



E-APEC STUDY CENTERS CONSORTIUM CONFERENCE 2020 (e-ASCCC2020)

E-PROCEEDING

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Organized by

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Universiti Kebangsaan Malaysia

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FOREWORD

The proceeding consists of research papers presented in APEC Study Centre Consortium Conference 2020 with theme ***“Towards an Inclusive, Sustainable Growth and Shared Prosperity Post-Pandemic”*** hosted by Malaysian APEC Study Centre in conjunction with the Malaysian Chairmanship during APEC 2020. This theme is aligned with the overarching theme of Malaysia’s hosting year of APEC in 2020 as ***“Optimizing Human Potential Towards A Future of Shared Prosperity”*** supported by the three priority areas i.e. ***(i) Improving the Narrative of Trade and Investment; (ii) Inclusive Economic Growth through Digital Economy and Technology; and (iii) Driving Innovative Sustainability.*** With this central premise takes into consideration the accelerating outbreak, **the e-ASCCC 2020 envisions an in-depth discourse and perspectives towards achieving a shared prosperity in the APEC region.**

Papers presented in the conference categorized under the three priority areas. Notably, 21 APEC member economies need to take further steps and measures to ensure that the region could continuously prosper the region through trade and investment. With the Covid-19 pandemic changing the narrative of trade and investment, Work From Home (WFH) ushers in a precipitous significance of digital technology that consequently affects the future of work and food security concerns. Thus, the underlying new normal, the e-ASCCC 2020 found that APEC economies need to engage their national policies towards addressing the pandemic to ensuring inclusive and sustainable growth as well as promoting shared prosperity.

With that, I would like to thank everyone who have contributed papers for this proceeding and participated tremendously in the hosting of e-ASCCC 2020.

Prof Dato’ Dr Rashila Ramli

Chair of e-APEC Study Centre Consortium Conference (e-ASCCC) 2020

Institute of Malaysian and International Studies (IKMAS)

Universiti Kebangsaan Malaysia (UKM)

Keynote Address by Tan Sri Abdul Wahid Omar

Chairman of Universiti Kebangsaan Malaysia

**“The Challenges of Implementing Shared Prosperity
in Post- Pandemic APEC Economies”.**

1. This Covid-19 pandemic we are facing is totally unprecedented that is piercing through economies, corporates, societies and individuals alike. With more than 31 million confirmed cases and 962,000 deaths globally as reported by the World Health Organisation as at 22 September 2020, the pandemic is also causing both medical and economic shocks in the APEC region.
2. In a policy brief issued by the APEC Secretariat entitled “APEC in the Epicentre of Covid-19”, the pandemic is expected to cause the region’s economic growth to decline by 2.7 percent in 2020 this year, compared to the 3.6 percent growth in 2019. This reduction in growth translates to an estimated output loss of USD 2.1 trillion due to the economic fallout from the pandemic. This is compounded by an additional 23 million people becoming unemployed in 2020. Clearly this pandemic is causing severe impact on lives and livelihood of the people.
3. The unprecedented shock to the global economy requires a well-targeted and coordinated regional response towards socioeconomic recovery, including greater support for healthcare systems and increased social protection.
4. There are two important concepts that form the overarching theme of the hosting year of APEC 2020 by Malaysia. These include:
 - i. human potential;
 - ii. shared prosperity.

Additionally, this theme includes a notion of “future”, which should be taken as the future after the Covid-19 pandemic. The future after the Covid-19 pandemic reflects the human potential to prosper and face the impending challenges ahead, especially in a world with potentially more restrictions and cross border movement of goods and persons, the changing nature of global value chains and supply chains and the enhanced digitalization of every segment of the society.

5. Originally, shared prosperity is a development-related concept that aims to increase the purchasing power and the elimination of wide income gaps within the society.

Shared prosperity is a goal with two elements, namely, ensuring economic growth and equitable distribution of the economic benefits. The concept reflects the fact that as countries grow their economies and lift millions out of poverty, they may also experience growing inequality if not dealt with properly.

6. Based on the Malaysia's Shared Prosperity Vision 2030, shared prosperity aims at creating an economy that can achieve a balanced and sustainable growth, along with fair and equitable wealth distribution across all members of the society, income groups, geographical regions and supply chains. In other words, trade and investment narratives will move beyond the creation of wealth, jobs and development into ensuring societal well-being as well.
7. In the context of APEC, shared prosperity means there should not be anyone left behind or marginalized from mainstream development in all the 21 APEC member economies. There is a collective realization among the APEC economies that wealth created by trade and investment within the region is not equally distributed. While the region is more connected, there exists however, a wider disparity with the new era of globalization thereby leaving a large segment of the society marginalized. And the biggest challenge in 2020 is how to reposition APEC economies post pandemic.
8. According to the APEC Secretariat, since the founding of APEC, the combined GDP of 21 APEC member economies has increased from USD 23.5 trillion in 1990 to USD 66.2 trillion in 2018, thus growing at an average of 3.7 percent per year. This economic growth has led to rising average incomes, contributing to vast reductions in poverty and an expanding middle class, driven mainly by trade, which in turn is driven by new technologies. Since the Bogor Declaration in 1994, the majority of APEC member economies have had their per capita income increased by more than 2 percent, except for four economies, Brunei Darussalam, Japan, Mexico and Papua New Guinea.
9. However, the APEC Secretariat also states that this growth has not been shared equally. The wealth gap also exists among APEC member economies. Long-term trends are moving toward more inequality rather than less as income gaps between poorer and richer segments of the population widen. In 2015, it has been reported that the poorest 40 percent of the population of APEC and the richest 5 percent of the population earned roughly the same share of the region's total income – around 18 percent for each group and it is expected that this income inequality will continue to get wider.

Equally important, based on data available from 14 APEC economies, income disparity remains critical particularly between the top and the bottom segments of the society.

10. APEC economies face declining economic growth potential as a result of the Covid-19. Declining growth is mainly due to the sharp decline in the domestic demand; lower tourism and business travel; trade; and the decline in production linkages and production network.

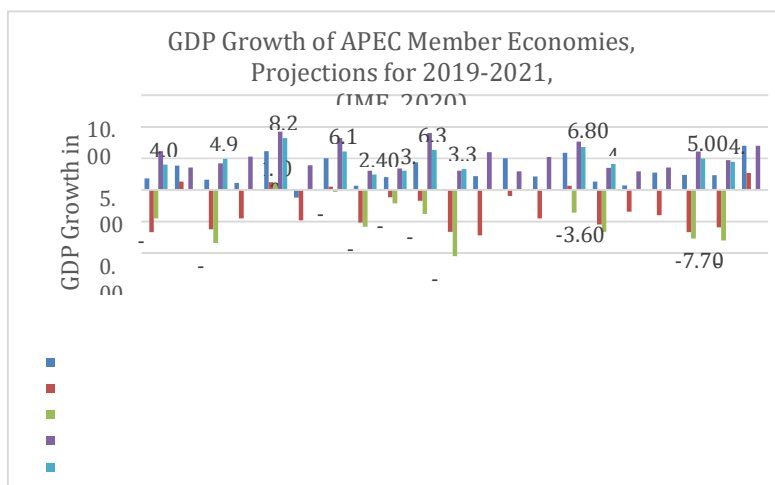


Figure 1: GDP Growth of APEC Member Economies, Projections for 2019-2021, (IMF, 2020)

11. Based on the April figures, APEC real GDP is expected to contract by 2.7 percent in 2020, translating to an estimated output loss of USD 2.1 trillion and an additional 23 million workers unemployed due to the economic fallout from the pandemic. APEC economies may see a rebound in 2021 with anticipated growth rate of 6.3 percent. This rebound hinges on the effectiveness of containment mechanisms to avoid a second wave of the pandemic as well as the expected stimulus from economic policy measures. At the same time, it is difficult to make a dependable GDP growth prediction due to the fluid nature of the economic impact of the Covid-19 pandemic.

12. The decline in the economy will result in losses of income to employees made redundant in retail, manufacturing, tourism, and other hard-hit sectors as well as those in the informal sectors, which is not covered by employment-based social protection. The increase in unemployment will lead also to higher poverty rate.
13. The World Bank forecasts that global poverty rate will increase from 7.8 percent (632 million people) before the Covid-19 to 8.6 percent (665 million people) at the end of 2020, by pushing 49 million people into poverty. The rate is expected to decline to 8.3 percent in 2021, compared to the pre-Covid forecast of 7.6 percent. The International Labour Organisation (ILO) estimated that the rate of relative poverty is expected to increase by almost 34 percentage points globally for informal workers, ranging from 21 percentage points in upper-middle-income economies to 56 percentage points in lower-middle-income economies.
14. Covid-19 may not just increase the poverty level, but also the unequal access to food. The disruption in food supply chains caused by the movement restrictions, health risks due to infection of Covid-19 to workers, logistics chokepoints have raised the risks in access to food. Covid-19 may also increase the disparity and inequality as a result of the changes in the nature of work, trade and investment going to be conducted in the future. Some jobs may disappear, and different jobs will surface. The increased use of digital technology such as in the work from home and education brings out the real disparity in the access to the soft and hard digital infrastructure.
15. APEC member economies are working towards a Post-2020 Vision and the plan is expected to have a definite target, preferably between 2021-2040. To achieve the fullest human potentials for a future shared prosperity requires the APEC economies to respond to several megatrends that are currently and/or likely to influence various aspects of the human life in the post-2020 and post-pandemic. Previous megatrends no longer hold true, and the world of trade and investment is faced with new megatrends.
16. The Covid-19 pandemic sees the transformation to trade and investment, where certain sectors supported by digital technologies and biotechnology such as agriculture and food processing are gaining importance. Further, there will be a new way of conducting and managing the supply chains, which moves from supply chain management that focuses on few economies to reshoring with regionalization of supply chains. There will be a move from liberalisation and technology transfer towards

protection of certain business from foreign acquisitions; and there will be acceleration of digital infrastructure investment, and digitalisation of the economy.

17. A post-2020 vision for APEC should be one of continuing to contribute to the dynamism and prosperity of the Asia-Pacific region through policies, which support economic growth. Growth generates prosperity, raises incomes, provides economic opportunity, alleviates poverty and improves the lives of individuals.
18. Although growth alone does not guarantee that all individuals share in its benefits, growth is necessary in order to generate the fiscal resources and political space governments require in order to support distribution, adjustment and social protection policies.
19. APEC as a key driver of regional and global economic growth and integration and a major contributor to the regional economic architecture, together with its global leadership in addressing its most pressing economic challenges.
20. A post-2020 vision should embrace the challenge of ensuring that the digital and technological revolution, which is upon us, maximises prosperity for the largest possible numbers. The nature of work, commerce and human interaction is changing rapidly, and continued growth and prosperity throughout the region will depend crucially on the ability of individuals and economies to adapt to and benefit from these changes.
21. In closing, I hope that today's conference will inspire us to exchange good practices and lessons learned on the progress and challenges facing the APEC economies in achieving an inclusive, sustainable growth and shared prosperity, especially in facing the new normal post- pandemic.

Thank you.

Priority Area 1

Improving the Narrative of Trade and Investment

1. Managing Risks in Global Value Chains: Strengthening Resilience in the APEC Region
Divya Sangaraju and Akhmad Bayhaqi
2. Foreign investment and value-added generation in Resource rich countries in the Association of Southeast Asian Nations and Pacific Alliance
Dr. Yuri Landa Arroyo
3. Trade and investment facilitation: efficiency in programs and actions in APEC
Dra. América Ivonne Zamora Torres
4. The Belt and Silk Road Initiative: The New Game Changer in Transnational Investment Arbitration in Asia
Atty. Irene D. Valones
5. Asia-Pacific in the World Economy: Trends and Opportunities for Peru
Dr. Rosario Santa Gadea

**Managing Risks in Global Value Chains:
Strengthening Resilience in the APEC Region**

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Abstract

This policy brief aims to replicate a key study conducted by APEC in 2014 where a quantitative evaluation of the Strength of Value Chains was conducted. As an update to this study, the policy brief we are currently finalizing provides updated results on the extent of resilience against 5 key risk areas (Natural disaster risk; Logistics and Infrastructure Risk; Market Risk; Regulatory and Policy Risk; and Political Risk) that are relevant to Value Chain Strength in the APEC region. This study is important as it quantifies the region's performance in terms of Global Value Chains resilience, an issue being exemplified in recent months. The paper makes use of the Principal Component Analysis method to calculate a Value Chain strength index that quantifies the resiliency of the Global Value Chain environment of the APEC region in comparison to other inter-governmental bodies such as ASEAN, G20, OECD and the European Union. Furthermore, considering the recent pandemic, a section of this report has highlighted instances where businesses or governments have shown resilience to this pandemic and the areas within which improvements can be made. More importantly, this study helps shed light on how governments can be more prepared to face unexpected crisis like COVID-19 in the future.

KEY MESSAGES

- While businesses may be able to mitigate against some risks through measures like diversification and hedging, they are likely to struggle when faced with systemic, economy-wide risks to global value chains, particularly those

resulting from unexpected events like the COVID-19 pandemic and natural disasters.

- Resilience, or as conceptualised in this study, the strength of an economy or a regional grouping against systemic risks, must therefore be a priority for businesses and government.
- The quantitative analysis done in this study suggests that the APEC region has performed relatively better compared with most regional/economic groupings in terms of: (1) market risk and (2) regulatory and policy risk.
- Even where the APEC region compares relatively well to the other regional or economic groupings studied, a deeper look shows a wide gap between the highest-performing economy and the lowest.
- COVID-19 was largely an unanticipated systemic event that has been estimated to affect global trade and value chains significantly. APEC economies have developed a strong foundation to deal with the crisis but more needs to be done.
- All in all, this policy brief reinforces the message that, while it is not always possible to anticipate all risks, economies should aim to be more resilient should unexpected shocks occur. The APEC region should thus redouble its commitment to strengthening the institutions, structures and facilities that are key to greater economic resilience in the face of systemic risks.

Introduction

Value chains have become an important aspect of trade and globalisation today. They gained in importance over the last decade as trade barriers fell, incentivising firms to unbundle production to different locations where costs may be lower.¹ Indeed, on average, the global- value-chain participation rate² in the APEC region has reached more than 0.5 as of 2018³. However, considerable risks exist due to the global nature of these production networks. In general, firms encounter two main types of risks in the global network: systemic and non- systemic. One definition of systemic risk is ‘the

¹ Anna Ignatenko, Faezeh Raei, and Borislava Mircheva, “Global Value Chains: What Are the Benefits and Why Do Countries Participate?” (working paper, IMF, 2019), <https://www.imf.org/~media/Files/Publications/WP/2019/wp1918.ashx>.

² This rate is a measure of the extent of an economy’s integration into global value chains.

³ B. Casella, R. Bolwijn, D. Moran and K. Kanemoto. “Improving the Analysis of Global Value Chains: The UNCTAD-Eora Database,” *Transnational Corporations* 26, no. 3 (2019).

risk or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by co-movements (correlation) among most or all the parts'.⁴ The World Economic Forum has identified a core set of 31 such global risks, including global pandemics, financial crises, and infrastructure disruptions.⁵ Firms often struggle when faced with systemic risks, which are economy-wide risks that cannot be addressed through firm-level risk mitigation strategies used with non-systemic risks such as diversification. Systemic risks are also usually not within firms' control, being often linked to unexpected events at a global scale. A survey by the World Economic Forum reinforces the impact on firms, observing that, of the risks faced by global supply chains, the uncontrollable ones (e.g., natural disasters, extreme weather) were the most significant.⁶

Furthermore, given how integrated and connected many value chains have become, local systemic risks could easily turn into regional or even global ones. A local incident may find multiple transmission channels, which could amplify the initial impact to the global level across multiple stakeholders and across economies. Indeed, Burstein et al. find higher business cycle correlations among economies with strong global value chain linkages.⁷ Given that firms and economies are exposed to systemic risks as they engage in global networks, there is a need to build resilience into their value chains. Resilience here refers to the ability to return to normal operations quickly and it is of particular importance for the APEC region where several key business hubs exist.

The economy-wide and global implications of disruptions in supply chains suggest that governments need to support firms in managing such risks. Recent events such as the trade tensions between certain economies and the COVID-19 pandemic have only underlined the importance of this. The COVID-19 pandemic in particular has been devastating to economies in the APEC region, as the pandemic-related movement restrictions brought some supply chains to a halt, and stalled the manufacturing of

⁴ George G. Kaufman & Kenneth E. Scott, "What Is Systemic Risk, and Do Bank Regulators Retard or Contribute to It?" *The Independent Review* 7, no. 3 (2003): 371–91.

⁵ World Economic Forum (WEF), "Global Risks 2014" (Geneva: WEF, 2014).

⁶ WEF, "New Models for Addressing Supply Chain and Transport Risk" (Geneva: WEF, 2012).

⁷ Ariel Burstein, Christopher Kurz, and Linda Tesar, "Trade, Production Sharing, and the International Transmission of Business Cycles," *Journal of Monetary Economics* 55, no. 4 (2008): 775–95.

several products (e.g., automotive, electronics, medical goods).⁸ It is thus timely to provide an update of the 2014 report presenting a ‘Quantitative Analysis of Value Chain Strength in the APEC Region’. By doing so, this policy brief hopes to provide APEC economies with a better gauge of the region’s performance in comparison with other regional/economic groupings such as the Organisation for Economic Co-operation and Development (OECD), the European Union (EU), the Association of Southeast Asian Nations (ASEAN) and the G20; and through the analysis, identify areas for improvement. Structurally, this policy brief covers: (1) a literature review of the efforts taken to measure resilience in global value chains; (2) an outline of the areas that are important to measuring value chain strength; (3) a quantitative analysis of APEC’s value chain strength in comparison to other groupings; (4) a qualitative analysis of the region’s value chain strength in relation to the COVID-19 pandemic.

Literature Review

There has been a great deal of research on supply chain resilience, with several attempts to define it. Rice and Caniato define supply chain resilience as the ability to ‘respond to unexpected disruption and restore normal supply network operations’.⁹ Similarly, Ponomarov and Holcomb describe it as ‘the adaptive capability of the supply chains to prepare for unexpected events, respond to disruption, and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function’.¹⁰ Days supports a similar definition while also including the need to predict risk and minimise the impact.¹¹

In the same vein, this study defines value chain strength as ‘the inverse of risk: the range of factors that determines an economy’s ability to respond to risks and limit their economic and social impacts’, in particular to recover to pre-crisis level

⁸ Simone McCarthy, “Coronavirus Could Cause Global Medicine Shortages as China’s Factory Closures Hit Supply Chains,” *South China Morning Post*, 4 March 2020, <https://www.scmp.com/news/china/society/article/3064989/coronavirus-could-cause-global-medicine-shortages-chinas-factory>.

⁹ James B. Rice and Federico Caniato, “Building a Secure and Resilient Supply Network,” *Supply Chain Management Review* 7, no. 5 (2003): 22–30.

¹⁰ Serhiy Y. Ponomarov and Mary C. Holcomb, “Understanding the Concept of Supply Chain Resilience,” *The International Journal of Logistics Management* 20, no. 1 (2009): 124–43. <https://doi.org/10.1108/09574090910954873>.

¹¹ Jamison M. Day, “Fostering Emergent Resilience: The Complex Adaptive Supply Network of Disaster Relief,” *International Journal of Production Research* 52, no. 7 (2014): 1970–88.

operations.¹² Some studies have focused on a survey approach towards identifying areas of supply chain resilience. For instance, the World Economic Forum, through a survey of executives, identified five top measures of resilience: (1) improved information sharing between governments and businesses; (2) harmonised legislative and regulatory standards; (3) building a culture of risk management across suppliers; (4) common risk assessment frameworks; (5) improved alert/warning systems.¹³ Another approach used is the identification of key performance indicators (KPIs) at the firm level. This approach relies on introducing measures that are quantifiable and can be used by firms to monitor processes over time and evaluate them. An example is Resilinc's R Score™, which measures supply chain resiliency factors such as transparency, network resiliency, continuity, robustness, performance, and supply chain resiliency programme maturity.¹⁴ Others have used a simpler methodology, examining possible indicators that could be used to measure supply chain resilience. For instance, Singh, Soni and Badhotiya used a literature review to identify 17 indicators that could be used to measure resilience, including agility, flexibility, robustness, redundancy, visibility, IT capability, collaboration, sustainability, awareness, supply chain risk management culture, and velocity.¹⁵ The study described in this policy brief aims to add to the work in this area by focusing on five areas of resilience that are applicable to systemic risks, as presented in Box 1 and elaborated further in the next section.

Developing an Index of Value Chain Strength

Measuring the resiliency of global supply chains, particularly those related to systemic risks, is difficult. Much of the challenge lies in assigning appropriate quantitative

¹² APEC Policy Support Unit (PSU), "Quantitative Analysis of Value Chain Strength in the APEC Region" (Singapore: APEC, 2014), <http://publications.apec.org/-/media/APEC/Publications/2014/10/Quantitative-Analysis-of-Value-Chain-Strength-in-the-APEC-Region/VC-Strength-Draft-Report-v6.pdf>.

¹³ WEF, "Building Resilience in Supply Chains" (Geneva: WEF, 2013), http://www3.weforum.org/docs/WEF_RRN_MO_BuildingResilienceSupplyChains_Report_2013.pdf.

