel approach using an additional compliance requirement indicator as a relative proxy for NTMs to measure their impact on GVC participation. We conduct a cross-sectional analysis at the industry level, spanning 19 industrial sectors in 30 countries in 2015. We combine our additional compliance requirement indicator dataset calculated from NTM data in the Trade Analysis Information System, with our dataset on trade in value added estimated from the Organisation for Economic Co-operation and Development Inter-Country Input-Output Table. Our analysis finds that, while NTMs and tariffs both negatively impact backward GVC participation, the impact of NTMs is greater than that of tariff measures. Moreover, the estimated results show that inward foreign direct investment is positively associated with backward GVC participation. Therefore, policies that reduce trade costs from policy barriers, especially NTMs, and attract more foreign direct investment can help promote GVC participation.



The Effects of SPSs and TBTs on Innovation: Evidence from Exporting Firms in Viet Nam

ERIA Discussion Paper no. 383

by Duc Anh Dang, Vuong Anh Dang

Sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBTs) in destination markets may affect firms' performance. In this paper, we examine how meeting foreign standards affects exporting firms' innovation, reflected in the product quality, production processes, skills, and technological acquisition.

The analysis relies on official regulations on non-tariff measures released by the United Nations Conference on Trade and Development (UNCTAD) and panel data for manufacturing firms in Viet Nam during 2013–2015. To correct for the potential endogeneity of SPS measures and TBTs and measurement errors, we use the number of SPS measures and TBTs imposed on other Association of Southeast Asian Nations (ASEAN) Member States as an instrument variable. Our results indicate that a higher number of SPS measures and TBTs applied by destination countries increases the probability of Viet Nameese exporting firms' skill acquisition. SPS measures also have higher positive impacts on product quality improvement and skill acquisition in the food processing sector.

The SPS measures and TBTs have larger impacts on small firms than large firms. Foreign firms tend to acquire more technology and skills than domestic firms when facing SPS measures and TBTs by importing countries. Higher SPS measures and TBTs have more effects on the probability of acquiring skills by state-owned firms. However, the propensity of product quality and technological acquisition of non-state firms is much higher than that of state-owned firms when facing a greater level of SPS measures and TBTs.

The Impact of COVID-19 on Business Activities and Supply Chains in the ASEAN Member States and India

ERIA Discussion Paper no. 384

by Keita Oikawa, Yasuyuki Todo, Masahito Ambashi, Fukunari Kimura, Shujiro Urata

This study uncovers the impact of the coronavirus disease (COVID-19) on the business performance, outlook, and regional supply chains of manufacturing and non-manufacturing firms in the Association of Southeast Asian Nations (ASEAN) Member States and India. To address the aim, we conducted an extensive questionnaire survey via internet from November 2020 to February 2021 and received effective replies from 1,789 companies – comprising local firms, including large and small and medium-sized enterprises and multinational firms in all 11 countries. The results show vigorous private dynamism in the region. Firms' business performance during the pandemic was distributed widely from positive to negative, and the firms that were adaptive to the COVID-19 shock – in terms of quickly arranging their supply chains – were more likely to perform well and have a better outlook.

Many firms restructured their supply chains to a certain extent in response to the COVID-19 shock. Furthermore, most of the supply chain adjustments are unlikely to be reversed. The COVID-19 outbreak resulted in a number of reduced transaction links in the regional supply chains, while it delivered almost the same number of expanding transaction links. A somewhat disappointing outcome was that the least selected supply chain measure in the wake of the COVID-19 outbreak was supply chain digitalisation, which should have been an accelerator of digital transformation in the regional economy.

Potential for India's Entry into Factory Asia: Some Casual Findings from International Trade Data

ERIA Discussion Paper no. 381

by Mitsuyo Ando, Kenta Yamanouchi, Fukunari Kimura

Despite its impressive economic growth in the past few decades, India is slow in adopting a task-by-task international division of labour or international production networks (IPNs). Using international trade data for international comparison from multiple angles, this paper visualises the position of India – particularly in machinery IPNs and information and communication technology (ICT) services. Although machinery industries are at the centre of IPNs in East Asia, the paper clearly visualises that India has not yet participated in Factory Asia. Rather, trade data indicate that India is still engaged in import-substituting industrialisation.