¹⁴ Resilinc, "A New Metric for Measuring Supply Chain Resiliency: An Introduction to Resilinc R Score™ and Its Application to the High-Tech Industry Supply Chain" (Resilinc and Global Supply Chain Resiliency Council, 2017), https://info.resilinc.com/hubfs/R%20Score%20Whitepaper%20March%202017_Latest%20.pdf.

¹⁵ Chandra S. Singh, Gunjan Soni and Gaurav K. Badhotiya, "Performance Indicators for Supply Chain Resilience: Review and Conceptual Framework," *Journal of Industrial Engineering International* 15 (2019): 105–17 <https://doi.org/10.1007/s40092-019-00322-2>.

indicators that could accurately reflect different dimensions of resiliency, or as referred to in this study, ‘value chain strength’. While several other areas may also contribute toward measuring value chain resilience, this study identifies five areas as the best proxies for quantifiable and significant aspects of supply chain resilience in the face of systemic risks, this is as summarised in Box 1. These five areas contribute toward constructing an index that evaluates the resilience of economies. The quantitative evaluation will be complemented with a qualitative analysis that will identify examples of resilience within the context of the current COVID-19 pandemic (see page 8).

Box 1. Components of supply chain strength or resilience

- ***Strength against logistics and infrastructure risk:*** Measures that limit the economic and social disruptions that can occur to supply chain processes when the markets or actors that connect supply chain operators to each other do not perform as expected.
- ***Strength against market risk:*** Measures that limit the *economic* and social effects of economic fluctuations that disrupt prices, output or other economic fundamentals.
- ***Strength against natural disaster risk:*** Measures that limit the economic and social consequence of the occurrence of a natural disaster.
- ***Strength against political risk:*** Measures that limit the economic and social effects of the possibility that economic activity may be impeded by the occurrence of political or violent conflicts inside or outside the economy.
- ***Strength against regulatory and policy risk:*** Measures that limit the economic and social effects of unexpected changes in regulatory stance, or inconsistency in enforcement, which would otherwise increase business uncertainty, and thus the transaction costs associated with value chain processes.

Methodology

This study identifies key indicators for the respective strength areas, and uses principal component analysis (PCA) to construct an overall composite index for evaluating the strength of global value chains in the APEC region. PCA is a popular

method used within economics to help summarise information across a large number of variables. This method recognises that some variables are likely to be more correlated with each other than with others, and is a method to capture that variation to create a more representative index. Also, with PCA, the more important a variable, the greater its proportion in the composite index. Given that the analysis in this brief consists of 21 variables, it is important to identify the most relevant individuals as not all of which will contribute equally to the overall index. In this regard, PCA helps identify for inclusion the variables that are most important to the overall composite index and best represent resilience.

In addition to quantifying APEC's resilience against risks affecting global value chains, this study also makes a comparison against four other regional/economic groupings, namely, the OECD, EU, ASEAN and G20. These groupings were selected because they represent a diverse set of economies. ASEAN for example consists mainly of developing economies while the OECD and G20 consist predominantly of developed ones. A more detailed account of the methodology is provided in the technical notes accompanying this brief (see Annex A).

Data

An overview of the indicators used and the data can be found in Table A2 (Annex A) along with the relevant summary statistics. The mean of most indicators within the evaluation generally clusters around 0.5. For certain indicators (e.g., access to electricity, percentage of individuals using the internet), a large proportion of economies were close to the maximum possible value. In terms of standard deviation,¹⁶ the largest value of 0.291 is noted within the indicator measuring the rule of law followed by the indicator measuring the depth, access and efficiency of financial markets (0.286). This shows that significant gaps exist between economies. When disaggregated into regions, the OECD registered the highest mean across most variables (see Table A3 in Annex A, highlighted in green). The APEC region continues to trail behind the other regions for most indicators with the exception of the

¹⁶ Standard deviation refers to the extent that economies differ from the mean of the variable. The higher the value, the more dispersed economies are.

indicators measuring market capitalisation of listed companies as a percentage of GDP; depth, access and efficiency of financial markets; and efficiency of settling disputes.

Output of the principal component analysis

Upon carrying out PCA on the identified indicators, components were included based on three conditions: (1) the eigenvalue of the component has to be greater than 1; (2) the component should add to the overall explained variance; (3) the number of components to include was determined through a scree plot (see Annex C).¹⁷

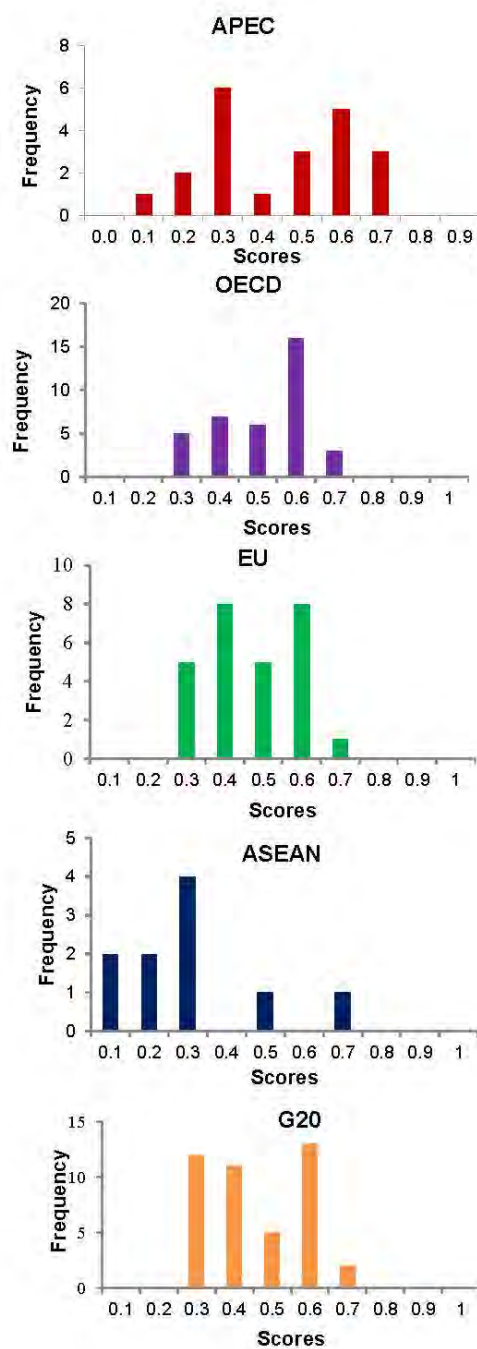
Table 1. Weights for each area of strength

Strength against:	Weight in the overall index (%)
Logistics and Infrastructure Risk	25.3
Market Risk	13.8
Natural Disaster Risk	19.2
Political Risk	15.6
Regulatory and Policy Risk	26.1

Development Bank (ADB) in creating their Asia-Pacific Regional Integration Index. To be specific, the following steps were undertaken: (1) loadings of each component were squared; (2) squared loadings of each component were then proportioned based on the proportion of variation to calculate weights; (3) calculated weights were multiplied to each observation and summed to create the overall index

¹⁷ Components with eigenvalue greater than 1 and before the curve levels reaches the inflexion point are included.

Figure 1. Frequency charts of regional grouping score



Note: Scores have been normalised in this index where 0 is the lowest possible score and 1 is the highest.

The components and their relevant loadings can be found in Annex B. Following the criteria outlined above, this analysis takes into consideration five components (areas of strength against risk) of the PCA outputs to create an overall composite index measuring the strength of value chains within each of the regional groupings.¹⁸ The weight for each area of strength, derived through PCA, is as noted in Table 1. Among the strength areas analysed, resilience against regulatory and policy risk (26.1%) is determined to have the largest weight in the overall index followed by resilience against logistics and infrastructure risk (25.3%) and natural disaster risk (19.2%).

Results Overall index

Comparing overall scores across the different regions, the OECD has the largest proportion of its members (67.6%) with scores greater than 0.5, followed by APEC (52.3%) and the EU (51.8%). While APEC may have the second highest proportion of members with scores about 0.5, it is important to note that approximately 42.9 percent of the region continues to score equivalent or below 0.3. This indicates significant disparity within the region with almost half of the economies registering a rather weak performance in terms of value chain strength (Figure 1). Within the APEC region, performance has been varied with overall scores extending from lows of 0.15 to highs of 0.77. Hong Kong, China was the best performer. Although, it registered scores greater than 0.5¹⁹ across all five pillars of strength, it performed the best in terms of strength against regulatory and policy risk, and against market risk. This is unsurprising considering its well-developed financial markets and its legal systems that provide more legal certainty for firms.

Although scoring well within pillars that have larger weights in the overall index helps economies register a higher score, it is important to note that economies who performed well on the whole also did well across all areas of strength, not just ones

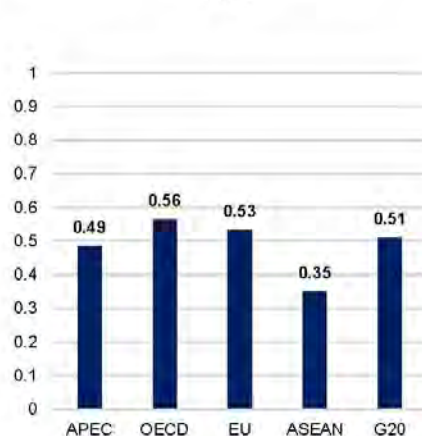
¹⁸ The calculation of the overall index based on these five components follows the same methodology used by the Asian Development Bank (ADB) in creating their Asia-Pacific Regional Integration Index. To be specific, the following steps were undertaken: (1) loadings of each component were squared; (2) squared loadings of each component were then proportioned based on the proportion of variation to calculate weights; (3) calculated weights were multiplied to each observation and summed to create the overall index.

¹⁹ After normalisation based on weights contributed to the overall index

that have a higher weightage in the overall index. For instance, Singapore, while boasting the second highest score in the region, not only performed well in terms of regulatory policy risk but had scores greater than 0.6²⁰ for four out of the five indicators. In terms of the overall index, the APEC region (0.49) performed moderately well, slightly behind the EU (0.53) and the G20 (0.51) as depicted in instance, although the OECD ranks the best across the groupings analysed, it's score of 0.56 is only slightly more than half of the maximum possible score (Figure 2).

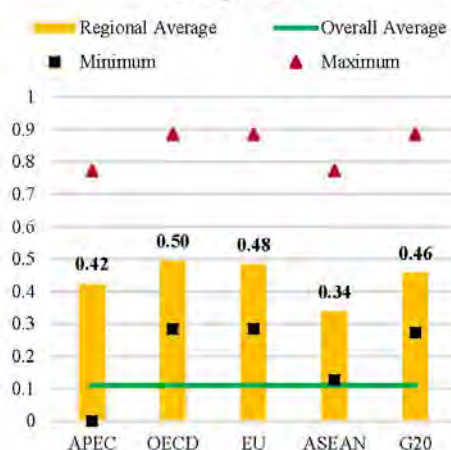
Figure 2. The value of the index ranges from 0 (lowest performance) to 1 (highest performance). As such, all of the groupings analysed continue to have much room for improvement. For

Figure 2. Overall value chain strength index



Note: Scores have been normalised this index where 0 is the lowest score and 1 is the highest score.

Figure 3. Logistics and infrastructure strength index



Note: Scores have been normalised this index where 0 is the lowest score and 1 is the highest score.

²⁰ APEC, “E highest score within the APEC region but also did so across all economies analysed.

Strength against logistics and infrastructure risk

Further analysis can be conducted by disaggregating the overall score into logistics and infrastructure related strength. Performing well in this indicator signifies that the economy is relatively resilient against physical disruptions to infrastructure that support the operation of supply chains. Within the APEC region, scores extend from values close to 0 to highs of 0.77. The best performers under this pillar were: Singapore (0.77); Hong Kong, China (0.64); and New Zealand (0.58). Possible reasons include their relative openness to trade as well as the extensive investment in transportation infrastructure and in improving customs processes and logistics. With respect to other regional/economic groupings, the APEC region (0.42) ranks fourth among the five regions analysed (Figure 3). Although it could be argued that the G20 generally consists of developed economies while APEC consists of a mix of developed and developing economies, more efforts are still required by the APEC region to ensure concerted development in the area of logistics and infrastructure. Furthermore, the APEC region only registers slightly more than one-third of the maximum possible score attainable, which signifies vast room for improvement.

All indicators under this strength area generally contribute equally to the overall logistics and infrastructure index (see Annex B for the individual weights for each indicator). This suggests that it is important for economies to be well rounded in this regard. In fact, the APEC region's best performers in this index performed relatively well in all the indicators evaluated. Singapore, which topped this strength area, has similar scores across all the sub-indicators within this pillar, with its best performance found to be within the 'Logistics performance index: Competence and quality of logistics services' indicator.

Strength against natural disaster risk

This indicator is particularly relevant considering the high risk of natural disasters within the APEC region, with several economies nested along the Pacific Ring of Fire, which has been known to experience large-scale natural disasters such as tsunamis,

earthquakes and volcanic eruptions, or in areas prone to storms and typhoons.²¹ Examples include the Great Tohoku Earthquake and the floods in Thailand in 2011. This pillar is not only relevant for natural disasters but also to health-related calamities. Within this index, the indicators contributing the largest share of this index is ‘physicians (per 1,000 people)’, ‘current health expenditure’ and ‘fixed telephone subscription’. In the context of the COVID-19 pandemic, these indicators are seen to be particularly important and are aspects that contribute greatly toward the resilience of an economy.

There is wide disparity within the APEC region where scores ranging from lows of 0.05 to highs of 0.72 (Figure 4). The lower bound is particularly concerning as the economy registered the lowest score across all economies analysed within this report. Additionally, given that the economy is often plagued by natural disasters, the lack of resilience in this area necessitates a concerted and cooperative effort by the region to narrow the gap. When compared to other groupings, APEC ranks fourth with a score of 0.42 and shows significant gaps with other regional groupings, except for ASEAN (0.25). Considering that the highest scores in the APEC region are similar to those registered in these other groupings, its relatively poor performance in comparison to the other groupings is likely due to the wide disparities within the APEC region.

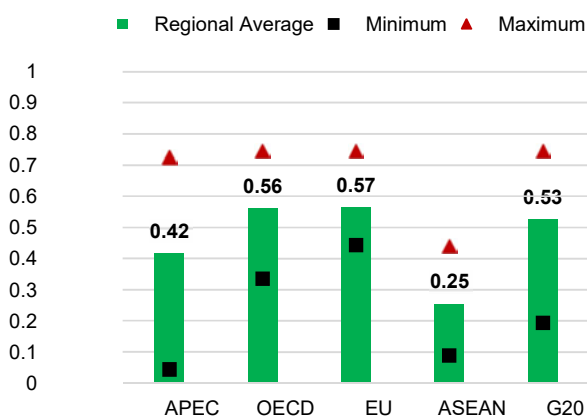
Strength against market risk

Strength against market risk is important as firms often depend on market mechanisms to deal with potential disruptions. This is particularly so with regard to financial markets, a focus of this strength area. Tools available through open and accessible markets include debt and equity instruments that firms can use to off-load certain risks. As such, ensuring that markets remain resilient during periods of crisis is very important for efficient value chain operations. In this pillar, the APEC region as a whole registered a score of 0.47. Much like the previous two strength pillars, the

²¹ Emergency Preparedness.” Last updated January 2020. <https://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Emergency-Preparedness#:~:text=Most%20APEC%20economies%20are%20situated,5%20cyclones%2C%20or%20super%20typhoons.>

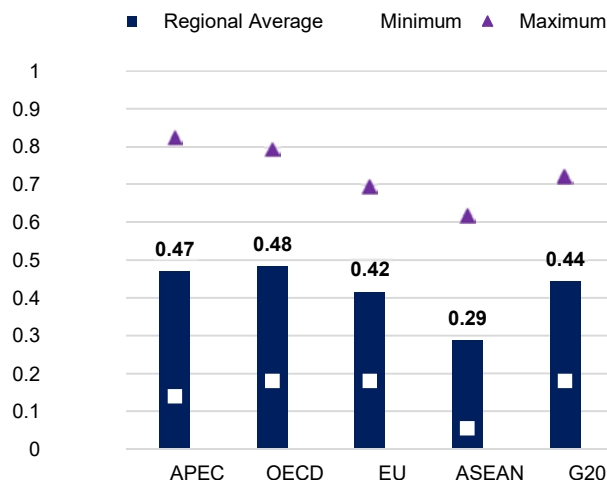
variation within the APEC region is wide where scores ranged from 0.14 to 0.82. One of the strongest performers under this strength area is Hong Kong, China, who not only registered the highest score within the APEC region but also did so across all economies analysed. Having said that, there continues to be a few economies that have registered weakness in this area. Although disparities in the region are expected considering the varying levels of development among member economies, there is a need for more targeted efforts to be taken toward narrowing this gap. It is encouraging to note the APEC region has shown a significantly strong performance here, ranking a close second among the groupings.

Figure 4. Natural disaster strength index



Note: Scores have been normalised in this index where 0 is the lowest possible score and 1 is the highest.

Having said that, there continues to be a few economies that have registered weakness in this area. Although disparities in the region are expected considering the varying levels of development among member economies, there is a need for more targeted efforts to be taken toward narrowing this gap.

Figure 5. Market risk strength index

It is encouraging to note the APEC region has shown a significantly strong performance here, ranking a close second among the groupings. The components and their relevant loadings can be found in Annex B. Following the criteria outlined above, this analysis takes into consideration five components (areas of strength against risk) of the PCA outputs to create an overall composite index measuring the strength of value chains within each of the regional groupings.²² analysed, with only a 0.01 gap with the OECD (Figure 5). While the average is likely skewed by some outperformers in the region, the performance is also underpinned by most economies in the APEC region having developed strong economic fundamentals. Not only does APEC have well-developed financial institutions and markets, it also has a strong presence of domestic firms.

Strength against regulatory and policy risk

Given that regulatory and policy issues are often beyond the control of firms and investors, resilience in this area is highly valued by value chains. In fact, it contributes

²² The calculation of the overall index based on these five components follows the same methodology used by the Asian Development Bank (ADB) in creating their Asia-Pacific Regional Integration Index. To be specific, the following steps were undertaken: (1) loadings of each component were squared; (2) squared loadings of each component were then proportioned based on the proportion of variation to calculate weights; (3) calculated weights were multiplied to each observation and summed to create the overall index

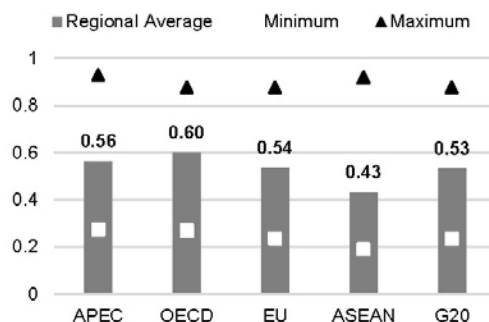
the largest weight toward the overall index. Under this pillar, the APEC region boasts an average score of 0.56. Economies performing well in this strength area include Hong Kong, China (0.93); Singapore (0.92); and New Zealand (0.85). Although some economies have performed well in this strength area, a few economies have registered very weak resilience to regulatory and policy risks with scores as low as 0.27.

The APEC average is noted to be close to the OECD who is a top-performer in this regard. Additionally, the difference between the two groupings is small, with the OECD scoring 0.60, a score 0.04 higher. The strong performance of some economies is likely to be driven by the consistency and predictability of regulations that have lowered business uncertainties as well as assuring firms and investors of access to efficient legal framework should disputes arise.

Strength against political risk

Although the pillar contributes only 15.6 percent to the overall index, the resilience of economies against political risk is an important aspect to consider as it captures the overall stability of an economy. If an economy is not resilient against political risk, this will impede businesses' long-run operations, and affect the overall business climate, and may even impose additional costs for businesses.

Within this indicator, Singapore performed best in the APEC region, boasting a score of 0.96. It performed relatively well on all three sub-indicators but its strong overall performance was primarily driven by the indicator measuring the rule of law within the economy. This pillar is one of the APEC regions strongest pillars where it has registered a score of 0.56 (Figure 7). Nevertheless, the APEC region continues to lag behind the OECD (0.69), EU (0.68) and G20.

Figure 6. Regulatory and policy strength index

Possible Impact of COVID-19 on Value Chains

This discussion on value chain resilience comes at an appropriate time given that supply chains in the APEC region have been negatively affected by COVID-19.