The paper also argues that ICT services are a strength for the Indian economy, and its competitiveness could be utilised effectively by combining new technologies with traditional industries such as manufacturing. India still has huge potential for utilising the mechanics of a new international division of labour to accelerate economic growth, innovation, and poverty alleviation.

Economic and Emission Impact of Australia–China Trade Disruption: Implication for Regional Economic Integration

ERIA Discussion Paper no. 387

by Xunpeng Shi, Tsun Se Cheong, Michael Zhou

This study examines the debates on supply chain resilience and the economic and emissions impact of supply chain rerouting using Australia and China trade as an example. The estimations demonstrate that, in both export and import cases, a trade embargo between Australia and China, despite being compensated by alternative supply chains, will cause gross domestic product loss and emissions increases for both countries. Moreover, even if all other countries gain from the markets left by China, many of them suffer from overall gross domestic product loss and emissions increase.

The findings that ASEAN and China may also suffer from an Australia–China trade embargo, despite a gain in trade volume, suggests that no country should add fuel to the fire. The results suggest that countries need to defend rules-based trading regimes and continuously promote regional economic integration.



East Asian Integration and Its Main Challenge: NTMs in Australia, China, India, Japan, Republic of Korea, and New Zealand

ERIA Discussion Paper no. 388

by Lili Yan Ing, Grace Hadiwidjaja

While East Asia has been moving forward with its regional integration agenda, one main challenge remains and is growing – non-tariff measures (NTMs). Animal, vegetable, and food products tend to be more regulated than other products, largely due to quality and safety standards. NTMs affect 66%–98% of total trade in those sectors. Our paper presents the frequency index, coverage ratio, and prevalence score to measure NTMs in the region. They are highest amongst food, vegetable, and animal products; and vary amongst other products, depending on the economy. We find that the high frequency index of NTMs does not necessarily translate to a high value of coverage ratio for trade. One explanation could be that countries tend to regulate imported goods which compete with the domestic products more than imported goods which they need.

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Technical Barriers to Trade and the Performance of Indian Exporters

ERIA Discussion Paper no. 393

by Pavel Chakraborty, Rahul Singh

We study the effects of technical barriers to trade (TBTs) imposed by destination markets on prices, marginal costs, and markups of Indian manufacturing exporters. Using detailed firm-product-level data on prices and production from PROWESS, we first identify the underlying component of prices (i.e. marginal costs and markups), and

use those as our outcomes of interest in the second stage. We find that (i) introduction of TBTs by importing countries increases marginal costs by 5% and prices by 4%, (ii) there is considerable heterogeneity based on exporters' initial productivity, (iii) productive exporters (those belonging to the lower deciles) experienced an increase in marginal costs and decrease in markups compared to low productivity exporters, and (iv) overall effects are driven by private firms (both domestic and foreign) belonging to intermediate input industries.

Effective Rates of Protection in a World With Non-Tariff Measures and Supply Chains: Evidence from ASEAN

ERIA Discussion Paper no. 394

by Ben Shepherd

The concept of effective rate of protection expresses protection on a sector's final output relative to protection affecting its inputs. As such, it is well adapted to analysing the effects of trade policy from a supply chain standpoint.

This paper makes two contributions to the literature on effective rates of protection. First, it draws on the literature on trade in value added to highlight an alternative to the traditional measure that better accounts for supply chain trade by considering both direct and indirect input use. Second, it includes data on ad valorem equivalents of non-tariff measures, which are increasingly important as trade policy instruments. In an analysis covering 17 aggregate goods sectors, I find that average tariff only effective rates of protection in ASEAN averaged 6.9% and ranged from zero to 23.4% in 2018. By contrast, effective rates including non-tariff measures averaged 14.0% and ranged from -6.2% to 44.0%.

While patterns of escalation and even effective taxation differ substantially across sectors, most countries practice a tariff and NTM trade policy that is broadly neutral between input and output sectors, but which causes low to moderate isolation from world markets. Given the complexity of tariffs and NTMs from a supply chain perspective, there would likely be reductions in economic waste accompanying substantial simplification.

Reconciling Tax and Trade Rules in the Digitalised Economy: Challenges for ASEAN and East Asia

ERIA Discussion Paper no. 395

by Jane Kelsey

As the digital economy expands in scale, scope, and form it poses major challenges for public revenue and tax policy and administration in Asia and other parts of the global South. When attempts led by developed countries at the OECD-led Inclusive Framework on Base Erosion and Profit Shifting (BEPS) to agree on new norms for taxing digital giants like Facebook, Google, and Amazon stalled, individual countries, including a number of developing countries in Asia, began developing their own responses, notably the adoption of digital services taxes.

High-level compromises have recently been announced at the OECD, but the details are yet to come and are not expected to address the needs of developing countries to effectively tax the activities of digital giants operating from offshore. As countries seek effective and workable means to tax the digitalised economy, existing and proposed international rules on digital trade in free trade agreements, and plurilateral moves to develop electronic commerce rules in the World Trade Organization, may fetter their

ability to do so. To date, very little attention has been paid in trade negotiations to the consequences of these developments for countries' tax regimes. Nor have the adequacy, effectiveness, and workability of the tax exceptions in trade and investment agreements been properly re-assessed. Many governments are only becoming aware that trade rules may constrain their ability to regulate the (poorly understood and fast moving) digital domain after they have signed up to them.

A series of investigations by the US government under Section 301 of the US Trade Act 1974 into digital services taxes, including those adopted by India and proposed by Indonesia, provides a real-world basis on which to assess how binding and enforceable digital trade rules might be used to challenge digital tax measures at the unilateral, bilateral, and multilateral levels.

In highlighting these risks, the paper aims to provide a framework for the tax and trade divisions of governments in ASEAN and East Asia to reflect together on the potential for proposed digital trade rules to impact negatively on their public revenue.



The Trade Restrictiveness Index and Its Impact on Trade Performance in Selected East Asian Countries

ERIA Discussion Paper no. 402

by Norlin Khalid, Muhamad Rias K V Zainuddin, Tamat Sarmidi, Sufian Jusoh, Mohd Helmi Ali, Faliq Razak

This paper aims to investigate the effect of non-tariff measures (NTMs) on trade in selected East Asian countries. In doing so, we first estimate the ad valorem equivalent (AVE) of NTMs and construct an augmented trade restrictiveness index (ATRI) by measuring the overall external regulations imposed by importing countries. Second, we analyse the effect of the AVE and trade restrictiveness index (TRI) of importing nations on the exports of various sub-sector products for each country in selected East Asian countries.

Based on a standard gravity model framework, we perform a Poisson pseudo maximum likelihood (PPML) regression at the sectoral level (Harmonized System 2-digit) for total exports and major sub-sectors (agri-food, health, logistics, and manufacturing). The findings show that the ATRI has a negative and significant relationship towards bilateral exports for total exports, manufacturing, and logistics sub-sectors.

The negative impacts of the ATRI also highlight that trade barriers play a significant role in bilateral exports. NTM restrictions (proxied by the calculated AVE of NTMs) imposed by importing countries have mixed results for technical and non-technical measures. Where technical measures have negative and significant impacts on bilateral exports for total exports, manufacturing, and health sub-sectors.

This implies that implementation of technical NTMs such as sanitary and phytosanitary (SPS) and technical barrier to trade (TBT) measures in importing nations adversely affect bilateral exports for these sub-sectors. This is in line with our hypothesis, as exporters

may face difficulties in meeting the current NTM specifications, leading to lower bilateral exports.

In addition, the results show that most trade agreements have a positive and significant relationship with ASEAN and East Asia countries' bilateral exports, suggesting that free trade agreements enhance trade between countries.

Regulatory Distance, Margins of Trade, and Regional Integration: The Case of the ASEAN+5

ERIA Discussion Paper no. 403

by VGR Chandran Govindaraju, Neil Foster-McGregor, Evelyn Shyamala Devadason

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This paper measures regulatory distance in non-tariff measures (NTMs) to examine the regulatory distance patterns and how the margins of trade respond to regulatory distance for the ASEAN+5 economies (the 10 Association of Southeast Asian Nations Member States plus Australia, China, India, Japan and New Zealand). It decomposes the margins of trade and regulatory distance by sector (agriculture and manufacturing) and NTM type (technical, non-technical, sanitary and phytosanitary (SPS), technical barriers to trade (TBTs), and pre-shipment inspections and other measures) for the 15 countries. At the country level, the results indicate a varying regulatory distance amongst the ASEAN+5 countries. Regulatory implementation also varies by sector and by the type of measure. Within sectors, SPS regulatory distance is higher in the agriculture sector, while for manufacturing, the regulatory distance in TBTs is higher. Notably, few countries recorded a higher regulatory distance for non-technical measures and pre-shipment inspections. Interestingly, for the ASEAN region, there seems to be no evidence supporting a reduction in regulatory distance from 2015 to 2018, despite efforts to harmonise NTMs since 2015. The results indicate that regulatory distance largely