Description of the COVID-19 pandemic

Although COVID-19 may have started as a health crisis, it has since also become an economic one considering the lockdowns that economies have had to put in place. The closure of international and domestic borders has affected economies that are particularly dependent on tourism and has also led to a temporary standstill in manufacturing. Recovering from the pandemic not only requires economies to rebound economically but also to contain the spread of the virus through measures such as safe distancing or finding a vaccine. Given that the health aspect continues to be unresolved, the economic impact is likely to further intensify. Off the backs of the growing trade tension and weakening global demand as a result of the structural changes noted within China's growth model,²³ COVID-19 has led to large-scale unemployment and has further dampened consumer demand for goods and services as a whole. According to current estimates by the International Monetary Fund (IMF), COVID-19 will likely reduce real GDP year-on-year growth rates by 3 percent compared to the reduction of 0.1 percent recorded during the 2008–2009 global

²³ Allan Dizioli, Jaime Guadarjo, Vladimir Kiyuev, Rui Mano, and Mehdi Raissi, "Spillovers from China's Growth Slowdown and Rebalancing to the ASEAN-5 Economies," IMF eLibrary, August 2016, https://www.elibrary.imf.org/view/IMF001/23627-9781475524260/23627-9781475524260/23627-9781475524260_A001.xml?lang=en&redirect=true.

financial crisis (GFC).²⁴ Meanwhile, the Asian Development Bank (ADB) estimates that the global economic impact will reach USD 5.8 to 8.8 trillion, or 6.4–9.7 percent of global GDP, without taking into account policy impact.²⁵

It also predicts that job losses could amount to 158 to 242 million jobs with forgone labour income of USD 1.8 trillion should economies not enact appropriate policies. Further to this, global foreign direct investment (FDI) flows are forecast to fall by up to 40 per cent in 2020 (USD 1.54 trillion in 2019).²⁶ Meanwhile, the Asian Development Bank (ADB) estimates that the global economic impact will reach USD 5.8 to 8.8 trillion, or 6.4–9.7 percent of global GDP, without taking into account policy impact.²⁷ It also predicts that job losses could amount to 158 to 242 million jobs with forgone labour income of USD 1.8 trillion should economies not enact appropriate policies. Further to this, global foreign direct investment (FDI) flows are forecast to fall by up to 40 per cent in 2020 (USD 1.54 trillion in 2019).²⁸

COVID-19 is an unexpected exogenous event that has caused a simultaneous supply and demand shock as a result of the lockdowns halting production lines in several major manufacturing hubs, increasing uncertainty and unemployment. This has had a negative impact on the demand for goods and services. Its impact on supply chains has triggered a ripple effect and has affected several sectors such as automotive, textiles and electronics. For instance, Fiat Chrysler Automobiles had to temporarily stop car

²⁴ Gita Gopinath, “The Great Lockdown: Worst Economic Downturn since the Great Depression,” IMF Blog, 14 April 2020, <https://blogs.imf.org/2020/04/14/the-great-lockdown-worst-economic-downturn-since-the-great-depression/>.

²⁵ ADB, “An Updated Assessment of the Economic Impact of COVID-19” (ADB Briefs no. 133, Manila: ADB, 2020), <https://www.adb.org/sites/default/files/publication/604206/adb-brief-133-updated-economic-impact-covid-19.pdf>.

²⁶ United Nations Conference on Trade and Development (UNCTAD), “World Investment Report 2020: International Production Beyond the Pandemic.” (New York: UN, 2020), https://unctad.org/en/PublicationsLibrary/wir2020_en.pdf.

²⁷ ADB, “An Updated Assessment of the Economic Impact of COVID-19” (ADB Briefs no. 133, Manila: ADB, 2020), <https://www.adb.org/sites/default/files/publication/604206/adb-brief-133-updated-economic-impact-covid-19.pdf>.

²⁸ United Nations Conference on Trade and Development (UNCTAD), “World Investment Report 2020: International Production Beyond the Pandemic.” (New York: UN, 2020), https://unctad.org/en/PublicationsLibrary/wir2020_en.pdf.

production in Serbia as it was unable to procure parts from China; and Hyundai had to stop production lines in Korea.²⁹

Additionally, the scope of impact of COVID-19 has been much wider than with other crises, with almost all economies in the world affected. As an example, the GFC's impact was largely restricted to just a few markets, particularly those overly exposed to the financial markets of the United States. Although the GFC did eventually lead to a global downturn affecting many economies, some large economies were able to remain resilient through the crisis altogether given their limited exposure. For instance, in terms of trade, economies in the APEC region registered differing impacts, with Japan falling 26 percent in 2009 while Viet Nam only fell by 9 percent.³⁰ Similarly, an IMF study notes that while emerging and developing economies remained relatively unscathed during the GFC where they boasted positive real GDP growth rates, it is not likely to be the case for the current pandemic.³¹

That shows that a demand shock alone could significantly affect value chain activity. With COVID-19 having an effect on both demand and supply, a similar, if not more extensive, scenario is likely, even though global-value-chain participation rates have fallen since 2008. This scenario becomes even more plausible when the observations and indications during the onset of the COVID-19 pandemic are taken into consideration. The lockdowns in response to COVID-19 affected manufacturing activity and logistical services. It also required workers to stay home, and there was overcapacity on shipping containers, and a peak in blank sailings. These affected freight flow and timely container collection, delaying shipments and leading to low cargo rates.³² None of this had occurred during the GFC. Such observations suggest

²⁹ Rebecca Liao and Ziyang Fan, "Supply Chains Have Been Upended. Here's How To Make Them More Resilient," World Economic Forum, 6 April 2020, <https://www.weforum.org/agenda/2020/04/supply-chains-resilient-covid-19/>; "Coronavirus Exposes Cracks in Carmakers' Chinese Supply Chains (New York Times)," *Straits Times*, 5 February 2020, <https://www.straitstimes.com/business/companies-markets/coronavirus-exposes-cracks-in-carmakers-chinese-supply-chains>.

³⁰ APEC Policy Support Unit (PSU), "Quantitative Analysis of Value Chain Strength in the APEC Region" (Singapore: APEC, 2014), <http://publications.apec.org/-/media/APEC/Publications/2014/10/Quantitative-Analysis-of-Value-Chain-Strength-in-the-APEC-Region/VC-Strength-Draft-Report-v6.pdf>.

³¹ Gopinath, "The Great Lockdown."

³² Monique Giese, "Troubled Waters for the Shipping Sector," KPMG, 22 June 2020, <https://home.kpmg/xx/en/blogs/home/posts/2020/06/troubled-waters-for-the-shipping-sector.html>; S.L.

that the current crisis has disrupted firms more significantly and deeply compared to the GFC and would likely have a more detrimental impact on value chain activity. This is especially so considering that most economies continue to grapple with COVID-19 spread. Instead, it is likely that the economic impact will be far greater than those experienced during the GFC. Trade impact of the COVID-19 pandemic The COVID-19 pandemic has negatively impacted trade flows significantly. Although year-on-year growth has been on a decline since 2019, the steepest fall was noted in April 2020 where year-on-year change in exports and imports fell by approximately 12.2 percent and 13.5 percent respectively (Figure 8). The IMF has estimated that world trade volume in goods and services could shrink further by 11.9 percent in 2020, rebounding in 2021.³³ The WTO has similarly projected that, in 2020, trade volume is likely to contract by between 12.9 percent (optimistic scenario) and 31.9 percent (pessimistic scenario); in 2021, trade is expected to rebound, expanding by between 21.3 percent and 24 percent.³⁴ For the APEC region, the APEC Policy Support Unit notes the region is projected to contract by 3.7 percent in 2020, or an output loss of around USD 2.9 trillion, due to the negative economic impact of COVID-19. In 2021, APEC is expected to rebound to a growth of 5.7 percent.³⁵

While an evaluation of overall trade numbers does provide an overview of the general impact on value chains, it does not provide much granular information. Much of the challenge of measuring the impact of value chains is a result of the fact that conventional measurements often quantify the gross value of transactions and not the value of each individual transaction in a value chain.³⁶

Fuller, “FMC Detention, Demurrage Guidance Comes as Coronavirus Outbreak Aggravates Preexisting Port Problems,” 29 April 2020, <https://www.supplychaindive.com/news/fmc-detention-demurrage-final-guidance-ocean-shipping/577038/>.

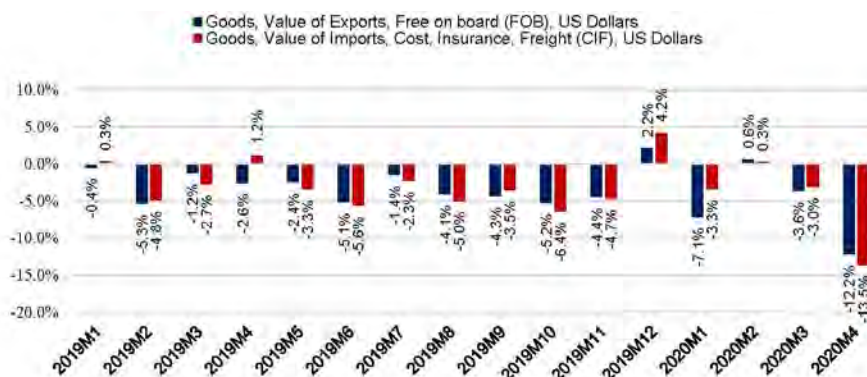
³³ International Monetary Fund (IMF), “A Crisis Like No Other, An Uncertain Recovery,” World Economic Outlook Update, June 2020, <https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEUpdateJune2020>.

³⁴ International Institute for Sustainable Development (IISD), “IMF Finds Deeper COVID Impacts than Previously Projected, WTO Forecasts Trade Rebound in 2021,” SDG Knowledge Hub, 2 July 2020, <http://sdg.iisd.org/news/imf-finds-deeper-covid-impacts-than-previously-projected-wto-forecasts-trade-rebound-in-2021/>

³⁵ Rhea C. Hernando, “Deeper Contraction Calls for Decisive Action,” APEC Regional Trends Analysis, July 2020 Update (Singapore: APEC, 2020), <https://www.apec.org/Publications/2020/07/APEC-Regional-Trends-Analysis-July-2020-Update>.

³⁶ World Bank, “Global Value Chain Development Report 2017: Measuring and Analyzing the Impact of GVCs on Economic Development” (Washington, DC: World Bank, 2017), <https://www.brookings.edu/wp-content/uploads/2017/07/tcgp-17-01-china-gvcs-complete-for-web-0707.pdf>.

**Figure 8. Year-on-year change in exports and imports
within the Asia-Pacific region**



Source: International Monetary Fund – Direction of Trade Statistics; Chinese Taipei’s Ministry of Finance – Trade.

For instance, while imports of goods and services are often measured by economies, the types of transaction, as well as whether these goods are intermediate or final goods, are often not tracked, likely because it is administratively cumbersome to do so. Furthermore, data is often produced annually, which makes it difficult to evaluate the effect of a particular event on the functioning of global value chains. Another key challenge worth noting is that much of the crisis is still underway which makes it difficult to understand the full extent of its impact on global value chains.

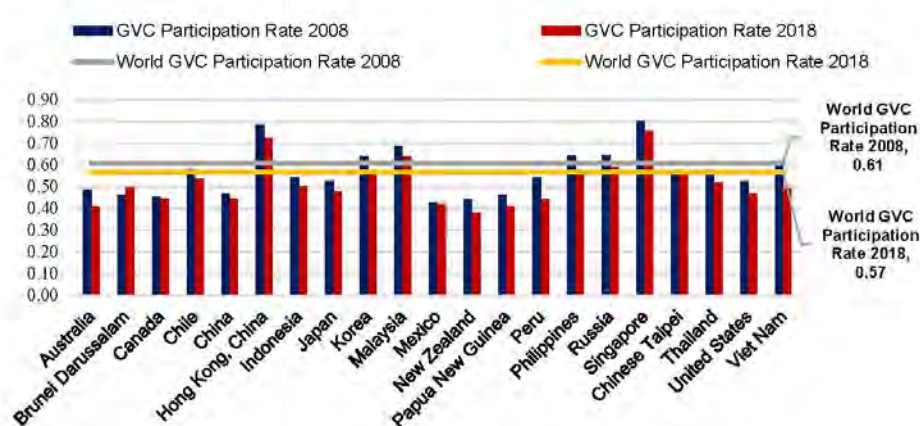
As a result of the difficulties involved with using data alone to measure supply chain resilience, this section will rely on anecdotal firm-level analyses and real-life examples. Considering the challenges in evaluating the value chain impact of the current pandemic, further assessments could be based on the experience of a past crisis. For instance, while the 2008 GFC was largely a demand-side crisis, an evaluation of its impact on trade can help proxy the potential impact of COVID-19. An investigation of the GFC’s trade impact notes that, in 2008, the year-on-year change in APEC’s exports and imports fell into negative territory for almost 13 months before registering positive growth rates.³⁷ Considering that the COVID-19 crisis is both a demand and supply-side shock, the rebound period could potentially be longer.

A further evaluation could be conducted based on global-value-chain participation

³⁷ International Monetary Fund – Direction of Trade Statistics; Chinese Taipei’s Ministry of Finance – Trade Statistics Database; APEC Secretariat, Policy Support Unit calculations.

rates. It has been found that when value chains are less connected with each other, a disruption in one economy is unlikely to affect another as extensively, making the impact on global trade smaller. Additionally, the impact of a disruption may become more easily transmitted when value chains are more interconnected. However, this should not be taken to mean globalised value chains are not beneficial to trade as they also allow for the quick reconfiguration of supply chains to other suppliers should disruptions happen. But it is worth noting that it is often difficult to do so within a short period of time, such as when hit by a systemic, unexpected crisis like COVID-19. Barriers include the legal contracts in place, and the complexities of response when the crisis affects a large number of economies.

**Figure 9. Change in interconnectivity of value chains
between 2008 and 2018**

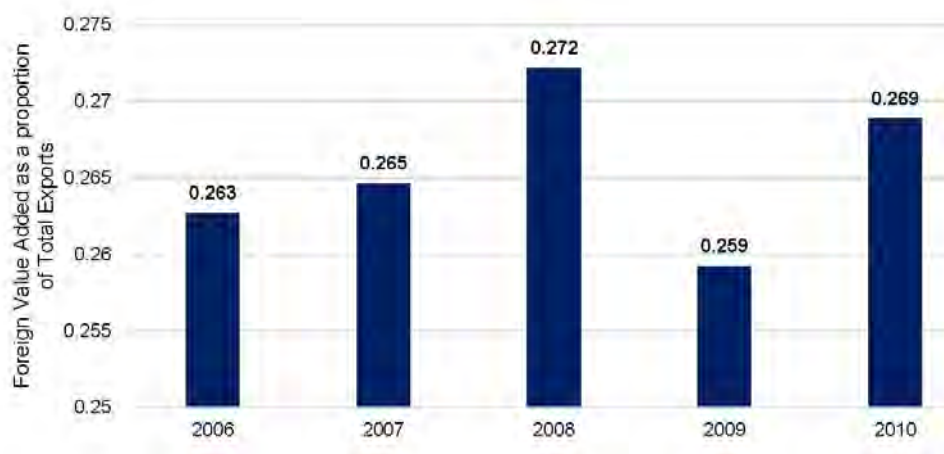


Source: UNCTAD-EORA Global Value Chain Database, <https://www.worldmrio.com/unctadgvc/>.

An evaluation of the change in the interconnectivity of supply chains between 2008 (during the GFC) and 2018 shows that value chains have become less interconnected with almost all APEC economies registering a fall in participation (Figure 9). While this may seem to suggest that value chains could be less adversely affected this time round, it needs to be considered that COVID-19 is unique in that, unlike other crises including the GFC, it has had an impact both on supply and demand. While our study does not attempt to model the impact of both a demand and supply-side shock, an approximation of the potential shock can be carried out by examining the impact of the GFC on value chains. The GFC, a largely demand-side shock, had a significant impact

on value chain activity. Between 2006 and 2008, years prior to the GFC, the average amount of foreign value added as a proportion of total exports in the APEC region had steadily increased from 0.263 in 2006 to 0.272 in 2008. However, as a result of the GFC and the demand shock to final goods and services, the average proportion fell sharply to 0.259 in 2009 (Figure 10)

Figure 10. Foreign value added as a proportion of total exports in the APEC region



Source: UNCTAD-EORA Global Value Chain Database, <https://www.worldmrio.com/unctadgvc/>.

COVID-19 and Factors of Value Chain Resilience

Given that the impact of COVID-19 on global trade and supply chains would likely be extensive, it is more important than ever that economies continue to build their supply chain resilience. While all five strengths areas introduced in this report are important to supply chain resilience as a whole, the two areas that are likely to be directly important in relation to the COVID-19 pandemic are strength against natural disaster risk, and against logistics and infrastructure risk.

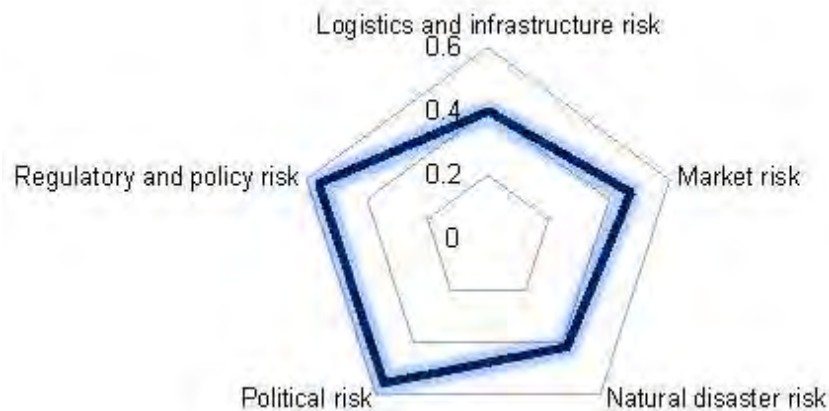
- Natural disaster risk

Under the strength against natural disaster risk pillar, several aspects relevant to the COVID-19 situation have been considered. It may be surprising to equate the COVID-19 pandemic to a natural disaster, but considering that the consequences of both events are very similar, the comparison makes sense. While some indicators under this strength area are not immediately relevant to the pandemic, such as access to physical infrastructure (e.g. electricity, telephone), those related to healthcare infrastructure and expenditure are of concern. This is especially so given that COVID-19 is not a natural disaster but a health crisis affecting a large proportion of the population within the Asia-Pacific.

Several economies in the region faced a range of challenges in their efforts to contain the pandemic, including the lack of capacity within healthcare facilities to deal with the growing number of patients and a shortage of healthcare professionals. To contain the pandemic, these economies had to impose lockdowns, which affected value chains. Resilience in this pillar is thus important to ensure fast recovery of value chains.

- Logistics and infrastructure risk

Global trade is very much dependent on efficient logistics operations and good infrastructure around the world. With value chains in the Asia-Pacific increasingly fragmented, the functioning of one part of the value chain affects others as well. The lockdowns introduced around the world are testament to this: not only did manufacturing come to a halt but logistic channels faced considerable operational issues, affecting the production and distribution of final goods around the world. Within these two areas of strength, the average scores of the APEC region are considerably lower than other strength areas (Figure 11). Additionally, performance in this area has been largely uneven. For instance, in the case of strength against natural disaster risk, scores in the region range from lows of 0.044 to highs of 0.72. Similarly, for logistics and infrastructure, economies registered scores between 0.0008 and 0.77. The uneven level of development across economies in the region in these areas of strength affect the region's ability to rebound quickly in times of systemic supply chain disruptions.

Figure 11. APEC value chain strength index

Economies have identified the need to strengthen these areas by proactively intervening and introducing an extensive range of steps to manage the crisis. At the APEC level, several initiatives have been undertaken. For instance, in the area of logistics and infrastructure, some APEC economies have focused on expediting and simplifying customs procedures to avoid delays due to border and customs procedures and logjams at major ports.³⁸ This will have a significant impact on increasing resilience against logistics and infrastructure risk. At the individual economy level, economies have strengthened their resilience against natural disaster risk by bolstering healthcare capacity. For instance, Singapore's healthcare sector expanded its information and communications technology (ICT) capacity in anticipation of the rising number of COVID-19 patients in April this year.³⁹ Similarly, Australia has increased healthcare expenditure by USD 2.4 billion in response to COVID-19.⁴⁰ These are just few examples of the efforts APEC economies have since undertaken. In terms of resilience against logistics and infrastructure risks, economies have introduced new initiatives, particularly with regard to expediting the clearance of medical goods. For instance, Singapore and New Zealand have signed the Declaration

³⁸ "Trade Facilitation Is Critical Response to COVID-19 Pandemic: APEC CTI," *Antaranews.com*, 18 June 2020, <https://en.antaranews.com/news/150992/trade-facilitation-is-critical-response-to-covid-19-pandemic-apec-cti>.

³⁹ Min Zhang Lim, "Coronavirus: Hospitals Expanding ICU Capacity in Anticipation of Needs," *The Straits Times*, 29 April 2020, <https://www.straitstimes.com/singapore/hospitals-expanding-icu-capacity-in-anticipation-of-needs>.

⁴⁰ "\$2.4 Billion Health Plan to Fight COVID-19," media release, Prime Minister of Australia, 11 March 2020, <https://www.pm.gov.au/media/24-billion-health-plan-fight-covid-19>.

on Trade in essential goods for combating the COVID-19 pandemic. This agreement aims to keep trade channels between the two economies open and allow the efficient flow of medical goods. In the same vein, Korea used its vast global-value-chain network to provide COVID-19 test kits to economies around the globe within weeks of the crisis by shifting and pivoting its production.⁴¹

Beyond ensuring resilience against strength areas that are directly related to the pandemic, the APEC Business Advisory Council (ABAC) has also encouraged APEC economies to apply several measures to build resilience against indirect impacts on COVID-19 through policies that:

(1) keep markets for goods, services and investment open; (2) resist any approach toward de- globalisation and encourage diversification; (3) support micro, small and medium enterprises (MSMEs) in addressing operational challenges; (4) leverage digital connectivity; and (5) work collaboratively to plan for re-opening of borders.⁴²

While not directly strengthening resilience against natural disaster as well as logistics and infrastructure risk, these actions have an impact on other areas of resilience that are relevant to dealing with the pandemic, namely strength against market regulatory and policy risk. Despite the progress achieved within global supply chains, the COVID-19 pandemic has uncovered areas where resilience is low. Globally, the OECD notes that the pandemic has shown that economies around the world need to ensure the availability of a significant amount of resources for unexpected events. With the COVID-19 pandemic, several economies were noted to struggle to ensure sufficient

supply of medical equipment (e.g., masks, ventilators, tests) for their healthcare workers and population.⁴³

⁴¹ Sébastien Miroudot , “Resilience versus Robustness in Global Value Chains: Some Policy Implications,” VoxEU and CEPR, 18 June 2020, <https://voxeu.org/article/resilience-versus-robustness-global-value-chains>.

⁴² APEC, “ABAC COVID-19 Report: Laying the Groundwork for Economic Recovery and Resilience.” (2020/ESOM2/002, Singapore: APEC, 2020), http://mddb.apec.org/Documents/2020/SOM/ESOM2/20_esom2_002.pdf.

⁴³ OECD, “A Systemic Resilience Approach to Dealing with Covid-19 and Future Shocks” (OECD, 2020), https://read.oecd-ilibrary.org/view/?ref=131_131917-kpfefrfdnfx&title=A-Systemic-Resilience-

For the APEC region specifically, it is clear that the region faces certain gaps (e.g. uneven development, weak resilience to logistics and infrastructure risks) compared to other regional/economic groupings based on the quantitative analysis reported by our study. Given that the economies in the APEC region are interdependent, particularly in terms of trade and global value chains, building resilience as a region is particularly important. This section suggests that the key focus areas for more concerted effort are in developing greater strength against natural disaster risk, and against logistics and infrastructure risk.

Concluding remarks and way forward

This policy brief aimed to better quantify supply chain resilience in the APEC region, particularly in areas related to resilience against systemic risk. Through this analysis, one key takeaway is that, among the five strength areas, **the APEC region performed significantly better than other regional/economic groupings in terms of strength against (1) market risk and (2) regulatory and policy risk**, ranking near-second among the economies evaluated. This is reflective of the region developing in the right direction in areas such as financial institutions and markets, growing presence of domestic firms, as well as appropriate regulatory and risk mitigation provisions.

Our analysis also shows that governments have taken steps to strengthen resilience in supplychains by using their global-value-chain network to fight the pandemic, and by expediting and simplifying customs procedures. Another important takeaway is that while the APEC region has done relatively well in developing a degree of value chain strength, it is important to note that there remain **inequalities in the level of value chain strength in the region**, with some economies performing significantly better than others. Economies in the APEC region are significantly exposed to disruptions in other APEC economies and are also increasingly dependent on these other economies. As such, while domestic efforts are important in ensuring supply chain resilience, it is also important to increase efforts toward increasing APEC regional supply chain resilience as well.

Lastly, value chain resilience today also refers to being able to **respond quickly to unexpected systemic events** that affect a large number of economies. Unlike supply chain disruptions caused by earthquakes or other natural catastrophes, the COVID-19 pandemic involves no damage to physical infrastructure. Instead, the current disruption is largely due to rising infection and death rates, and movement restrictions and closure of borders or lockdowns.⁴⁴ The movement restrictions have also halted supply chain operations and disrupted manufacturing production at major hubs. As production declines, incomes and productivity have been affected, and this has had an overall impact on global aggregate demand.

In the short run, firms will find it difficult to find alternative suppliers. It is also not easy to relocate or reconfigure business supply chains quickly, even for multinational corporations (MNCs). While some small and medium enterprises (SMEs) may be nimble enough to readjust their operations relatively easily, their access to finance may limit their options moving forward (during a crisis, cash is king). In the long run, stronger institutionalised collaboration is required between firms and governments to recover and emerge from this crisis stronger. Stiglitz et al. suggest that economies may need a better balance between globalisation and self-reliance.⁴⁵ Having a certain degree of self-dependency within the domestic economy could enhance resilience, based on the observation that with many international borders affected by lockdowns, aggregate demand is now mostly driven by domestic demand and electronic commerce. This is not to say that global value chains are no longer relevant; but that certain reconfigurations are necessary to ensure that the network would still be able to function or at least to recover quickly when unexpected disruptions occur.

All in all, the findings in this policy brief suggest the importance of continued work on cooperative measures such as capacity building and information transfers to enhance value chain resiliency to tame any future black swan event. In this regard, a broader systemic and strategic perspective based on the principles of robust and resilient

⁴⁴ Miroudot, “Resilience versus Robustness.”

⁴⁵ Joseph E. Stiglitz, Robert J. Shiller, Gita Gopinath, Carmen M. Reinhart et al., “How the Economy Will Look after the Coronavirus Pandemic, *Foreign Policy*, 15 April 2020, <https://foreignpolicy.com/2020/04/15/how-the-economy-will-look-after-the-coronavirus-pandemic/#>.

supply chains is needed.⁴⁶ To successfully mitigate the current global pandemic and to come out stronger will require concerted effort by all APEC economies.

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⁴⁶ Gereffi, Gary. "What Does the COVID-19 Pandemic Teach Us about Global Value Chains? The Case of Medical Supplies." *Journal of International Business Policy* 3, no. 3 (September 1, 2020): 287–301. <https://doi.org/10.1057/s42214-020-00062-w>.

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Annex A: Technical notes on updates to methodology and indicators

This study on value chain strength builds on a 2014 analysis by APEC titled 'Quantitative Analysis of Value Chain Strength in the APEC Region'. This 2020 edition of the analysis incorporates several methodological updates and adjustments,

as outlined below.

Identification of indicators

Indicators for each strength area are shown in Table A1. The list is not exhaustive and aims to serve as a proxy of resilience for each strength area. Indicators were chosen based on applicability to quantifying resilience in the respective strength areas, data availability, coverage of economies across the different regions, and whether the indicators measure both the public and private sectors.

Several indicators used in the 2014 analysis have been discontinued, or show poor data availability for recent years. They have been excluded from this study.

New indicators have been introduced (noted as such in Table A1). Additionally, some indicators have been re-categorised into a strength area that better reflects the current global value chain landscape.

For each of these indicators, data from the latest possible year have been used. While the latest available data were taken from 2018 for some indicators, data for others were at times taken from earlier years depending on data availability.

Principal component analysis

Considering the relatively large number of indicators included in this analysis, we used principal component analysis (PCA) to reduce the dimensionality of the analysis. PCA is widely used to create composite indexes, including the ADB's Asia-Pacific Regional Integration Index and the IMF's Index of Financial Development.⁴⁷

As an overview, PCA reduces dimensionality through creating composite indexes (principal components). These principal components attempt to capture as much variation as possible. An overall index is then computed based on a selection of these components.

⁴⁷ ADB, "Asia-Pacific Regional Integration Index: Construction, Interpretation, and Comparison" (ADB Economics Working Paper, Manila: ADB, 2017); International Monetary Fund (IMF), "Introducing a New Broad-based Index of Financial Development" (working paper, IMF, 2016), <https://www.imf.org/external/pubs/ft/wp/2016/wp1605.pdf>.

The main goal is to capture as much of the variation within each of the individual indicators. Considering that the current analysis consists of a total of 21 indicators of which it cannot be said that they all contribute equally to the overall composite index, this method is relevant.

Upon calculating these composite indexes, comparisons were done across different regional groupings. The performance of each region in specific strength areas was then analysed. The scores contributing to the overall index were aggregated for each area and subsequently normalised to create the sub-indexes.

Dealing with missing data

In the 2014 publication, proportional re-weighting was carried out, where data for missing values were ignored. In that method, an average of all available indicators is taken to create the index regardless of whether data blanks exist. This is consistent with the practice in creating other indexes, such as DHL's Global Connectedness Index. However, a different approach has been taken in this study to better proxy missing data. Instead of ignoring missing values, blanks are replaced with regression estimated values through multiple imputations based on their respective income per capita.⁴⁸

⁴⁸ World Bank – World Development Indicators

Table A1. Indicators proxying resilience within risk area

Strength against:	Indicators
Logistics and infrastructure risk	<ul style="list-style-type: none"> • Air transport, freight (million ton-km). <i>World Bank</i> • Container port traffic (TEU: 20-foot equivalent units) per unit population. <i>World Bank</i> • Logistics performance index: Competence and quality of logistics services (1=low to 5=high). <i>World Bank</i> • Logistics performance index: Frequency with which shipments reach consignee within scheduled or expected time (1=low to 5=high). <i>World Bank</i> • Percentage of individuals using the internet. <i>ITU</i>
Market risk	<ul style="list-style-type: none"> • Market capitalisation of listed domestic companies (% of GDP). <i>World Bank</i> • Depth, access and efficiency of financial institutions. <i>IMF*</i> • Depth, access and efficiency of financial markets. <i>IMF*</i>
Natural disaster risk	<ul style="list-style-type: none"> • Access to electricity (% of population). <i>World Bank*</i> • Fixed telephone subscriptions (per 100 people). <i>World Bank</i> • Hospital beds (per 1,000 people). <i>World Bank</i> • Physicians (per 1,000 people). <i>World Bank</i> • Current health expenditure (% of GDP). <i>World Bank</i>
Political risk	<ul style="list-style-type: none"> • Reliability of police services (1–7). <i>World Bank</i> • Political stability and absence of violence index. <i>World Bank *</i> • Rule of law index. <i>World Bank</i>
Regulatory and policy risk	<ul style="list-style-type: none"> • Government effectiveness index. <i>World Bank</i> • Strength of auditing and accounting standards. <i>World Economic Forum – Global Competitiveness report</i> • Efficiency of legal framework in challenging regulations (1–7) <i>World Economic Forum – Global Competitiveness report</i> • Efficiency of legal framework to settle disputes. <i>World Economic Forum – Global Competitiveness report</i> • Strength of investor protection, 0–10 (best). <i>World Economic Forum – Global Competitiveness report</i>

Table A2. Overall summary statistics

Strength against:	Variables	Obs	Mean	Std.Dev.
Logistics and infrastructure risk	Air transport freight per unit population	63	0.024	0.127
	Container port traffic per unit population	63	0.1	0.213
	Quality and competence of logistics serviceproviders	63	0.607	0.223
	Timeliness of delivery	63	0.655	0.229
	Internet users per 100 population	63	0.743	0.217
Market risk	Market capitalisation of listed companies as apercentage of GDP	63	0.067	0.128
	Depth, access and efficiency of financialinstitutions	63	0.58	0.228
	Depth, access and efficiency of financialmarkets	63	0.5	0.286
Natural disaster risk	Access to electricity (% of population)	63	0.957	0.165
	Telephone lines per 100 population	63	0.432	0.276
	Number of hospital beds per 1,000population	63	0.27	0.194
	Number of physicians per 1,000 population	63	0.435	0.223
	Health expenditure as a percentage of GDP	63	0.347	0.189
Political risk	Reliability of policy officers	63	0.579	0.252
	Political stability and absence of violence	63	0.59	0.259
	Rule of law index	63	0.583	0.291
Regulatory and policy risk	Government effectiveness index	63	0.58	0.244
	Strength of auditing and accounting standards	63	0.543	0.246
	Efficiency of legal framework in challengingregulation	63	0.463	0.248
	Efficiency of legal system in settling dispute	63	0.508	0.238
	Strength of investor protection	63	0.597	0.206

IMF=International Monetary Fund; ITU: International Telecommunication Union.

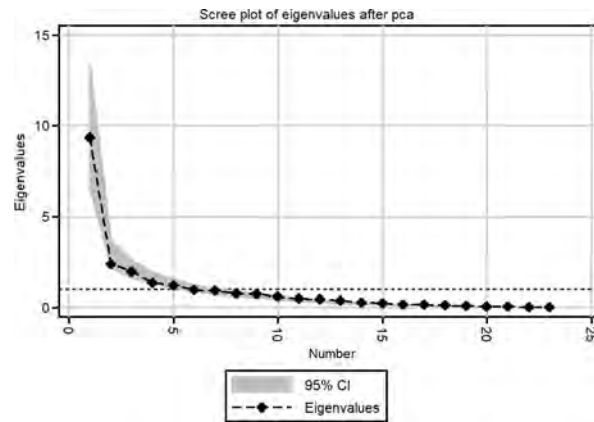
“*” refers to indicators that have been introduced within this policy brief but had not beenincluded within the 2014 publication.

Annex B. Principal component analysis (PCA): Component loadings Table B.2.**PCA calculated weight of each indicator**

	Weight in Overall Index
Air transport freight per unit population	4.7%
Container port traffic per unit population	5.0%
Quality and competence of logistics service providers	5.6%
Timeliness of delivery	5.1%
Internet users per 100 population	4.9%
Market capitalisation of listed companies as a percentage of GDP	3.4%
Depth, access and efficiency of financial institutions	5.2%
Depth, access and efficiency of financial markets	5.2%
Access to electricity (% of population)	3.1%
Telephone lines per 100 population	4.8%
Number of hospital beds per 1,000 population	2.7%
Number of physicians per 1,000 population	4.5%
Health expenditure as a percentage of GDP	4.1%
Reliability of policy officers	5.0%
Political stability and absence of violence	4.7%
Rule of law index	5.9%
Government effectiveness index	5.7%
Strength of auditing and accounting standards	4.9%
Efficiency of legal framework in challenging regulation	5.4%
Efficiency of legal system in settling dispute	5.6%
Strength of investor protection	4.5%

IMF=International Monetary Fund; ITU: International Telecommunication Union.

Annex C. Principal component analysis (PCA): Scree plot



Foreign investment and value-added generation in resource rich countries in the Association of Southeast Asian Nations and Pacific Alliance⁴⁹

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Abstract

This study evaluates the effect of foreign direct investment (FDI) on the generation of added value in natural-resource-rich economies in the Association of Southeast Asian Nations (Brunei, Indonesia and Malaysia) and the Pacific Alliance (Chile, Colombia, Mexico and Peru). We use international input-output tables published by the OECD which contain transactions between 64 economies composed of 36 economic sectors each, from 2005 and 2015. First, we identify which are the global value chains (GVC) that make intensive use of minerals; then, we locate the position of each evaluated country-sector in such chains; and finally, we estimate, through an econometric regression, what role has foreign direct investment played in the sectors that transform minerals. After estimating the added value generated by country-sector in each link of the mineral-intensive value chain, we find that the ASEAN economies and Mexico are positioned in forward links in these chains, while Chile, Colombia and Peru still remain in initial links. We also find that FDI has played an active role in generating added value for ASEAN economies, but has not had similar effects in Latin American economies. The result is explained by the vertical industrial policies applied in the former, while for the latter the priority has been concentrated on horizontal policies.

Introduction

As is known, a value chain constitutes all the tasks necessary to produce a final product, that is, from its conception to its sale. The Global Value Chain (GVC)

⁴⁹ This document uses parts of the paper " Industrial policies of countries with abundant natural resources in the Association of Southeast Asian Nations and Pacific Alliance " written by the same autor, published in *The Extractive Industries and Society, Volume 7, Issue 3*, 1046-1053, 2020. doi:<https://doi.org/10.1016/j.exis.2020.07.004>.

framework uses this concept to understand how value is created, captured, sustained, and harnessed within each link of the chain in currently transnationalized production processes (Gereffi & Lee, 2016). Because the value added (VA) is the difference between the value of a final product and that of its inputs, the strategies of leading companies in a GVC are geared toward positioning themselves in the link that generates the greatest VA to capture, or more precisely, its inherent profits or revenue (Kaplinsky & Morris, 2001). This strategy must be considered in the industrial policy of economies seeking to integrate into GVCs, which is particularly important for countries with abundant natural resources (NR), where both the exchange rate and foreign direct investment (FDI) have played an influential role in its productive structure, in many cases thereby further strengthening their extractive activities over the transformative ones.

In this scenario, this research identifies the position achieved by countries with abundant NR of the Association of Southeast Asian Nations (Brunei, Indonesia and Malaysia) and the Pacific Alliance (Chile, Colombia, Mexico and Peru) in mineral-intensive GVCs, using data from the OECD international input and output tables (OECD, 2018). We evaluate the factors that have contributed the most toward generating VA through exports in mineral-processing sectors and relate the findings to industrial policy measures that can be classified as horizontal or vertical, in the context determined by the globalized production process.

Value added improvements in mineral-intensive global value chains

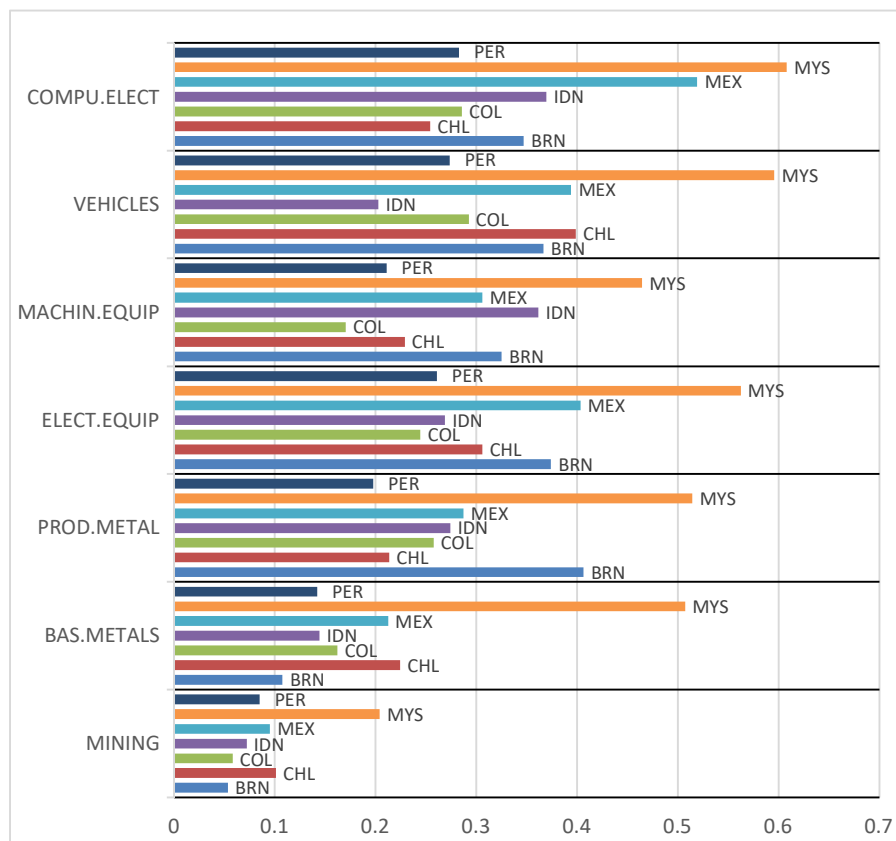
GVCs that make intensive use of minerals are composed of the following sectors: the extractive sector, where the main output is concentrated mineral; the basic metals sector, where refined mineral, bars, sheets, cables and metal coils are produced; the metal products sector, which corresponds to the production of metal parts and structures; the electrical equipment sector, which produces motors, generators, electrical transformers and household appliances; the mechanical equipment sector, which produces machines of specific purpose, according to the industry where it will be used; the vehicle manufacturing sector; and, the manufacture of computer equipment sector (Landa, 2019).

The output of each of these sectors becomes the input of the next, in such a way that each transformation implies adding value to the input, until it becomes a final consumer product.

Position of mineral-intensive countries-sectors in GVCs

Each of these stages are carried out in different countries, so we can identify which is the position of each one in this globalized production process, by measuring how much of the imported VA is contained in the VA exported in the analyzed countries. This measure is called backward linkages.

Fig. 1 Value-added (VA) content imported per unit of exported VA in mineral-intensive sectors in ASEAN₃ and PA countries (cumulative values for 2005–2015)



Source: Industrial policies of countries with abundant natural resources in the Association of Southeast Asian Nations and Pacific Alliance (Landa-Arroyo, 2020).

Note: BRN = Brunei; CHL= Chile; COL= Colombia; IDN = Indonesia; MEX = Mexico; MYS = Malaysia; PER = Peru; BAS.METAL= Base metals; PROD.METAL = Metal products; ELECT.EQUIP = Electrical equipment; MACHIN.EQUIP = Machinery and equipment; VEHICLES = Vehicles; COMP.ELECT = Computers and electronics.

Observing Fig. 1 in a bottom–up order, it is evident that mining has lower backward linkages because it is the initial stage of several GVCs that add value to raw materials through their use, compared with the higher values of the vehicle manufacturing or computer manufacturing sectors, which are the final links in their respective value chains. With the highest values in nearly every sector, the positions of Malaysia and Mexico stand out, reflecting their strong integration to international production processes. These two countries have managed to locate themselves as the final links in vehicle and computer equipment production chains, taking over the assembly stage in many cases. Therefore, this is an example of industrial upgrading in several sectors to the extent that value is added within the country to the raw material coming from the mining sector.

Chile is slightly above the average of this indicator in the manufacturing of vehicles and electrical equipment, but Colombia and Peru are the economies with the lowest levels of international linkages. The low scores in these two countries reflect their difficulties in creating internal links that spread backwards the possible growth of the most advanced sectors of GVCs. That is why it is important to us to identify the role that FDI and industrial policies have played in promoting improvements in the generation of added value.