has a trade-reducing effect along the trade margins within ASEAN+5 bilateral trade. Technical measures have a greater trade-reducing effect than other measures along extensive and intensive trade margins – specifically SPS in the agriculture sector and TBTs in the manufacturing sector. Notably, there is also evidence of non-technical measures and pre-shipments and other formalities impacting trade along extensive margins, despite efforts to establish trade facilitation. The paper also describes some policy implications.

Robustness and Resilience of Supply Chains During the COVID-19 Pandemic: Findings from a Questionnaire Survey on the Supply Chain Links of Firms in ASEAN and India

ERIA Discussion Paper no. 407

by Yasuyuki Todo, Keita Oikawa, Masahito Ambashi, Fukunari Kimura, Shujiro Urata

Using a unique firm-level data set from the Association of Southeast Asian Nations (ASEAN) and India collected from November 2020 to February 2021, this paper examines how the robustness and resilience of supply chain links – i.e. maintaining links and substituting another for a disrupted partner, respectively – were determined when firms faced economic shocks due to the spread of the coronavirus disease (COVID-19). Focusing on the role of the characteristics of firms' supply chains, we find that homophily, i.e. the tendency to form a group with similar agents, was often associated with the robustness of supply chain links, most likely because of the strength of homophilous ties. In particular, when a foreign-owned firm had a supply chain link with a firm located in the same country as its home country, the link was quite robust.

We also find that the geographic diversity of customers and suppliers creates resilience of supply chains. When the demand or supply from a partner of a firm was disrupted

because of COVID-19, the firm likely mitigated the damage from the disruption through substitution of partners if its supply chains were well diversified across countries. In addition, larger or younger firms tended to be resilient and robust. The robustness and resilience of supply chains are found to have led to higher performance.

Export Market Survival of Pioneers and Followers

ERIA Discussion Paper no. 415

by *Chin Hee Hahn, Ju Hyun Pyun*

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This study investigates empirically whether export pioneers and followers are different in terms of export market survival, utilising a rich plant-product-level dataset on Korean manufacturing industries for 1991–1997. We find that export pioneers that bring new products to the export market are less likely to survive than export followers of the existing export products. We also find that there is some heterogeneity in the export survival probability after new export entry, even amongst export pioneers and followers. Amongst export followers, the followers of the existing products show higher survival rates than those of the export-pioneered products.

Amongst export pioneers, those that introduce a new product to both domestic and export markets simultaneously for the first time in the economy exhibit higher survival than export pioneers that take an existing domestic product to the export market.

COVID-19: Impacts of Indonesia's Trade

ERIA Discussion Paper no. 413

by *Lili Yan Ing, Yessy Vadila*

This paper analyses how the coronavirus (COVID-19) has affected Indonesia's exports and imports, both in terms of volume and value. We use monthly trade data at the Harmonized System (HS) 8-digit level from January 2017 to December 2020. We use fixed effects and difference-in-differences (DID) approaches. The findings show that COVID-19 lowers the export volume by 10.7% (export value by 13.4%). At the same time, COVID-19 reduces import volume by 16.42% (import value by 25.9%). Analysing the causes of decreases in Indonesia's trade will shed light on the causes of the drop in such trade figures. It will help design appropriate policy responses to enhance trade for the Indonesian economy's swift recovery.

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Indonesia's Local Content Requirements: Assessment with WTO Rules

ERIA Discussion Paper no. 414

by *Michelle Limenta, Lili Yan Ing*

Local content requirement is one of the policy measures used by many countries around the globe, including Indonesia, to protect and support their strategic sectors. This paper assesses Indonesia's local content regulations in the energy, telecommunication devices, pharmaceutical, and modern retail sectors that are deemed problematic by certain World Trade Organization (WTO) Members in light of Indonesia's obligations under the multilateral trade rules.