Determinants of VA exports in mineral-intensive sectors

The policies aimed at maintaining monetary stability, fiscal balance, and external equilibrium can be identified as horizontal policies, and correspond to the main obligations of a State to generate conditions for private investment, according to various authors (Easterly, 2001) (Stern, 2002).

However, vertical policies are those that promote the growth of specific economic sectors, according to the needs identified by regulatory entities. These policies have now become GVC-oriented policies and are aimed at entering a GVC link by providing a national or imported commodity or industrial goods that are transformed by adding greater value, thus becoming specialized goods. These policies are

associated with the active promotion of foreign investment to obtain positive externalities through technology transfer and productivity improves in local businesses tied to multinationals (De Groot, 2018).

In our study we created the variable GX that contains the added value from the sectors that transform minerals. To measure the effect of horizontal policies on GX, we use the inflation rate, exchange rate, trade balance, education, and R&D. With respect to vertical policies, we take the FDI as a proxy variable because of the manner in which it has been implemented in the analyzed countries. Table 1 shows the results of identifying factors that have contributed to VA exports in mineral-intensive sectors (GX). Column (a) shows the results for the 7 ASEAN and PA countries; column (b), the results only for the 3 ASEAN countries; and, column (c), only for the AP.

Regarding FDI, the results show that its contribution to the GX exports is significant for the entire sample, but is quite strong and important in ASEAN₃ countries. A 1% growth in FDI increases VA exports in 0.26% in the ASEAN₃ group. Unlike the case of PA countries, where the results show no effects.

Table 1. Determinants of VA exports from mineral-intensive sectors (GX_{ijt}) for Brunei, Indonesia, and Malaysia (ASEAN₃) and Chile, Colombia, Mexico, and Peru (PA), 2005–2015*

Variable	ASEAN ₃ & PA (a)	ASEAN ₃ (b)	PA (c)
VA exports ($GX_{ijt,t-1}$)	0.83478447 0.03936849 0	0.64037837 0.15703504 0	0.6816362 0.11970841 0
Foreign direct investment (FDI_t)	0.08387118 0.02457396 0.0006	0.26728559 0.09287491 0.004	0.02061808 0.03212524 0.521
Trade balance (TB_t)	0.10486821 0.06781701 0.122	0.71344124 0.24984634 0.0043	-0.0182286 0.05679337 0.7482
Exchange rate, growth (ER_t)	-0.1854263 0.07211701 0.0101	0.01290863 0.12130927 0.9153	-0.2410926 0.08831855 0.0063
Inflation (Inf_t)	0.06785109 0.03621038 0.061	0.03210004 0.06549797 0.6241	0.10210119 0.04263149 0.0166
Education (Edu_t)	0.21838754 0.29610361 0.4608	0.21406017 1.3249385 0.8717	0.46223343 0.61697348 0.4537
Research & Development, sales ($R\&D_t$)	0.05176892 0.01438152 0.0003	0.1131296 0.1083915 0.2966	0.06745654 0.04266692 0.1139
Observations	490	210	280

*Only a part of the results is displayed. See the complete table in “Industrial policies of countries with abundant natural resources in the Association of Southeast Asian Nations and Pacific Alliance” (Landa-Arroyo, 2020).

Note: This table displays the coefficient, robust standard error and the p-value of each variable.

The results for ASEAN₃ can be understood by knowing the role of investment promotion entities, which reduce information asymmetries and learning costs and promote FDI in specific well-defined sectors, that is, through the use of vertical policies, according to Gligo (2007), Ramírez (2017) and Wan and Tung (2006). In the case of PA countries, despite the establishment of similar agencies (Gligo, 2007), the strategy to attract FDI has relied more upon horizontal policies, without effective long-term guidelines for industrial development, at least with respect to mineral processing. That is reflected in the nonexistent effect of FDI on *GX* exports, as shown in the results. In fact, we identified more differences in the treatment of FDI between the two groups of countries.

FDI in horizontal and vertical industrial policies

In the case of ASEAN₃ countries, FDI has been managed as a component of two widely used policy tools in East Asia, namely, investment councils and development plans. According to Wan and Tung (2006), both tools were used to industrial promotion, initially in Japan and Taiwan, and to face the coordination failures in sectoral production, which could not be resolved by the market. These tools were later imitated by other East Asian economies (Ramírez, 2017) including those with abundant NRs such as Brunei, Indonesia, and Malaysia (Chowdhury, 2008) to promote industrial development.

Investment councils are government entities that bring together various ministries linked to production, the private sector, and/or civil society. In Brunei, Indonesia, and Malaysia, these organizations are the Brunei Economic Development Board (BEDB, 2020), Indonesian Investment Coordinating Board, (BKPM, 2020), and the Malaysian Investment Development Authority (MIDA, 2020), respectively. With some nuances, the councils in all three countries state that their primary purpose is to promote the diversification and industrial development of specific sectors and incorporate agencies to attract FDI. Development plans contain a set of long-term goals of up to 20 years, which are divided into five-year and, later, yearly strategic plans. In Brunei, the current long-term plan is called the Wawasan Brunei 2035, which is currently deployed in its eleventh five-year plan. In Indonesia, the main plan is the National

Long-Term Development Plan 2005–2025, which is divided into five-year plans and accompanied by an Economic Development Acceleration Master Plan. In Malaysia, the Third Industrial Master Plan 2006–2020 is framed in the Vision 2020 Plan and is also implemented through five-year plans.

In general, each five-year plan is composed of a list of projects with an allocated budget and a responsible entity. Projects are selected on the basis of the prioritized social, economic, and/or industrial sectors to be developed. However, being a part of the plan does not ensure the successful execution of the expenditure. These plans combine both horizontal and vertical policy instruments, reflecting the pragmatic vision of growth management in East Asia (Wan & Tung, 2006).

Table 2. Prioritized sectors for FDI in five-year plans in Brunei, Indonesia, and Malaysia, 2010–2015.

	Brunei ⁽¹⁾	Indonesia ⁽²⁾	Malaysia ⁽³⁾
Prioritized sectors for FDI	<ul style="list-style-type: none"> • Does not include the extractive sector • Goods derived from oil and gas • Other sectors 	<ul style="list-style-type: none"> • Does not include the extractive sector • Industrial processing of cacao, sugar, and minerals • Other sectors 	<ul style="list-style-type: none"> • Petrochemical industry • Services tied to the extraction of hydrocarbons • Other sectors
Institutional mechanisms	<ul style="list-style-type: none"> • Industrial parks • Special economic zones 	<ul style="list-style-type: none"> • Industrial parks • Special economic zones • Industrial corridors 	<ul style="list-style-type: none"> • Industrial parks • Special economic zones • Industrial corridors
Financing through	<ul style="list-style-type: none"> • Explicit budget allocation and considers private sector participation • Public–private partnerships • Special fund for small and medium industries 	<ul style="list-style-type: none"> • National Development Fund and channeling of private funds • Public–private partnerships • Special fund for small and medium industries 	<ul style="list-style-type: none"> • Facilitation Fund as a complement to private investment • Public–private partnerships • Special fund for small and medium industries
Monitoring mechanism	Quantitative compliance targets per project	Monitoring and evaluation system on project results and impacts	Monitoring indicators by results

Source: Industrial policies of countries with abundant natural resources in the Association of Southeast Asian Nations and Pacific Alliance (Landa-Arroyo, 2020).

Note: (1) Tenth National Development Plan 2012–2017 (DEPD, 2012); Brunei Economic Development Board (BEDB, 2020). (2) National Medium Term Development Plan 2010–2014 (MNDP, 2010); Indonesian Investment Coordinating Board (BKPM, 2020). (3) Tenth Malaysia Plan 2011–2015 (EPU, 2010); Malaysian Investment Development Authority (MIDA, 2020).

Table 2 shows the role assigned to FDI in the five-year plans evaluated in Brunei, Indonesia, and Malaysia. Each plan defines prioritized industries that are promoted to foreign investors. Notably, despite the fact that these are economies with abundant NR, the industries that process the resources are prioritized over the extractive sector. Similarly, industrial clusters are a widely used policy instrument that acts as a connection space between foreign companies and national suppliers because they increase the competitiveness of the latter (APEC Secretariat, 2017). These clusters are accompanied by special economic zones and industrial corridors.

While these are public targets for production and employment in the selected sectors, in large part, the results must be achieved by private companies. To this end, the government uses its own budget as a financing mechanism and incentivizes the financial system for participation. Similarly, with regard to infrastructure projects, public-private partnerships are a specific mechanism used. The plans' goals are evaluated by monitoring the results of each project.

In the case of PA countries, planning of national objectives is conducted almost exclusively through government plans defined in each presidential term (CEPAL, 2020), which are roughly equivalent in time to East Asian five-year plans. However, although Chile and Peru have formulated longer-term plans (Agenda 2030 for Sustainable Development in Chile and Vision of Peru to 2050), they lack a regulatory mechanism connecting the achievement of these goals through the implementation of government plans. As such, the promotion of specific industries and their ad-hoc mechanisms is contingent on the development concept followed by the authorities in power in each government period, in the four countries.

In general, following the implementation of economic reforms on the basis of the Washington Consensus in Latin America in the 1980s and 1990s and given their limited success in the area of industrial development, the decision was made to implement the second-generation reforms in the 2000s. These were primarily tied to improving institutions, providing better public services, and the flexibilization of the labor market (Rodrik, 2011). These reforms adhere to the premise that only adequate horizontal policies are needed for industrial growth.

Although the four countries that constitute the PA adopted very similar economic policies in the evaluated period, Table 3 reveals certain nuances in terms of promoting FDI. While Colombia and Mexico have explicitly declared that non-extractive sectors would be prioritized for FDI, Chile promotes investment in mining exploration and manufacturing mining equipment, and Peru insists on promoting mining extraction. Although all four countries treat national and foreign investments equally, in Chile and Colombia, there is a predominance of tax incentives based on the locality or sector selected. In Mexico, a development bank, known as Bancomext, is responsible for facilitating direct financing for investments in prioritized sectors. In Peru, priority is given to public–private partnerships and Work for Taxes, a program that facilitates tax payment through the execution of public works projects in a local community (Proinversión, 2020). This is because its primary interest is using FDI to bridge the country’s infrastructure gap. In the evaluated period, each country had a government entity responsible for attracting FDI; however, in 2019, the Government of Mexico deactivated its entity by shifting some of its functions to the Ministry of Economy.

Table 3. Prioritized sectors for foreign direct investment (FDI) in Pacific Alliance (PA) countries.

	Chile ⁽¹⁾	Colombia ⁽²⁾	Mexico ⁽³⁾	Peru ⁽⁴⁾
Prioritized sectors for FDI	<ul style="list-style-type: none"> • Food industry • General services • Mining (exploration, equipment, and service suppliers) • Energy • Tourism 	<ul style="list-style-type: none"> • Agro-industry (several) • Agrochemicals, metalworking, plastics, automotive, etc. • Services (several) 	<ul style="list-style-type: none"> • Automotive • Electric-Electronic • Energy • Maquila and industrial warehouses • Transportation and logistics • Tourism • Aerospace • Mining-Metallurgy • Telecommunication s 	<ul style="list-style-type: none"> • Productive infrastructure • Tourism • Mining (extraction) • Education and health
Institutional mechanisms	<ul style="list-style-type: none"> • Tax exemptions in specific regions for nationals and foreigners • Free zones 	<ul style="list-style-type: none"> • Tariff exemptions for the automotive sector • Free zones 	<ul style="list-style-type: none"> • Direct credit from banks supported by preferential funding sources • Financial support from commercial banks • Border zones 	<ul style="list-style-type: none"> • Public–private partnerships • Work for Taxes • Legal Stability Agreement for nationals and foreigners • Free zones

Source: Industrial policies of countries with abundant natural resources in the Association of Southeast Asian Nations and Pacific Alliance (Landa-Arroyo, 2020).

Note: (1) Chilean Investment Promotion Agency (InvestChile, 2020); (2) Official Investment Website of Colombia (Procolombia, 2020); (3) National Bank of Foreign Trade (Bancomext, 2020); (4) Private Investment Promotion Agency (Proinversión, 2020).

Conclusions

Horizontal policies alone do not effectively promote the generation of VA in the industrial sector in economies with abundant NRs, particularly in the context of a global economy that requires the sourcing of raw materials to facilitate its growth. These policies need to be complemented by vertical instruments that commence by identifying prioritized sectors and are even better if they are linked to specific GVCs. This is particularly true for FDI, which is shown to have spillover effects when the macroeconomic and microeconomic environments allow i

As for vertical policies, their time scale influences their success. In the East Asian countries evaluated, sectoral policies are integrated into long-term objectives that include monitoring mechanisms, while the PA countries are susceptible to changing of course depending on the permanence of governments. In the evaluated period, both country groups demonstrated that they are open to global trade and FDI. However, the positive effect of these policies on VA growth in ASEAN₃ countries is explained by their continuity.

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Trade and investment facilitation: efficiency in programs and actions in APEC

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Abstract

Trade facilitation and increased investment among its partners are one of the three pillars of the Asia Pacific Economic Association Forum's (APEC) agenda, reason why this chapter seeks to explore, almost thirty years after its foundation, if those goals have been fulfilled and to what extent. For which, a two-pronged analysis is made; first, a qualitative analysis regarding multilateral liberalization, the area of free trade and review of individual and collective action plans; and secondly, a quantitative analysis of efficiency measurement with respect to trade and investment. As a result of the presented work, it is necessary to channel APEC's efforts to comply with the Bogor goals since, despite the different efforts, these goals are still far from being achieved.

Keywords: Trade and investment, programs, actions, goals of Bogor, APEC.

Introduction

Almost thirty years after the first meeting of the Asia Pacific Economic Association (APEC) held in Canberra in 1989, different questions are in the APEC Post 2020 agenda, regarding an increase in protectionism, a rebalancing of the economy and diversified growth. It is important to remember that APEC seeks to achieve its objectives under three pillars: the liberalization of trade and investment; business facilitation; and economic and technical cooperation. Therefore, the goals proposed by the APEC leaders were to achieve open and free trade, as well as to encourage investment in the countries within the Pacific zone, these goals eventually became the goals of Bogor. However, despite the initial optimism of APEC and its members, the path has been doubtful, uncertain and controversial as to how to reach these goals.

In this sense, authors like Panennugi (2013) have then the task of interpreting possible paths to achieve the Bogor goals, obtaining three possible paths: a) the first one is through multilateral liberalization, on which little has been done, in spite of the 1994 Uruguay rounds, the establishment of the World Trade Organization (WTO) and the APEC declarations that have been made year after year; b) the second is an Asia Pacific free trade area. This proposal has been put on the table on different occasions, through the APEC Business Advisory Council after the meeting in Osaka, later in Chile 2004, Sydney 2007 and Yokohama 2010 where concrete steps were taken for said initiative; and c) the third path that is proposed is through the review of individual and collective action plans. In this sense, it would be necessary to review each one of the economic plans and their progress against the Bogor goals; particularly in elements such as: tariff rates and their reduction, non-tariff barriers, services, investment, customs procedures, intellectual property rights, competition policies, regulation and deregulation, mobility and transparency, among others.

In order to analyze the three paths listed above to achieve the Bogor goals, each of them and the respective progress of the APEC Forum are reviewed, starting with multilateral liberalization, followed by progress towards a free trade area and finally carrying out a quantitative analysis of the area to measure efficiency considering the variables of Foreign Direct Investment, imports and exports.

1. Multilateral liberalization, myth or reality

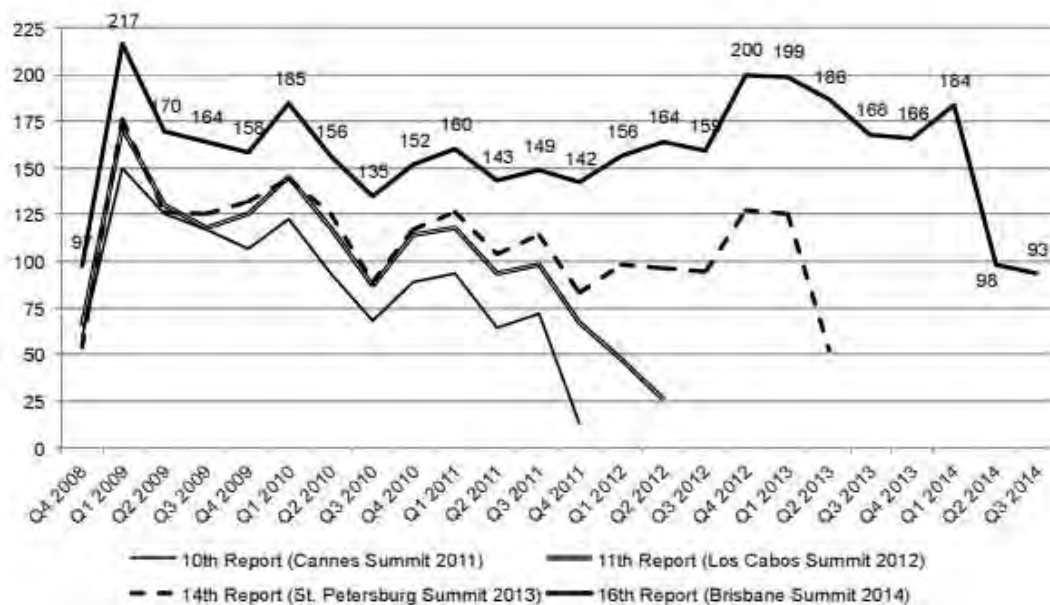
At APEC Forum, much has been said about increasing cooperation between economies and keeping markets open since it is regarded as the best way to generate economic growth and jobs. Nevertheless, facing reality, uneven growth is perceived; therefore, in order to get closer to the goals that were set to achieve strategic growth, talks now regard a more balanced, inclusive, sustainable, innovative and secure future.

However, reality once again exceeds the established goals in a contrasting way due to the global financial crisis that arose in 2008, since its consequences in one way or another still permeate the financial, economic, social and political reality. As a consequence, there is a growth in protectionist attitudes despite all the efforts made by the G20 to eliminate protectionist measures; despite the reaffirmation of maintaining multilateral mechanisms for free trade, investment, etc. The increase in protectionist measures in statistical data regarding non-tariff barriers and other measures is palpable. The annual survey of the Pacific Economic Cooperation Council (PECC) shows a 16 percent increase in protectionist measures for 2014 and 32 percent for 2016. Meanwhile, economies such as the United States of North America have manifested a clear protectionism, actively opposing regional and global treaties and agreements, applying a heterodox economic program, which deviates from the economic policy followed by the Americans in previous decades.

Beyond the anti-elite rhetoric of the speech of the President of the United States, Donald Trump, his economic policy is based on financial and fiscal deregulation, promoted with a significant increase in public spending, commercial and industrial policies accompanied by an increase in tariffs for certain strategic sectors as well as the relocation of phases of the industrial process, especially the automotive and military industries. Translating "America First" into a return to a logic of world power, which acts unilaterally in a context of bloc warfare. This supposes, firstly, an offensive against the institutionalization of the multilateral social and environmental framework of the United Nations, and secondly, not an anti-treaty measure but only in favor of those who best adapt to a capitalism in crisis and an economic war between blocks (Fernández & Hernández, 2017).

When analyzing the protectionist measures of four different reports considering the last quarter of 2008, the starting point is the growth of protectionist measures imposed worldwide from the first quarter of 2009, gradually declining and rising again in the first quarter of 2009. 2012, which shows that protectionism after the 2008 crisis has not abated (see graph 1).

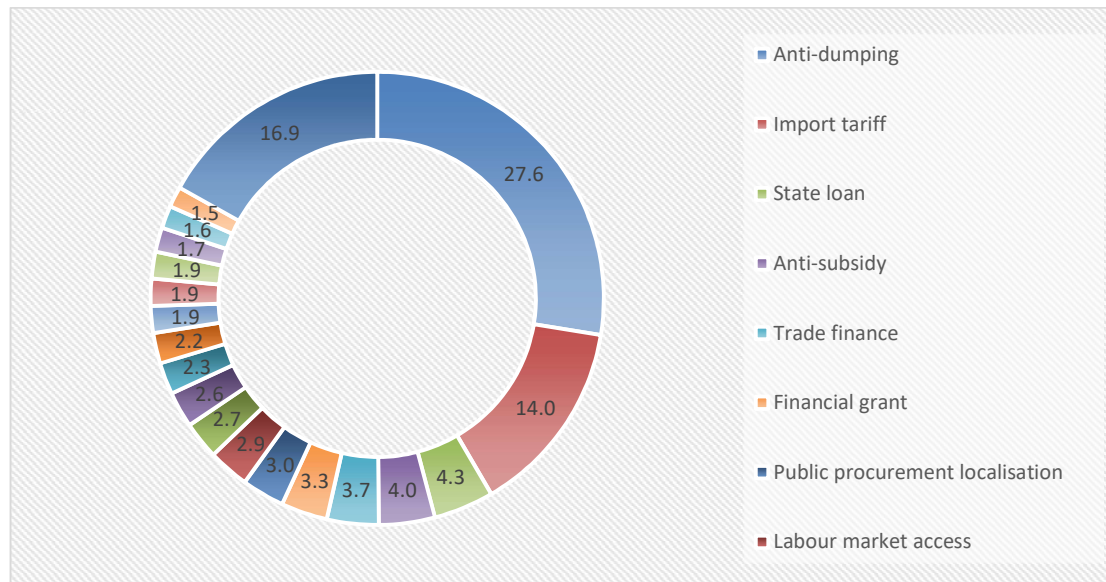
Graph 1. Number of protectionist measures implemented in the world by quarter



Source: Own elaboration based on Global Trade Alert, 2014.

Graph 1 shows the rise in the number of protectionist measures implemented in the period after the 2008 crisis, additionally it shows that despite several analyzes where a decrease in these measures was expected over time, the opposite is observed.

Regarding what type of measures have been implemented, as shown in graph 2, protectionist interventions in trade policy are subdivided into various areas where anti-dumping measures make up 27.6 percent, followed by 14 percent of import tariffs, these two being the most significant ones, currently.

Graph 2. Interventions in trade policy matters 2017, percentage.

Source: Own elaboration based on Global Trade Alert, 2018.

It is clear that there is a setback in trade openness in general and the Asia Pacific area is no exception, although the countries that make up the area have not closed their borders openly and unilaterally except for the United States, their efforts to opening have been precarious and disjointed. The biggest recent attempt to really incorporate efforts and get them off the wish list into practice has been the impetus for the signing of the Trans-Pacific Free Trade Agreement.

2. A free trade area in Asia Pacific

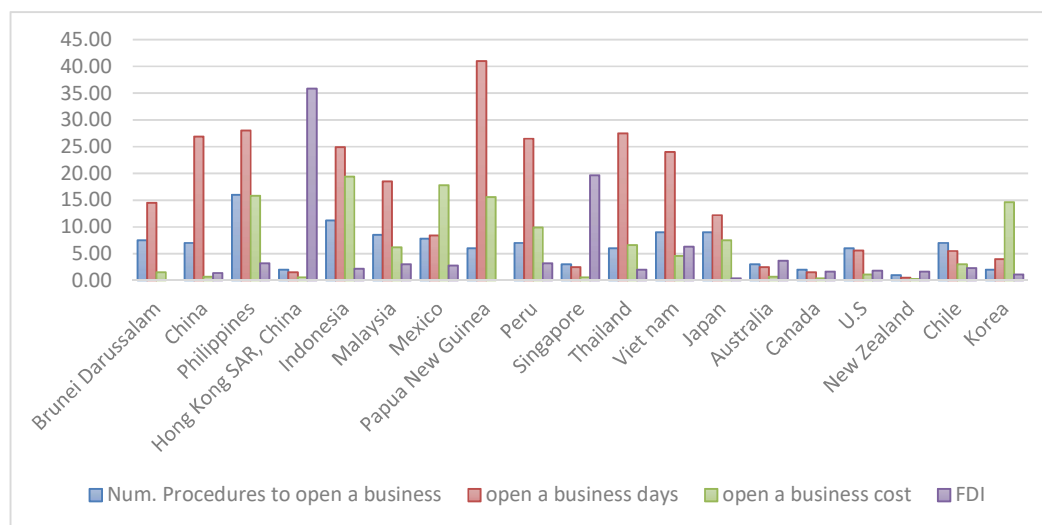
The idea of a free trade agreement in Asia Pacific is very old, the first proposal dates back to 1966 made by Kojima, a Japanese economist (Panennungi, 2013). Much has been said about a free trade area that ends up joining the various continents adjacent to the Pacific Ocean, however, various speeches and attempts to carry out this premise, the signing of a treaty of this nature remains unknown. The idea of signing a treaty begins by seeking to fulfill two specific goals: on the one hand, it seeks to bring the economies closer together in accordance with the Bogor goals regarding a free and open zone for international trade and investment in the Asia Pacific region.

After a long time of discussions, negotiations and redesigns, the treaty known as the Trans-Pacific Partnership Treaty (TTP) was “put on hold” after Trump's rejection and later, with an executive order, the withdrawal of the United States was announced. However, after a long pause the treaty has been put to discussion as well as the possibility of signing it without the incorporation of the United States. Holding numerous meetings where they have continued working towards the signing of the Treaty, now “renamed” or known as the Comprehensive and Progressive Agreement for the Trans-Pacific Partnership (CPTPP) or popularly known as TTP-11 in the absence of the North American economy, the Treaty would be incorporated by, in alphabetical order, Australia, Brunei, Canada, Chile, Malaysia, Mexico, Japan, New Zealand, Peru, Singapore and Vietnam.

3. Individual and collective actions towards the Bogor goals

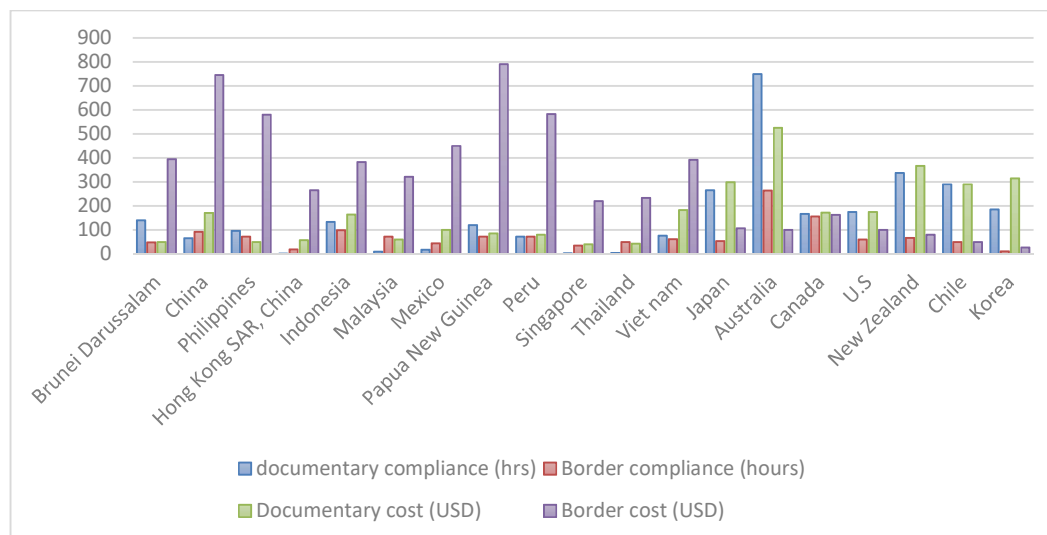
Regarding the second section proposed by Panennungi (2013), there are different studies that perform measurements seeking to analyze the degree of commercial integration. Among these studies, the one carried out by Yamazawa (2012) stands out. Said study measures the previously mentioned indicators (level of trade and investment), obtaining the best results regarding trade facilitation and business mobility, while the lowest indicators were found in tariffs, investment and services.

Analyzing some investment facilitation indicators, it can be observed, as shown in graph 3, that there is a great disparity between the APEC countries, highlighting three variables that permeate Foreign Direct Investment, such as the number of procedures to open a business, the average days it takes to open a business and the cost of opening a business.

Graph 3. Investment facilitation indicators, year 2017

Source: Own elaboration based on World Bank, 2018.

Regarding the trade and customs facilitation indicators in the case of imports, graph 4 shows a diverse panorama in the sense that the countries with the highest border costs are those that in turn have the least number of hours in documentary compliance and vice versa.

Graph 4. Trade facilitation and customs indicators

Source: Own elaboration based on World Bank, 2018.

4. Programs for the facilitation of trade and investment in APEC

APEC economies have implemented various programs with the intention of fulfilling their trade and investment facilitation commitments towards the year 2020. Despite the relative uniformity of the commitments made, progress differs significantly from one country to another. Likewise, the aspects to be addressed seem to require considerably different efforts and times. These aspects have been modified and updated over time, which in turn has modified the commitments made by these economies, as well as their actions and priorities.

The Trade Facilitation Action Plans (TFAP), in their versions for the periods 2001-2006 and 2006-2010, were designed to allow economies to choose their own policy mixes to address four specific areas: customs procedures, standards and compliance, business mobility and electronic commerce (UNESCAP, 2018).

For the period 2010-2015, APEC economies adopted the Supply Chain Connectivity Framework Action Plan (SCFAP), which commits members to address eight basic weaknesses: lack of transparency in logistics-related regulation, inefficiency in transport infrastructure, lack of capacity of local logistics providers, inefficient clearance of goods at the border, onerous procedures for customs documentation, low capacity development of multimodal transport, variations in standards and regulations between borders and the lack of regional agreements for cross-border customs transit. The second phase of SCFAP covers the period 2017-2020 and contains five key points to address: the lack of coordinated border management and underdeveloped related procedures, inadequate quality and lack of access to transportation infrastructure and services, unreliable logistics services and their high costs, limited regulatory cooperation, and underdeveloped political and regulatory infrastructure for electronic commerce (APEC, 2017). Additionally, APEC members are limited to the 2017 World Trade Organization (WTO) Trade Facilitation Agreement, the 2017 APEC Cross-Border Electronic Commerce Facilitation Framework and the United Nations Regional Treaty on Trade Facilitation. Paperless Trade for Asia and the Pacific 2016 (UNESCAP, 2018).

This diversity of plans and agreements, in turn, makes objective evaluation of progress difficult. One of the efforts in this regard is that carried out by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), which estimates that the general fulfillment of the facilitation commitments of trade acquired by APEC members for the year 2017 is around 75% of what was expected, although with important gaps between the performance of its members, highlighting countries such as Australia and Singapore with a compliance of almost 90% and lagging behind countries such as Brunei Darussalam and Papua New Guinea with 52 and 37% respectively (UNESCAP, 2018).

In addition to the deep compliance gaps between countries, the different types of commitments also show asymmetric progress. According to the most recent evaluation carried out by UNESCAP (2018), compliance with transparency commitments for trade facilitation for APEC members in 2017 reached an implementation of 90% of what was expected, while the facilitation of formalities reached an 83% advance. Other measures and programs appear to be presenting significant implementation difficulties. For example, in terms of institutional commitment and cooperation measures, the progress obtained is only 64% of what was expected, mainly due to the insignificant progress made in the delegation of control measures to the customs authorities. Another area that shows delays is related to the facilitation of the transit of goods, whose commitments have an implementation progress of only 30%. The weakest points of this variable are related to the lack of transit facilitation agreements between neighboring countries, the little support in the processing prior to the arrival of the goods and the lack of cooperation between the agencies of the countries involved in the transit (UN, 2017).

Regarding the measures aimed at facilitating Paperless Trade, one of the priorities of APEC members, the evaluation carried out by UNESCAP (2018) is divided into two sections: one assesses the use and application of the Technologies of the Information and Communications (TIC's) in commercial procedures and the other refers to the exchange and legal recognition of data and documents between stakeholders from different countries throughout the supply chain. Another priority for trade facilitation among APEC members is the implementation and operation of single windows. The

Single Window System (SWS) is a smart cross-border facility that allows parties involved in trade and transportation to present standardized information, mainly electronic, with a single point of entry to meet all requirements, regulations related to import, export and transit (APEC, 2018).

Since 2005 the APEC economies, in conjunction with the World Customs Organization and the United Nations Center for Trade and Electronic Business Facilitation, have worked to achieve SWS interoperability; Even so, APEC (2018) recognizes that progress is incipient given the technological and regulatory complexity that the initiative implies. The cost of its implementation seems to be a major obstacle. According to the experiences analyzed by UNESCAP (2018), the initial costs of implementing a SWS can vary between 100,000 and 27 million dollars; These expenses in turn require additional investments in customs automation systems that can range from \$ 550,000 to \$ 57 million.

Despite this, the APEC economies as a whole show a 40% implementation of the SWS, another 40% show a partial implementation and 10% operate pilot programs; Of the economies that have full implementation, the cases of Hong Kong, Japan, Korea and Singapore stand out for their futuristic orientation and efficiency (UNESCAP, 2018).

The challenges towards full implementation are still numerous: there are shortcomings in terms of the degree of commitment, cooperation, trust and communication between the participating institutions, the involvement of the private initiative and its participation with investments is necessary, it requires a total harmonization of the terminology used, as well as the processes and technologies, but particularly the adaptation of the applicable legislation and regulations is required (APEC, 2018; UNESCAP, 2018). On the other hand, the APEC Business Travel Card (ABTC) allows business persons (such as entrepreneurs and government officials) to enter APEC member economies without the need to present a traditional business visa. This represents an important saving for travelers since with this card they avoid having to process a different visa for each country for a period of time that can reach up to five years (INM, 2017).

6. Trade and Investment efficiency measure

Once the calculations are performed, results are obtained in three aspects or for three variables Foreign Direct Investment (FDI), imports and exports. The efficiency of FDI was measured based on the average days of opening a business in the country under analysis and the average cost of opening a business. While, the efficiency of imports and exports was measured with respect to the average cost to obtain the necessary documents to satisfactorily achieve customs clearance and the average cost to cross the border. The study was conducted for 19 countries that are part of APEC due to the availability of data.

Three columns of results are obtained for each analysis. In the case of FDI, New Zealand and Hong Kong are the countries that obtained an efficiency value in terms of Foreign Direct Investment. While, within the countries that were not efficient are Singapore, Canada, Australia and China with values of 0.76, 0.75 and 0.45 and 0.43 respectively. In descending order are the United States, Brunei, Korea and Chile with results of 0.27, 0.20, 0.13 and 0.10. Lastly, with the lowest efficiency values are the economies of Vietnam, Mexico, Malaysia, Thailand, Japan, Peru, the Philippines, Indonesia, and Papua New Guinea.

Regarding the 2017 results for efficiency in imports of the APEC countries, the efficient countries were Korea, the United States, Hong Kong and Singapore. It is worth mentioning that the values for the efficiency of imports were higher with respect to the values of Foreign Direct Investment.

Table 1. Efficiency results				
APEC countries, 2017.				
NO	DMU	<i>Exports</i>	<i>Imports</i>	<i>FDI</i>
1	Australia	0.22	0.51	0.45
2	Brunei Darussalam	0.02	0.8	0.2
3	Canada	1	0.81	0.75
4	Chile	0.04	0.95	0.1
5	China	1	0.76	0.43
6	Korea	1	1	0.13
7	U.S	1	1	0.27
8	Philippines	0.03	0.8	0.02
9	Hong Kong SAR, China	1	1	1
10	Indonesia	0.01	0.48	0.02
11	Japan	0.5	0.73	0.04
12	Malaysia	0.03	0.68	0.05
13	Mexico	0.03	0.47	0.06
14	New Zealand	0.71	0.7	1
15	Papua New Guinea	0.02	0.47	0.02
16	Peru	0.03	0.5	0.03
17	Singapore	0.04	1	0.76
18	Thailand	0.02	0.94	0.05
19	Viet nam	0.01	0.46	0.07

Source: Own elaboration based on World Bank, 2018.

The second block of countries is made up of economies that, although they did not reach efficiency values, they had values close to them. Such is the case of Chile, Thailand, Canada, Brunei, the Philippines, China, Japan, New Zealand, Malaysia, Peru and Australia. With the lowest values are Indonesia, Mexico, Papua New Guinea and Vietnam.

With a similar trend to the efficiency of imports, the efficiency in exports of the APEC countries for the year 2017, showed that the efficient countries were Canada, China, Korea, the United States and Hong Kong (see Table 1). For their part, New Zealand, Japan and Australia obtained the following results in descending order 0.71, 0.50 and 0.22. Consequently, the countries with the lowest values were Chile, the Philippines, Indonesia, Malaysia, Mexico, Papua New Guinea, Peru, Singapore, Thailand and Vietnam.

Conclusions

As it can be observed in the present document, there are different paths towards the fulfillment of the Bogor goals, as well as several attempts to fulfill the objectives set by APEC. However, many of the efforts are drawn lacking a clear structure to follow, disaggregated and, additionally, the disarticulation of the work undertaken by the nations is evident. While it seems that Australia is working hard for a commercial opening and development of the area, some other countries are somewhat more reserved in that sense, even countries like the United States have an open stance against such articulation.

Regarding the TTP, its failure and later the resurgence of the CPTPP, it is observed that its progress has been slow after the strong blow that shook it with the departure of the United States from the initial agreement. However, little by little it has gained momentum somewhat veiled by expectations regarding what would happen with the North American Free Trade Agreement (NAFTA), so that before any news was released in this regard, only three countries had ratified the CPTPP, these countries being Japan, Mexico and Singapore. Therefore, a little less than a month after the news that NAFTA is reformulated, maintaining commercial ties between the three signatory countries, the Australian Parliament ratified the incorporation of its country into the CPTPP, making a strong possibility the fact that Australia will enter the treaty. It is worth mentioning that Canada and New Zealand seek to declare their ratification at the end of the year while Chile, Peru, Vietnam, Brunei and Malaysia continue to review the Treaty. If this treaty is carried out, it could be a significant advance towards the Bogor goals, since 98 percent of the tariffs of 11 countries that together

make up a GDP of 10.6 trillion dollars and around 500 million consumers would be eliminated. . Despite this, there are two major absences: the United States and China.

Regarding the different measures of trade openness such as trade facilitation and business mobility, it is concluded that although there are efforts to facilitate trade, particularly in terms of exports, there is also a countercurrent in the increase in barriers to foreign trade. In most cases, in a veiled manner, maintaining low tariffs in accordance with the provisions of the World Trade Organization but increasing qualitative requirements with a dual purpose that goes beyond safeguarding the well-being of the countries and more environment to hinder and lethargy the entry of goods to economies.

It is important to remember that government policies or, more specifically, government policies regarding international trade are not those that lead to globalization, since globalization is caused by technological advances, through continuous improvements in the productive processes and in general given by the demand of the consumers and the satisfaction of their needs. Hence, even countries like the United States will hardly be able to stop the pace of market opening, which will soon become as easy as trying to stop the improvement of production processes or consumer demand.

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BELT AND SILK ROAD INITIATIVE: A NEW GAME CHANGER OF TRANSNATIONAL INVESTMENT IN ASIA

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Abstract

The advent of globalisation in this modern age and highly diversified world paves way for a new era of economic alliance of states in Asia through the establishment of China's Belt and Silk Roads Initiative (BRI), comprising the Silk Road Economic Belt (SREB) and the 21st Century Maritime Silk Road (MSR), which connects the East and the West in order to promote and sustain leverage in the transition of the world from western hegemony to a policy of peace, mutual respect, and coordination under China's helm. In this pursuit, China continues to use BRI not only as an economic but as a geo-political strategy to broaden its sphere of land and maritime control against the opposing hegemony among its neighbouring countries, the East and the West. This paper delves into the theories and praxis of investor state arbitration as well as issues on transparency of the Bilateral Investment Treaties (BIT) and international investment agreements (IIAs) as tools for governance of investor-state dispute settlement (ISDS) in the light of the accelerating transnational investments under the BRI in Asia and the member-economies within the APEC belt. It is theorised in this paper that complexities in ISDS mechanisms can be remedied by establishing a multilateral investment court in order to foster legitimacy and transparency on arbitral tribunals and therefore, address the issues on the malleable and amorphous nature of public policy to promote not only the economic interest of the State parties and foreign investors but also the sustainable development of the people.

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Introduction

The advent of globalisation in this modern age and highly diversified world paves way for a new era of economic alliance of states in Asia through the establishment of Belt and Silk Roads Initiative (BRI) which connects the East and the West in order to promote “community of shared destiny”⁵¹ and sustain leverage in the transition of the world from western hegemony to a policy of peace, mutual respect, and coordination. In this pursuit, BRI is being used as an economic and geo-political strategy to broaden the sphere of land and maritime control against the opposing hegemony among the neighbouring countries, the East and the West. Although the Belt and Roads Initiative (BRI) has been the earliest vehicle of the world for international trade for more than six centuries ago, still its enduring past continues to reverberate until this modern day as it intersects with the different realms of land and maritime silk road as well as in redefining moments of the technological and digital network services within the prism of the fluid norms of transnational investment arbitration.

This paper deals with transnational investment arbitration and its impact on the growing economy of Asian neighbouring countries and other members of the Asia Pacific Economic Cooperation (APEC). As Asia moves towards re-building economic bloc, the Belt and Silk Roads Initiative (BRI) strengthen the foothold of Asian countries in transnational investments particularly through the dynamic economic cooperation of the Association of Southeast Asian Nations, the Brunei Darussalam-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA), as a catalyst for the economic resiliency and stabilisation of the region to complement with the American and European economies. The burgeoning transnational investments in the economic hub will undoubtedly prevent a domino effect that happened in the past such as the 1997 Asian crisis and the 2008 financial crisis as well as the recent negative economic repercussion of the global pandemic COVID-19.

⁵¹ Arase, David. 2015. China’s Two Silk Roads Initiative: What it Means for Southeast Asia. Southeast Asian Affairs. Yushof Ishak Institute, citing Xi Jin Ping Silk Road’s agenda for Eurasian connectivity and regional economic cooperation.
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As BRI gained momentum in accelerating transnational investments in the pipeline, it is inevitable, however, that complexities on litigating investment disputes and recognition and enforcement of investment arbitral awards in foreign jurisdictions may crop up. The increasing number of transnational investments and cross-border business transactions and the corresponding projected increase in the number of commercial and investment disputes involving State parties and foreign investors (i.e., state to state disputes, state to investor disputes, and investor to investor disputes) emboldened by the Bilateral Investment Treaties (BITs) and other international investment agreements (IIAs) as investor-state dispute settlement (ISDS) mechanisms have become a niche to enrich the fertile ground for the flourishing landscape in the narratives of transnational investment arbitration in Asia. These narratives give birth to issues on transparency of the Bilateral Investment Treaties (BIT) and international investment agreements (IIAs) as tools for governance of investor-state dispute settlement (ISDS) for these befuddle the rights and obligations of the State parties and foreign investors taking into account the actors involved in the process, the restrictive sovereign immunity of states, and issues on the legitimacy of the arbitral institutions spearheaded through the BRI for it reflects power asymmetry between the global North and the global South - the developed and developing State parties, which are mostly Asian countries like the Philippines.