Local Content Requirements: Assessment from Investment Law

ERIA Discussion Paper no. 416

by Lili Yan Ing, Juniarto James Losari

Local content requirement (LCR) is one of several economic instruments used by governments for various purposes, including to protect infant domestic industries or to generate employment. Indonesia uses LCR policies in several sectors. However, LCRs are often found to be inconsistent with a country's WTO commitments. Additionally, free trade agreements could also have provisions that regulate the implementation of LCRs. This paper seeks to assess whether Indonesia's free trade agreements have provisions on LCRs, and, if so, whether its LCR regulations are consistent with those provisions.

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Participation in Global Value Chains and Rent Sharing by Small Firms in Viet Nam

ERIA Discussion Paper no. 419

by Nobuaki Yamashita, Doan Thi Thanh Ha

It is well documented that firms that participate in global value chains (GVCs) are larger and more productive, maintaining higher profitability compared to those without such connections. This paper asks the novel question of whether higher profits being connected to GVCs are shared with employees in the form of better pay.

We investigated this rent sharing, using a matched employer–employee dataset of Viet Namese small firms surveyed between 2013 and 2015. We found that positive profits would feed into individual wages after accounting for the firm and employee attributes,

as well as firm and employee fixed effects, but this is only found for those small firms without any involvement with GVCs. Rent sharing, on the other hand, is completely absent in GVC firms. We take this as evidence that GVC firms provide both higher wages and insurance against demand fluctuations.

Indonesia's Local Content Requirements: An Assessment on Consistency with Free Trade Agreement Commitments

ERIA Discussion Paper no. 420

by Oscar Fernando, Lili Yan Ing

Local content requirements (LCRs) are one of several economic instruments used by governments to protect infant domestic industries or to generate employment. Indonesia has LCR policies in several sectors. However, LCRs are often inconsistent with a country's World Trade Organization commitments. Additionally, free trade agreements could also have provisions that regulate LCRs. This paper assesses whether Indonesia's free trade agreements have provisions on LCRs, and whether its regulations are consistent with them.

Technical Barriers to Trade, Product Quality and Trade Margins: Firm-level Evidence

ERIA Discussion Paper no. 421

by Doan Thi Thanh Ha, Hongyong Zhang

As tariffs have declined to a low level, the trade literature has paid increasing attention to the impact of non-tariff measures. Unlike tariffs, non-tariff measures could act as

both a barrier to trade and a catalyst for quality upgrading. This study examines the effect of technical barriers to trade (TBTs) on trade margins and quality upgrading at the firm level. To do so, we utilise rich Chinese Customs data recording the universe of export transactions from 2000 to 2012, matched with the Annual Survey of Industrial Firms and the World Trade Organization's Specific Trade Concerns database.

We find that TBTs are associated with higher probability to exit. Surviving exporters enjoy larger sales and charge higher export prices. We also find robust evidence for the quality upgrading effects of TBTs. Firms upgrade their product quality by expanding their research and development and investment and importing more intermediate inputs and capital goods. The positive impact of TBTs on quality upgrading offsets that on price increases, resulting in lower quality-adjusted export prices. This suggests the net welfare-enhancing effect of TBTs for the consumers of imported products. The results hold after controlling for potential endogeneity and across various specifications.

Understanding SME Trade Finance in ASEAN: An Overview

ERIA Discussion Paper no. 422

by Tony Cavoli, David Christian, Rashesh Shrestha

SMEs are the most important source of employment in all ASEAN countries, but a lack of access to external sources of finance may limit their expansion and growth. In particular, the existence of a trade finance gap can curtail their participation in international trade. Countries in ASEAN and East Asia need to address this issue to include SMEs in their export-oriented growth strategy.

This paper provides a framework for understanding the trade finance gap by examining

the nature and strength of relationships between different actors in the trade finance ecosystem. We present an overview of the literature that studied the relationship between financial development and trade, the availability and use of various trade finance instruments in international trade, and some stylised facts about trade finance in ASEAN.

Chief Executive Officer Attributes and Trade

EERIA Discussion Paper no. 424

by Tadashi Ito, Yukiko Umeno Saito

Many articles in international trade literature have shown that firm productivity is a robust determinant of firms' export and import activities. Further, the literature has also found that, despite being statistically significant, the magnitude of impact of firm productivity on exports/imports is not large, and there are many firms which are productive enough to be able to export their goods but do not and also many firms which are not productive enough to export but do.

This paper posits that, amongst many determinants for export activity other than firm productivity, Chief Executive Officer (CEO) attributes is one of them. Using a large unique firm-level data set, this study examines the effects of CEO attributes and other firm characteristics on firms' export and import activities. It is found that CEO education abroad matters, and its impact is even higher than other factors. CEOs' age and gender have little association with exports/imports.

The EU–China Comprehensive Agreement on Investment: Lessons Learnt for Indonesia

ERIA Discussion Paper no. 396

by Lili Yan Ing, Junianto James Losari

The European Union (EU) and China have recently reached an agreement: the EU–China Comprehensive Agreement on Investment (CAI). As one of the most recent investment agreements concluded by the EU, the paper aims to assess specific concessions made in the agreement, and provides lessons learnt for Indonesia on the ongoing negotiations of the Indonesia–EU free trade agreement, the Comprehensive Economic Partnership Agreement (IEU CEPA). The paper will present an overview of the main areas covered under the CAI, assess the potential impacts of the CAI on EU investment into Indonesia, and set out lessons that can be learnt from the CAI.

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Overview of Foreign Direct Investment, Trade, and Global Value Chains in East Asia

ERIA Discussion Paper no. 417

by Ayako Obashi

This paper provides an overview of the patterns and trends of foreign direct investment (FDI) and trade as well as the formation and development of international production networks or global value chains in East Asia, with a special focus on Association of Southeast Asian Nations Member States. To conduct data observations and analyses, we rely on trade data disaggregated by stage in the production process, FDI inflows data by sector, and international input–output tables. East Asian countries trade

manufactured parts and components intensively with each other whilst exporting capital goods and consumption goods to countries outside the region. Considering a complementary relationship between trade and FDI in evolving production fragmentation and offshoring, we investigate how and to what extent East Asian countries have been integrated into regional and global value chains, focusing on the machinery sectors.

The Nexus between Inward Foreign Direct Investment and Global Value Chains in Developing Countries: A Case Study of Viet Nam

ERIA Discussion Paper no. 418

by Huy Hoang Nguyen, Quang Hoan Truong

In recent decades, Viet Nam, a developing economy, has significantly improved its export structure and, to some extent, its participation in global value chains (GVCs), which along with foreign direct investment (FDI) is considered amongst the main driving factors for Viet Nam's impressive economic growth. By employing the AJC-UNCTAD-Eora database on Association of Southeast Asian Nations GVCs, this current study aims to empirically explore the nexus between FDI and other factors for GVC participation in Viet Nam during the 2000–2019 period. The estimation shows that the economic size and market development of Viet Nam and its trading partners are the main determinants of Viet Nam's GVC participation. We find that inward FDI flows into Viet Nam have a positive impact on the country's GVC participation in both the forward and backward linkages.

The estimation demonstrates that geographical distance is an impediment for Viet Nam's backward GVC participation, whilst engagement in free trade agreements is

found to advantageously affect Viet Nam's GVC participation in both backward and forward linkages. We find a positive influence of Viet Nam and its trading partners' logistics performance on Viet Nam's GVC participation. The paper also provides policy implications for Viet Nam to better use FDI and other sources to enhance and deepen its GVC participation in the future.

Entry Mode Choice and Performance of Foreign Direct Investment Firms in Emerging Economies: Micro-evidence from Viet Nam