While new vehicles have been formed to help with the financing, such as the Silk Road Fund, most of the funding for these projects will actually come from the “state-directed development and commercial banks”, not to mention China’s multilateral approach to investment including private-public partnerships.⁵² This means that foreign investors within the realm of BRI can be a group of “state-directed development and commercial banks” whose activity from the standpoint of State party may be either public or private. These are problematic particularly when it comes to the recognition and enforcement of investment arbitration award(s) in view of the malleable concept of public policy and the varying application and interpretation of the restrictive immunity of the sovereign states. As explained by Rafols (1984), ‘given by the diversity of governmental structures, there are public functions which may be undertaken by entities that do not form part of the government machinery, and that

⁵² Xi, J., 2017a, page 5, see also OECD, Business and Finance Outlook, 2018, p. 3

there are no universal accepted canons for the characterisation of this activity as being commercial or private as opposed to being governmental or public.⁵³ According to Alvarez and Park (2003), if these are not resolved, "investor/government arbitration may fall prey to public pressure arising from a backlash"⁵⁴ and would "suffer from crib death before it can struggle through its initial growing pains"⁵⁵ which may be both detrimental to the economic interest of the foreign investors and State parties in the BRI global investment plans.

In many cases, foreign investors have used ISDS to challenge measures adopted by States in the public interest (for example, policies to promote social equity, foster environmental protection or protect public health) [which may have negative repercussion to the State parties that will ultimately do a balancing act in weighing the alternative options]. There are also issues on whether the three arbitrators, appointed on an *ad hoc* basis, would guarantee sufficient legitimacy to assess the validity of States' acts, particularly if the dispute involves sensitive public policy issues.⁵⁶ It is against this context that the Belt and Silk Roads Initiative (BRI) serves as a new game changer in the field of investment arbitration for it squarely creates new actors and norms for transnational public policy that are significant in terms of the recognition and enforcement of investment arbitration awards within and outside the circle of the participating economies.

I. THE INVESTOR-STATE ARBITRATION (ISA) IN THE LIGHT OF THE BELT AND SILK ROADS INITIATIVE

China itself has endorsed arbitration as the appropriate method of dispute resolution for BRI projects,⁵⁷ and host country parties can generally be expected to acquiesce in

⁵³ Rafols, Roy Joseph M. 1984. Sovereign Immunity: Comparative Perspective. *Ateneo Law Journal*. Vol. XXIX.

⁵⁴ Alvarez, Guillermo A, and William W. Park. 2003. The New Face of Investment Arbitration: NAFTA Chapter 11, 28 *Yale J. Int'l L.* 365, 366; Franck, Susan. 2005. The Legitimacy Crisis in Investment Treaty Arbitration: Privatising Public International Law Through Inconsistent Decisions. *Fordham Law Review*. Volume 73, Issue 4.

⁵⁵ Franck, Susan. 2005. The Legitimacy Crisis in Investment Treaty Arbitration: Privatising Public International Law Through Inconsistent Decisions. *Fordham Law Review*. Volume 73, Issue 4.

⁵⁶ United Nations Conference on Trade and Development, No. 2. June 2013

⁵⁷ Grimmer, Sarah & Charemi, Christina. 2017. Dispute Resolution along the and Road, *GLOBAL ARB. REV.* (May 22, 2017),

the inclusion of arbitration clauses in their contracts as the most practicable means of finding a neutral forum.⁵⁸ The Government of China and Chinese arbitral institutions are taking measures to facilitate the establishments of BRI-related arbitrations in their home country. In October 2016, for instance, one of more than 200 local arbitration commissions in China - the Wuhan Arbitration Commission - announced its establishment of a “‘One Belt, One Road’ Arbitration Court” to govern disputes involving Chinese enterprises. It can be seen from this strategy that the major cities in China intends to comply with international standards since China has long been a party to the New York Convention. Chinese parties to BRI contracts reasoned that they feel more comfortable in their home territory with institutions that are familiar with Chinese business practices and are accustomed to conducting proceedings in Chinese. Some may also feel that because Chinese institutions are generally funding the projects, the use of Chinese venues and arbitral institutions is appropriate.⁵⁹

In the midst of this prevailing environment, it has been said that enforcement of foreign arbitral awards would be difficult in China; however, Chinese proponents argued that this old Chinese interpretation/statement was largely irrelevant today.⁶⁰ Traditionally, China has restricted unilateral consent to arbitration to disputes on the amount of compensation to be granted in cases of expropriation.⁶¹ Controversies on other matters, such as the existence of expropriation itself, or breaches of treatment obligations, were to be settled in domestic courts, or could be submitted to arbitration by mutual consent of the investors and national authorities (*e.g.*, China–Korea BIT, Art. 9.3).⁶² A number of international investment agreements (IIAs) require foreign investor to fulfill certain procedural requirements prior to the filing of the arbitration claim. The most usual procedural restrictions pertain to waiting periods⁶³ and the

⁵⁸ Norton, Patrick M. 2018. China’s Belt and Road Initiative: Challenges for Arbitration in Asia. U. PA Asian Law Review.

⁵⁹ *ibid.* Norton, Patrick M. 2018.

⁶⁰ Chaisse, Julien. 2013. Investment Claims against Asian States-- a legal analysis of the statistics, trends and prospects. Centre for Financial Regulation. Working Paper No. 14. October 2013. Chinese University of Hongkong Faculty of Law.

⁶¹ Jie Wang (2009) Investor-State Arbitration: Where Does China Stand? 32 Suffolk Transnat’l L. Rev. 496, 501.

⁶² *Iberdrola Energia S.A. v. Republic of Guatemala*, ICSID Case No. ARB/09/5, Award, 17 August,

⁶³ *Bayindir Insaat Turizm Ticaret Ve Sanayi A.S. v. Islamic Republic of Pakistan*, ICSID Case No. ARB/03/29, Decision on Jurisdiction, 14 November, 2005, para. 102.

exhaustion of local remedies.⁶⁴ These are the types of requirements commonly found in Sino–foreign BITs.⁶⁵ Prior to the launch of arbitration, foreign investors must hold negotiations with China’s authorities to reach an amicable settlement. Should these negotiations fail to bring the parties to commonly agreed solution within a six-month period, the investor may bring the claim to international arbitration. The exhaustion of local remedies requires foreign investors to seek relief to their claim through domestic procedures before bringing the international dispute. Ordinarily, the investors are required to file a claim before the competent domestic court. Should the domestic court fail to settle the dispute, or fail to reach a decision within a given period of time, the investors are entitled to proceed with international proceedings.⁶⁶

As explained by China International Economic and Trade Arbitration Commission (CIETAC) Director in Boston, “a foreign BIT award and award made by an ICSID tribunal should be enforced without impediments.”⁶⁷ This differentiates the dynamics of traditional BITs and IIAs from the new-generation of Sino–foreign IIAs which are characterised to be free from substantial restriction(s) and grants unilateral consent to disputes concerning all disciplines of the agreement.⁶⁸ These new and recent IIAs are likely to generate litigation before ISA on their own or through the application of most-favored-nation treatment (MFN) clauses in the light of the *Maffezini vs Kingdom of Spain* case. Indeed, several tribunals have applied MFN clauses to relieve claimants of having to comply with a “prior recourse” obligation.⁶⁹ However, some other tribunals and arbitrators which have rejected attempts to apply MFN clauses to relieve claimants in complying with a “prior obligation ⁷⁰ recourse” have created a schism across awards which may well become an issue when further exploring China’s

⁶⁴ Kilic Insaat Ithalat Ihracat Sanayi ve Ticaret Anonim Sirketi v. Turkmenistan, ICSID Case No. ARB/10/1, Award, 2 July, 2013, para. 6.2.9.

⁶⁵ Pan American Energy LLC and BP Argentina Exploration Company v. Argentine Republic, ICSID Case No. ARB/03/13, Decision on Preliminary Objections, 27 July, 2006, para. 41.

⁶⁶ *ibid*

⁶⁷ Wang, Jie. 2009. Investor-State Arbitration: Where Does China Stand? 32 Suffolk Transnational L. Rev. 496, 501.

⁶⁸ China’s BIT with Mozambique of 2001 (Art. 7.3.)

⁶⁹ Emilio Agustín Maffezini vs Kingdom of Spain, ICSID Case No. ARB/97/7, Decision of the Tribunal on Objections to Jurisdiction, 25 January, 2000.

⁷⁰ Wintershall vs Argentina, *ibid*.

IIAs.⁷¹ Chaisse (2013) recommends to adopt the principle of MFN treatment as it is of paramount importance to the Asian investment regime for it creates opportunities for investors against these states that have developed rather restrictive provisions. It is noteworthy that the more a country has entered into various IIAs, the more it is necessary to utilise MFN for future litigation. Malaysia, China and Vietnam are among the Asian states that pay the greatest attention to MFN since these three countries have already granted rights to a great number of their party investors and investments.⁷²

II. NVESTOR-STATE- ARBITRATION (ISA) EMBODIED IN BITs AND IIAs

The above-mentioned norms of investment arbitration mechanisms within the prism of the BRI is juxtaposed to the existing precepts and principles of investment state dispute settlement under the BITs and other international investment agreements (IIAs). BITs grant investors a number of rights and remedies such as the following: (i) guaranteed payment of adequate compensation in the event an investment is expropriated; (ii) prohibition of the host country enacting currency control to prevent the free flow of capital; (iii) prohibition of discrimination against the investor in favour of the host country's citizens or other foreigners; (iv) fair and equal treatment by the host country; (v) provision of full protection and security of the investment by the host country; (vi) guarantee by the host country that the investor will not be treated less favourably than the minimum standard required by customary international law; (vii) an agreement of the host country to honour commitments made to the investors.⁷³ Many host country governments and foreign investors utilised BITs as a form of investor state arbitration (ISA) due to various factors such as but not limited to the following, to wit: negative consequences may follow if the host country government withdraw from the BITs.

⁷¹ Chaisse, Julien. 2013. Investment Claims against Asian States-- a legal analysis of the statistics, trends and prospects. Centre for Financial Regulation. Working Paper No. 14. October 2013. Chinese University of Hongkong Faculty of Law.

⁷² *ibid*

⁷³ Franck, Susan D. 2005. The Legitimacy Crisis in Investment Treaty Arbitration: Privatizing Public International Law Through Inconsistent Decisions, 73 Fordham L. Rev. 1521 (2005).

The bilateral investment treaties ordinarily have a term of ten to fifteen years, with no right of termination of a treaty during that period. Hence, BIT is beneficial as it contains “continuing effects” clause which provides that investments made, acquired or approved prior to the date of the termination of the treaty will be protected by the treaty’s provisions for a further term of 10 to 20 years.⁷⁴ This “umbrella clause” is a provision commonly found in BITs that requires each contracting nations to observe all investment obligations they have assumed with respect to investors from other contracting nations. This type of clause brings independent investment arrangements between a contracting nation and private investors from the other contracting nation under the treaty’s “umbrella protection”. Its purpose is to create an international obligation to observe investment agreements that investors may enforce when BIT confers a direct recourse of action to arbitration.⁷⁵ There are two major substantive standards for protection in most BITs. These are the Most Favoured Nation Treatment (MFN) and National Treatment (NT) clauses. The inclusion of these clauses in the BITs is important considering that investors can generally rely on the MFN provision in its treaty to obtain more beneficial treatment than the host State may have agreed to grant investors from another.⁷⁶ On the other hand, the Fair and Equitable Treatment (FET) is also one of the strengths of BITs. The FET clauses will be violated if the host State acts in a way that is ‘arbitrary, grossly unfair, unjust or idiosyncratic’ or engages in ‘discriminatory’⁷⁷ conduct or acts in a way that is inconsistent with the investor's legitimate expectations.⁷⁸ There may also be requirements to maintain a stable business environment that is consistent with reasonable investor expectations.⁷⁹

The obligation to provide 'full protection and security' is concerned with failure of the State to provide physical protection for the investors and protect them from actual

⁷⁴ Salacuse, Jeswald W. 2010. The Emerging Global Regime for Investment, 51 Harvard International LJ, 471-472 (2010).

⁷⁵ Wong, Jarrod. 2006. Umbrella Clauses in Bilateral Investment Treaties, Of Breaches of Contract, Treaty Violations and the Divide between the Developed and the Developing Countries in Foreign Investment Disputes, 14 Geo Mason L. Rev, 135, 142-143.

⁷⁶ Jones, Doug. 2013. Investor-State Arbitration in Times of Crisis. National Law School of India Review, Vol. 25, No. 1 (2013), pp. 27-61

⁷⁷ Waste Management, Ine v. Mexico (No2), at 1 98 (ICSID Case No. ARB (AF)/00/Award of 30 April 2004).

⁷⁸ Técnicas Medioambientales Teemed SA v. Mexico, at 1 154 (ICSID Case No.ARB(AF)/00/2, Award of 29 May 2003); see also , MTD Equity Sdn Bhd and MTD Chile SA v. Chile, 11 111-15 (ICSID Case No ARB/01/7, Award of 25 May 2004); Saluka Investments BV v. Czech Republic, at H 300-8 (UNCITRAL Arbitration, Partial Award of 17 March 2006).

⁷⁹ LG&E v. Argentina, ICSID Award, May 29, 2003)

damage, either caused by State officials, or of others where the State has failed to exercise due diligence.⁸⁰ However, it has also been interpreted as extending beyond mere physical protection of the host State to provide legal protection for the investor's rights.⁸¹ In all instances, States should ensure that they have exhausted all measures that are not harmful to foreign investors before they take such actions, because in the event of an investor-State dispute arising later, they will need to show evidence that the harmful measure was the only option available in order to run a successful defence. As already noted, according to the Draft Articles, 'only option available' means that the defense must not be invoked if a State has other lawful means to preserve the interest, even if those means are 'more costly or less convenient'.⁸² Shavell (1995) mentions three advantages of arbitration for the parties concerned: (1) it may lower the costs and risks of dispute resolution because resort to arbitration is likely to reduce the total costs of dispute resolution and to avoid exposure to unreliable jury verdicts; (2) it may create better incentives for parties to a contract to perform, thus increasing the joint value that the parties' relationship produces, because of the greater accuracy of private dispute resolution,⁸³ and (3) it may reduce the number of trials because the lower costs of arbitration should incentivise parties to resort to arbitration rather than going to trial.⁸⁴

These international law precepts and precepts of investment laws provide the State and the investors with great discernment on mobilising BITs and IIAs as well as other international agreements to sustain the landscape of investment regimes whether through multilateral or regional, economic bloc. As Jones (2013) pointed out, investors have variety of protections under the treaties and international customary law which have been outlined above to base their claims upon. The success of their claim is dependent upon their capability to meet the threshold of various standards of international law.⁸⁵ Aside from these ISDS mechanisms, investors may also resort to

⁸⁰ Asian Agricultural Products, LTD vs Sri Lanka (ICSID Award, June 27, 1990)

⁸¹ Jones, Doug. 2013. Investor-State Arbitration in Times of Crisis. National Law School of India Review, Vol. 25, No. 1 (2013), pp. 27-61

⁸² *ibid*

⁸³ Shavell, Steven. 1995. Alternative Dispute Resolution: An Economic Analysis, 24 J. LEGAL STUD. 1 (1995).

⁸⁴ *ibid*

⁸⁵ Jones, Doug. 2013. Investor-State Arbitration in Times of Crisis. National Law School of India Review, Vol. 25, No. 1 (2013), pp. 27-61

“diplomatic protection” or inter-state claim whereby the investor’s home State can bring a claim on behalf of the investor against the host State before the International Court of Justice is available, however, it is rarely used by States. Investors may also consider suing States through alternative regimes, such as under WTO law or a FTA services chapter. In these manner, private investors who possess sufficient influence can lobby their governments to initiate State-to-State dispute settlement proceedings at the WTO and under an FTA services chapter in order to circumvent unfavourable developments in investment law. However, the limitations of these options include home State to retain discretion and control over the claims process, and the process is less likely to be invoked for smaller investors or projects.

It must be emphasised also that investors, especially those that do not have a great deal of political influence or have less significant investments, have little recourse against the actions of host States above and beyond investor-State arbitration.⁸⁶ While it is indeed true that there are wide avenues for the spring of investment opportunities as the world crunched with the growing globalisation and interdependent global trade between the Global North and South, the intricacies of the trade and commercial disputes appurtenant with it can, nevertheless, be handled by the available ISDS mechanisms. However, this is with a caveat that it will be utilised in accordance with the framework of international law, international customary laws, and state sovereignty without compromising, on the other hand, the rights of foreign investors, party autonomy and mutuality principles between and among the contracting parties. Indeed, the journey towards a vibrant investment arbitration in the Global South may be a long winding road, however, its development may carry on as the world sails towards its goal.

III. CRITICISM OR WEAKNESSES OF ISA EMBODIED IN BITs AND IIAs

While there are huge opportunities involved in BRI investments, the emergence of arbitral institutions and its corresponding adaptations with the growing times abound everywhere. These include the recent updating of SIAC investment arbitration rules in January 2017, the establishment of Belt and Road Commission by International

⁸⁶ *ibid*

Chamber of Commerce (ICC) in March 2018, and HKIAC's Belt and Road Advisory Committee in April 2018. However, it is noteworthy that the existing ISDS mechanisms and investor-state arbitration (ISA) also suffer from backlash and need further improvement. The critics of ISDS argued that BITs unduly favour the interests of investors. The expropriation and FET provisions of BITs have resulted in States being forced to compensate investors, even for legitimate and public interest regulatory change in times of crisis, including environmental and social regulations. Further, ISDS can limit a country's ability to efficiently restructure following a financial crisis since ISDS mechanisms can allow individual bond to arbitrate against a host State attempting to legitimately rescue its economy.⁸⁷

The ISA system has been under serious attack from a variety of parties since 2007 because of the "legitimacy crisis".⁸⁸ Some scholars claim that the ISA system has a pro-investor bias and puts States in a disadvantaged position.⁸⁹ These criticisms are based on the observations that (1) the current international investment law regime is lopsided with extremely unequal terms of agreement imposed on developing countries by their stronger BIT partners;⁹⁰ (2) the dissatisfaction of some states with the wide interpretive authority of investment tribunals, which results from the usually vague and open-ended BIT language;⁹¹ and (3) general allegations that the outcomes of the ISA proceedings are biased in favour of investors.⁹² Second, developing states argue that the ICSID system particularly favours investors from the developed world and disadvantages developing states, and is biased in favour of the Global North.⁹³ Third, many also consider the ISA system to be elitist: arbitrators are usually white, male, and from the developed North.⁹⁴ In view of the state involvement in ISA, there is a

⁸⁷ Sovereign Debt Restructuring and International Investment Agreements, HA Issues Note, UNCTAD, No. 2 (July 2011).

⁸⁸ Riesenberger, David P. Note, Fee-Shifting in Investor-State Arbitration: Doctrine and Policy Justifying Application of the English Rule, 60 DUKE L.J. 977, 986–87 (2011).

⁸⁹ ICSID in Crisis: Straight-Jacket or Investment Protection?, BRETTON WOODS PROJECT (July 10, 2009), <https://www.brettonwoodsproject.org/2009/07/art-564878>.

⁹⁰ Chung, Olivia. 2007. Note, The Lopsided International Investment Law Regime and Its Effect on the Future of Investor-State Arbitration, 47 VA. J. INT'L L. 953, 962 (2007).

⁹¹ Giest, Alison. 2017. Comment, Interpreting Public Interest Provisions in International Investment Treaties, 18 CHI. J. INT'L L. 321, 330 (2017).

⁹² *supra*, note 39.

⁹³ Brower & Blanchard, Franck

⁹⁴ Eberhardt, Pia & Olivet, Cecillia, 2012. Profiting from Injustice: How Law Firms, Arbitrators and Financiers Are Fueling an Investment Arbitration Boom, TRANSNAT'L INST. & CORP. EUR. OBSERVATORY, at 36 (Nov. 2012), <https://www.tni.org/files/download/profitfrominjustice.pdf>.

growing sentiment that proceedings should better account for public interests than commercial arbitration, which emphasises the private interests of investors.⁹⁵ The rising number of investment claims and the considerable costs of the arbitral process will lead to “regulatory chill.”

This refers to the allegation that nation states will not optimally regulate international investors due to fears of having to be the respondent state in investment arbitration.⁹⁶ Lastly, given the perception that states’ right to regulate is threatened by ISA, some scholars believe that national sovereignty is also diminished.⁹⁷ The United Nations Conference on Trade and Development (“UNCTAD”), in its World Investment Report 2015, also summarised the major concerns surrounding the ISA regime. It describes the concerns as follows, *viz*:

the current mechanism exposes host States to additional legal and financial risks, often unforeseen at point of entering into the IIA and in circumstances beyond clear-cut infringements on private property, without necessarily bringing any benefits in terms of additional FDI flows; that it grants foreign investors more rights as regards dispute settlement than domestic investors; that it can create the risk of a “regulatory chill” on legitimate government policymaking; that it results in inconsistent arbitral awards; and that it is insufficient in terms of ensuring transparency, selecting independent arbitrators, and guaranteeing due process.⁹⁸

Some of these countries claim that the system is dominated by the Western world and does not provide the neutrality and impartiality which it is supposed to have.⁹⁹ This bias is traced in the way in which rules of international trade, commerce and

⁹⁵ Arcuri, Alessandra & Montanaro, Francesco. 2018. Justice for All: Protecting the Public Interest in Investment Treaties, 59 B.C. L. REV. 2791, 2804 (2018).