ERIA Discussion Paper no. 429

by Linh Bui, Huyen Hoang, Hang Bui

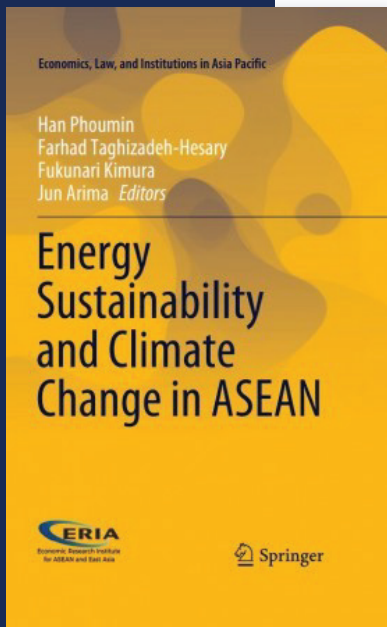
Does the right entry mode choice help foreign direct investment (FDI) firms to perform efficiently in emerging economies? This study attempts to answer this question by examining the impact of the entry mode choice made by FDI firms on their post-entry performance in emerging markets. Using a dataset derived from specific firms for the period 2002–2016, this study accounts for the selection biases and inherent differences of FDI firms that affect their selection of entry strategies. The study found that, with regard to the manufacturing sector, the ownership type with a wholly owned subsidiary (WOS) had negative impacts on either the technical efficiency or the total factor productivity (TFP) of firms. Conversely, regarding all sectors in the economy, the WOS is likely to have a positive role on technical efficiency and TFP. It is also interesting to see that for firms with an equity joint venture (EJV) type, the higher proportion of capital contribution from domestic firms might lead to lower technical efficiency and TFP. It implies that the higher degree of management and control by the domestic firms compared with foreign firms would have negative impacts on the EJV firms' performance.



CO-PUBLICATIONS

Energy Sustainability and Climate Change in ASEAN

by Han Phoumin, Fukunari Kimura, Jun Arima, Farhad Hesary



This book provides several up-to-date empirical policy-oriented studies on assessing the impacts of climate change on various economic sectors and the role of renewable energy resources in mitigating pollution and climate change. It suggests various policy recommendations on how to increase the share of renewable energy resources in the energy baskets of the members of the Association of Southeast Asian Nations (ASEAN) and the rest of the world to ensure energy sustainability.

As of 2020, most of the world's energy investment still went to carbon-emitting sources, namely, fossil fuels. On the other hand, the COVID-19 pandemic and the economic downturns shrank the global energy demand, including fossil fuels, resulting in a sharp drop in their prices. Low fossil fuel prices are harmful to developing renewable energy projects, making solar, wind, and other renewable energy resources less competitive as sources of electricity.

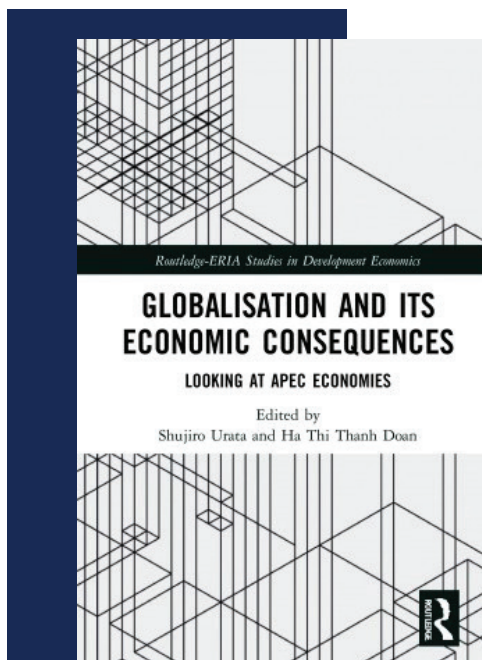
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This is endangering the Paris agreement and the 'Climate Action' goal of the United Nations. Given the high share of fossil fuels in the energy mix of the members of ASEAN, tremendous challenges must be faced for their energy transition in the post-COVID-19 world. The authors call for sound policy and applicable technologies to ensure sustainable energy availability, accessibility, and affordability to reach emission reduction targets.

Globalisation and its Economic Consequences: Looking at APEC Economies

by Shujiro Urata, Doan Thi Thanh Ha



Given the rising criticisms of and growing doubts about globalisation, this timely edited volume looks at globalisation and its economic impact on eight countries in Asia and the Pacific region, namely Australia, China, Indonesia, Japan, Malaysia, Thailand, the United States (US), and Viet Nam. The eight selected countries are members of the Asia-Pacific Economic Cooperation (APEC) forum and yet the economies of these member countries have benefited differently from globalisation.

This book summarises findings from existing academic literature in a coherent framework and reviews them critically

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to provide a balanced analysis. It also identifies the mechanisms through which globalisation impacts economies and explains how understanding of such mechanisms can be useful for formulating policies, which would benefit from globalisation while achieving inclusive economic growth in the context of rising nationalism and protectionism.

Handbook on East Asian Economic Integration

Fukunari Kimura, Mari Pangestu, Shandre Mugan Thangavelu, Christopher Findlay

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This comprehensive Handbook provides an in-depth analysis of the nature of East Asian economic integration alongside thoughtful insights into contemporary issues, such as digital technology and the environment. Contributors provide detailed explanations of the origins of the topic, tracing the evolution of production networks and guiding readers through contemporary policy issues.

Key Features:

- Trade, poverty and Aid-for-Trade
- Skills and human capital development policies of ASEAN

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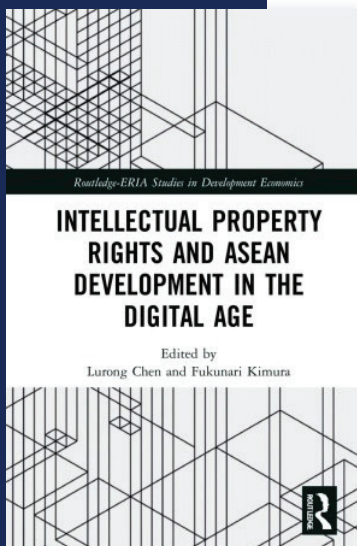


- Institutional reforms, regulatory reform and measuring integration
- Agricultural development, structural transformation and East Asian trade

The Handbook concludes with a considered review of regional security and discusses how improvements in this area can cause obstructions to economic integration, highlighting future approaches for how these issues can be resolved.

Intellectual Property Rights and ASEAN Development in the Digital Age

by Lurong Chen, Fukunari Kimura



The trade-investment-service-intellectual property (IP) nexus remains at the heart of economic development and the main features of which are global value chains (GVCs) and digitalisation. The protection of intellectual property rights (IPR) has become a critical issue not only for advanced economies but also for emerging markets.

This edited volume contributes to the debates on IPR protection and economic development from the perspective of

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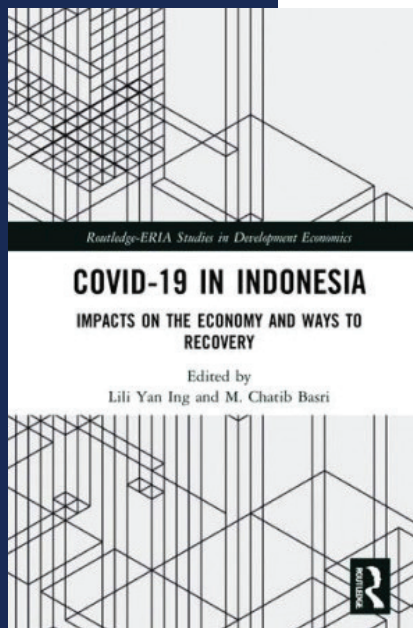


Association of Southeast Asian Nations (ASEAN) Member States. The book provides insights into the mechanism and evidence on how effective IPR protection will increase economic and social welfare via promoting innovation activities and providing incentives to diffuse knowledge and transfer technologies.

Written by economists and lawyers from the region, these experts share their latest findings and thoughts on how countries in Southeast Asia have been progressively improving IPR protection and increasing the interoperability of different IPR regimes through regional cooperation to facilitate business operations in the context of digital transformation.

COVID-19 in Indonesia: Impacts on the Economy and Ways to Recovery

by Lili Yan Ing, M. Chatib Basri



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This book assesses the impacts of COVID-19 on the Indonesian economy, particularly on employment, education, poverty, trade, and macro economy.

The book explains how fiscal and monetary stimulus work and the roles of local governments in managing stimulus. It also presents ways to recovery and lessons learnt from countries that have found success in mitigating the economic impacts of the pandemic (China, Germany, Singapore, and Viet Nam).

This book will be a useful reference for policy makers, scholars, students, and public audience working or having interest in the fields of development economics, trade, health economics, economics, and East Asia.

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The Economic Research Institute for ASEAN and East Asia (ERIA) is an international organisation providing research and policy support to ASEAN and the broader East Asia region and the ASEAN and East Asia summit processes. ERIA's policy research focuses on three pillars: deepening economic integration, narrowing developing gaps, and achieving sustainable development in the region.



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ERIA's establishment was formally agreed amongst 16 heads of Government at the Third East Asia Summit in Singapore on 21 November 2007. It works closely with the ASEAN Secretariat, researchers, and research institutes from East Asia.

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