⁹⁶ Korzun, Vera. 2017. The Right to Regulate in Investor-State Arbitration: Slicing and Dicing Regulatory Carve-Outs, 50 VAND. J. TRANSNAT’L L. 355, 383 (2017).

⁹⁷ Giest, Alison. 2017. Comment, Interpreting Public Interest Provisions in International Investment Treaties, 18 CHI. J. INT’L L. 321, 330 (2017).

⁹⁸ *ibid*.

⁹⁹ Hodgson & Campbell, Sonia E. Rolland, The Return of State Remedies in Investor-State Dispute Settlement: Trends in Developing Countries, 49 LOY. U.

investment are crafted, applied and adjudicated between Third World and developed countries or between Third World countries and the interests of world hegemony. Regime bias therefore refers to examining the choices made between alternative ways of crafting legal rules, the meanings ascribed to a particular rule whether in its application by an administrative agency, or at the adjudication stage by a domestic judicial body, or an international tribunal.¹⁰⁰ In this sense, developing countries should consistently contest outcomes adverse to them, with alternatives that serve their best interests, rather than merely focusing on bias as the inevitable outcome of the origin of the rules in industrial economies or to the lopsided nature of the bargaining power of Third World states relative to developed countries or multinational capital.¹⁰¹

The issues on legitimacy and transparency on the part of the ISDS mechanisms can best be addressed by having an independent and impartial judge in the arbitral tribunal. According to Faure (2020), if judges come from different regions of the world (and not only the “white” North) a higher degree of acceptability in the developing world could be virtually guaranteed. Decision making could probably be even cheaper and speedier than under the current ad hoc arbitration model.¹⁰²

IV. HARMONISATION OF PUBLIC POLICY EXCEPTION FOR EFFECTIVE ENFORCEMENT OF ARBITRAL AWARDS

Investment disputes are often considered as public in nature because it involves the State as a party, and often involve complex issues of public interest and public policy. This is problematic because private investment tribunals, ‘wield enormous power displacing local courts and making decisions about the rules that govern major portions of host country economies and, by extension, their societies’.¹⁰³ In order to benefit from foreign investment, States may then, in certain situations, have to

¹⁰⁰ Falk, Stevens & Rajagopal (undated). (said that Third World coalitions like the Non-Aligned Movement, the G-77, and others have lost almost all geopolitical relevance).

¹⁰¹ Thuo Gathii, James. 2008. *Third World Approaches to International Economic Governance*; Richard Falk, Stevens, Jacqueline, & Rajagopal, Balakrishnaneds., Routledge 2008; Falk, Stevens & Rajagopal eds.).

¹⁰² Faure, Michael, & Wanli Ma. 2020. *Investor-State Arbitration: Economic and Empirical Perspectives*, 41 MICH. J. INT'L L. 1 (2020).

¹⁰³ Leader S. 2006. Human rights, risks, and new strategies for global investment. *J Int Econ Law* 9:657–705, p. 684.

compromise their regulatory power. Therefore, ‘a delicate balance needs to be struck between the regulatory powers of the host State and the need to legally protect the interests of foreign investors.’¹⁰⁴ For a long period, the lack of public interest and strong judicial enforceability kept international arbitration unpopular which ultimately cause negative impact to international commerce. Thus, to promote arbitration and international commerce alive, international community ratifies the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (the “New York Convention”), which took a pro-enforcement stand that would be beneficial to investors. In view of this groundbreaking milestone, many countries lauded the New York Convention for it creates predictability in the recognition and enforcement of arbitral awards boosting confidence to investors in international arbitration.

However, the New York Convention also provides a framework for national courts to refuse enforcement of arbitral awards based on “irregularities” related to the status of the award, the conduct of the arbitral proceedings, and validity of the arbitration agreement. It listed ‘public policy’ as one of the irregularities or grounds for denying the enforcement of arbitral awards. It allows national courts not to give effect to an award that contradicts the fundamental principles of the forum state’s legal system.¹⁰⁵ Since the time when the New York Convention took effect, national courts have formulated wide-ranging interpretations of public policy. Among these interpretations, however, it provides an overarching common theme that “public policy exception” serves as a safety zone for the parties to protect public interest by authorising the national courts to decide whether an arbitral award and its recognition or enforcement is contrary to the public policy of the forum State where enforcement is being sought.

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¹⁰⁴ Gazzini, T. 2012. Bilateral investment treaties. In: Gazzini T, De Brabandere E (eds) *International investment law: the sources of rights and obligations*. Martinus Nijhoff, Leiden, pp 99–132, p. 113.

¹⁰⁵ Huseyin Alper Tosun. 2019. *Public Policy Concepts in International Arbitration*. California Digital Library. University of California.

¹⁰⁶ *ibid.*

A. PUBLIC POLICY EXCEPTION, MEANING

Public policy exception is considered a safety valve to protect parochial public interest.¹⁰⁷ It is indeed a fluid yet enigmatic thing for it has been an “obstacle to international arbitration procedures particularly in the recognition and enforcement of foreign arbitral awards”¹⁰⁸ as it enables the courts of a country to refuse recognition and enforcement of arbitral awards in the country where their enforcement is sought.¹⁰⁹ Article V(2)(b) of the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards provides that the recognition and enforcement of an arbitral award may be refused if a court finds that it would be contrary to the public policy of the forum of the State.¹¹⁰ The United Nations Commission on International Trade Law Model Law on International Commercial Arbitration (UNCITRAL Model Law) also contains a similar provision in Article 36(2)(b), which states that an arbitral award may be refused on the grounds that “the recognition or enforcement of the award would be contrary to the public policy of this State.”¹¹¹ The public policy exception indeed represents a safety net for the unusual situations in which a legal system cannot recognise and enforce an award without undermining its very foundations.¹¹²

The courts serve as the competent authorities¹¹³ to decide whether the recognition and enforcement of an arbitral award contravenes the forum State’s public policy (*lex*

¹⁰⁷ Sammartano, Mauro Rubino. 2001. International Arbitration Law and Practice, 2nd ed. 2001, at 503.

¹⁰⁸ Huseyin Alper Tosun. 2019. Public Policy Concepts in International Arbitration. California Digital Library. University of California.

¹⁰⁹ Hanotiau, Bernard, and Olivier, Caprasse. 2008. Public Policy in International Commercial Arbitration, in Enforcement of Arbitration Agreements and International Arbitral Awards, New York Convention in Practice. (Emmanuel Gaillard & Domenico Di Pietro eds., 2008), at 787-828; Cordero-Moss, Giuditta. 2013. International Arbitration is not only International, in International Arbitration: Different Forms and their Features (Giuditta Cordero-Moss eds., 2013), at 19.

¹¹⁰ Briner, Robert & Hamilton, Virginia. 2008. The History and General Purpose of the Convention, the Creation of an International Standard to Ensure the Effectiveness of Arbitration Agreements and Foreign Arbitral Awards, in Enforcement of Arbitration Agreements and International Arbitral Awards, New York Convention In Practice (Emmanuel Gaillard & Domenico Di Pietro eds., 2008), at 3-39.

¹¹¹ Art. 34 (2) UNCITRAL Model Law.

¹¹² Guide to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, United Nations Commission on International Trade Law (UNCITRAL) Secretariat. See also Jan Paulsson, The New York Convention in International Practice, Problems of Assimilation, ASA SPECIAL SERIES NO. 9, 100 (1996); *Misr Misr Insurance Co. v. Alexandria Shipping Agencies Co*, [1991] COURT OF CASSATION, EGYPT.

¹¹³ Kurkela, Matti S, and Turunen, Santtu, 2010. Due Process in international Commercial Arbitration, 2nd Ed, 2010, p. 18.

fori). The Court has the discrete authority *ex officio*¹¹⁴ to deny enforcement claims.¹¹⁵ Through time, national courts have already developed varied interpretations and diverse applications of the public policy exception, which have given rise to complications in the enforcement of arbitral awards internationally.¹¹⁶ Some scholars consider the public policy defense exception as one of the greatest threats,¹¹⁷ or at least a concerning loophole,¹¹⁸ for commercial arbitration. However, other scholars noted that the public policy exception in commercial disputes is illusory, that is, almost never succeeding as a defence to the recognition and enforcement of arbitral awards.¹¹⁹ Courts should review the application of the public policy defence in situations where enforcement would condone unfair and unacceptable outcomes, thus making it more than a theoretical defence.¹²⁰ At the end of the day though, the public policy defense has been used narrowly by most courts, which conforms to the Convention's pro-enforcement purpose.¹²¹

In the Philippines, the Supreme Court ruling in *Mabuhay Holdings Corporation v Sembcorp Logistics Limited*, G.R. No. 212734, 5 December 2018, is a golden development in the field of arbitration for it strengthens the Philippines' pro-pro-enforcement policy. The Court ruled that "[m]ere errors in the interpretation of the law or factual findings would not suffice to warrant refusal of enforcement under the public policy ground. The illegality or immorality of the award must reach a certain threshold such that, enforcement of the same would be against [the Philippines'] fundamental tenets of justice and morality, or it would blatantly be injurious to the public, or the interests of the society."¹²²

¹¹⁴ *ibid*

¹¹⁵ Cole, Richard. 1986. The Public Policy Exception to the New York Convention on the Recognition and Enforcement of Arbitral Awards, 1(2) OHIO ST J DISP RESOL. 365 (1986).

¹¹⁶ Yang, Inae. 2015. A Comparative Review on Substantive Public Policy in International Commercial Arbitration, 70 DISP RESOL J., 49 (2015), at 51.

¹¹⁷ Junker, Joel R. 1977. The Public Policy Defense to Recognition and Enforcement of Foreign Arbitral Awards, CAL. W. INT'L L.J. 228, 229-30 (1977).

¹¹⁸ *supra*, note 63

¹¹⁹ Sanders, Pieter. 1979. A Twenty Years' Review of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, 13 INT'L L., 270 (1979).

¹²⁰ Bouzari, Eloise Henderson. 1995. The Public Policy Exception to Enforcement of International Arbitral Awards, Implications for Post-NAFTA Jurisprudence, 30 TEX. INT'L L. J. 205 (1995), at 218.

¹²¹ *Moses; Parsons & Whittemore Overseas Co., Inc. v. Société Générale de l'Industrie du Papier*, 508 F.2d 969 (2d Cir. 1974).

¹²² *Mabuhay Holdings Corporation v Sembcorp Logistics Limited*, G.R. No. 212734, 5 December 2018

On the other spectrum, however, the ruling leaves the national courts no power to decide on the issues pertaining to the Article V(1)(c) of the New York Convention particularly the basis of the *kompetenz-kompetenz* principle and the finality of the arbitral tribunal's determination of facts or interpretation of law due to party autonomy. While the international community lauded this Supreme Court ruling as another milestone in the development of the landscape on investment and commercial arbitration, there is still a long road when it comes to its practical applications in the future when similar issue on narrowing the concept of public policy has become the battle point in the domestic arena of the Philippine courts.

B. HARMONISATION OF PUBLIC POLICY

The concept of public policy refers to principles or rules admitted by the legal system of a State. However, it has also something to do with other elements such as similar procedural principles of states, the international nature of the arbitration process, and the consensus within the international community.¹²³ Some have argued that public policy is derived from “the comparison of the fundamental requirements of national laws and of public international law in particular.”¹²⁴ According to Gaillard (1999), notwithstanding whether the case is domestic or international, a breach of public policy, as a set of values, cannot be tolerated by the national legal order.¹²⁵ The aim of the court is to assess whether the arbitral award is enforceable in the national legal order. As a result, the court should examine the enforcement demand in accordance with the fundamental considerations of its own law, but there is nothing to prevent the court from adopting other instruments inspired from concepts broadly accepted outside of that nation.¹²⁶ The international consensus among States becomes concrete when those States agree on international conventions by creating dispute resolution systems. If an award is contrary to these conventions, it justifies refusal of its

¹²³ Kurkela, Matti S., & Turunen, Santtu. 2010. *Due Process in International Commercial Arbitration*, 2nd ed. 2010, p. 18

¹²⁴ Lalive, Pierre. 1987. Transnational (or Truly International) Public Policy and International Arbitration, in *Comparative Arbitration: Practice and Public Policy in Arbitration*. Pieter Sanders eds., 1987), at 262-263.

¹²⁵ Gaillard, Emmanuel & Savage, John. 1999. *Fouchard Gaillard Goldman on International Commercial Arbitration*, Gaillard & Savage eds., 1999.

¹²⁶ *ibid.*

recognition and enforcement based on this transnational character of public.¹²⁷ In a transnational public policy context, foreign law may become relevant to the law of *lex fori*, where fundamental principles of both forums are “identical to, similar to, or in consensus with the fundamental principles of those of the international legal community.”¹²⁸ Nevertheless, public policy has been defined as an “unruly horse”¹²⁹ by some and “a nebulous, concept that changes from State to State” by others.¹³⁰ The Federal Court of Australia stated that “it is only those aspects of public policy that go to the fundamental, core questions of morality and justice in [the] jurisdiction [where enforcement is sought] which enliven this particular statutory exception to enforcement,”¹³¹ viz:

[T]he scope of the public policy ground of refusal is that the public policy to be applied is that of the jurisdiction in which enforcement is sought, but it is only those aspects of public policy that go to the fundamental, core questions of morality and justice in that jurisdiction which enliven this particular statutory exception to enforcement. The public policy ground does not reserve to the enforcement court a broad discretion and should not be seen as a catch-all defense of last resort. It should not be used to give effect to parochial and idiosyncratic tendencies of the courts of the enforcement state.¹³²

Further, it is not enough to simply categorise the public policy exception as a “mandatory rule” (*lois de police*) to prevent the enforcement of foreign arbitral awards.¹³³ Every single public policy rule is mandatory, but not every mandatory rule

¹²⁷ Mayer, Pierre & Sheppard, Audley. 2003. Sheppard, Interim ILA Report on Public Policy as a Bar to Enforcement of International Arbitral Awards, 19(2) ARB. INT'L. 217 (2003).

¹²⁸ *ibid*

¹²⁹ Richardson v Mellish (1824) 2 Bing 229, 252 (Burrough J), retrieved from Luke Villiers, *Breaking in the “Unruly Horse”*: The Status of Mandatory rules of Law as a Public Policy Basis for the Non-Enforcement of *Arbitral Awards*, 18 AUSTL. INT'L L. J., 156 (2011), at 161.

¹³⁰ Okekeifere, Andrew I. 1999. Public Policy and Arbitrability under the UNCITRAL Model Law, 2(2) INT. A.L.R., 70 (1999).

¹³¹ *Traxys Europe S.A. v. Balaji Coke Industry Pvt Ltd.*, Federal Court, Australia, 23 March 2012, retrieved from Albert Monichio, Luke Nottage & Diana Hu, *International Arbitration in Australia: Elected Case Notes and Trends*, 19 AUSTL INT'L J., 181(2012), at 203.

¹³² *ibid*.

¹³³ Kurkela & Turunen, *supra*,

forms part of public policy.¹³⁴ However, in the arbitral proceedings, the arbitrator should not ignore the mandatory rules of the legal system of a choice of law by the parties.¹³⁵ Tosun (2019) emphasised that the public policy exception has the potential to create great unpredictability and the loss of confidence in the arbitral process depending on how it is interpreted. For instance, if it is interpreted broadly to include statutory violations, then the enforcement of arbitral awards become less predictable and more tied to the forum state's domestic laws. If, on the other hand, public policy is interpreted as violating some more universal moral standard, then the enforcement of arbitral awards will become more predictable. He further recommends that a narrower approach to public policy is necessary, so that arbitral awards do not become subject to the many unique laws of different forums. The point of international considering that the goal of international arbitration is to move away from domestication to a more standard international set of norms in the dispute resolution process.¹³⁶

V. ESTABLISHING MULTILATERAL INVESTMENT COURT (MIC)

Taking it from the perspective of China's BRI and its intention to establish a regional economic hub in Asia and beyond, it is viewed that the tentacles of transnational public policy creep in showing the praxis of the normative behaviour of "one size does not fit all" agenda in the field of investment arbitration. It is theorised in this paper that the harmonisation of public policy exceptions can be made by the establishing a multilateral investment court in Asia to cater on the burgeoning transnational investments disputes and Belt and Roads Initiative (BIR). In this manner, the aggrieved contracting parties (i.e., state parties, private investors) will have an appellate system for the foreign arbitral awards in the midst of the legal pluralistic society.

¹³⁴ Sheppard, Audley. 2003. Interim ILA Report on Public Policy as a Bar to Enforcement of International Arbitral Awards, 19(2) ARB. INT'L. 217 (2003), at 231.

¹³⁵ Sammartano, Mauro Rubino. 2001. International Arbitration Law and Practice, 2nd ed. 2001, at 503.

¹³⁶ Huseyin Alper Tosun. 2019. Public Policy Concepts in International Arbitration. California Digital Library. University of California.

Furner (1958) stressed that the enforcement through New York Convention has a potential problem of uncertainty because of a reciprocity reservation under Article I(3)¹³⁷ “which provides that [a]ny State may ... declare that it will [only] apply the [New York] Convention to the recognition and enforcement of awards made only in the territory of another Contracting State.”¹³⁸ The New York Convention requires the country where the arbitral award is made to give consent to be bound under the Convention in order for the rules of the New York Convention to apply.¹³⁹ To ensure enforcement of the arbitral award, the party involved should elect to arbitrate in a country that is a signatory to the New York Convention.¹⁴⁰ For example, China would only enforce arbitral awards made in countries that recognise arbitral awards made in China.¹⁴¹ The same is true with Bulgaria which would enforce the award made in non-signatory countries if those countries would enforce arbitration made in Bulgaria.¹⁴² Cuba would enforce the arbitration if there is a signed mutual reciprocity agreement between the two parties in the dispute.¹⁴³ Inconsistent application of the reciprocity principle, as it relates to the, enforcement of the New York Convention creates a barrier to enforce arbitration awards and increases legal uncertainty for parties involved.¹⁴⁴ In the existing structure, the parties need to appeal to the court in the place where the arbitration was held.¹⁴⁵ There is inconsistency regarding the national court’s power over annulment of arbitral awards made outside of their territory.¹⁴⁶

¹³⁷ Furner, Courtney. 1958. Uncertainty Regarding the Existence and Future of the Reciprocity Reservation Under the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958), *Terralex Connections*, Dec. 6, 2018.

¹³⁸ New York Convention, Art. I(3).

¹³⁹ *supra*, note 88.

¹⁴⁰ Caron, David and Caplan, Lee & Lee M. Caplan, *UNCITRAL Arbitration Rules: A Commentary*.

¹⁴¹ Wu, Alfre, et al., 2019. Belt and Road Initiative Managing Disputes Risk When Working with States and SOEs in Infrastructure and Construction Projects, *NORTON ROSE FULBRIGHT* (May 2019), <https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/knowledge-pdfs/international-arbitration-report---issue-12.pdf?la=en&revision=2af60927-1ed7-46ae-b317-5af59b72c270>.

¹⁴² Furner, *supra*, note 88

¹⁴³ *ibid*

¹⁴⁴ *ibid*

¹⁴⁵ Stothard, & Jenna Anne de Jong. 2017. Request for Reconsideration in ICSID and UNCITRAL Arbitrations, *NORTON ROSE FULBRIGHT* (June 2017), <https://www.nortonrosefulbright.com/en/knowledge/publications/5fc4ee47/requests-for-reconsideration-in-icsid-and-uncitral-arbitrations>.

¹⁴⁶ Hamid, Gharavi. *The International Effectiveness of the Annulment of an Arbitral Award*.

As may be mirrored from the foregoing perspectives, it is concluded that the establishment of a multilateral investment court (MIC) is a good platform to harmonise the public policy exception. Zárate (2019) agrees with the creation of MIC provided that it follows democratic principles. It is believed that the MIC will pave the way to address the issue on legitimacy and transparency of foreign arbitral award of arbitral institutions as it bespeaks of the harmonised public policy exceptions that often becomes a ground for the non-recognition and non-enforcement of foreign arbitral awards.¹⁴⁷

IX. CONCLUSION AND RECOMMENDATION

Considering that China's BRI does not exclusively rely on BITs and IIAs as ISDS mechanisms but instead extends to the soft norm tool of Memorandum of Understanding (MOU) applying the ancient Chinese philosophy *tianxia* (all under heaven) with other actors such as "state-directed development and commercial banks" (which under international law has no legal binding force compared to BITs and IIAs), this type of ISDS mechanism has a huge impact on the recognition and enforcement of foreign arbitral awards. It has deep implications on public policy exception, which is an amorphous soft norm that can be a contentious issue when it comes to recognition and enforcement of arbitral awards. Thus, there is a need for the institutionalisation of solid legal framework for the investment state arbitration system that is independent of the BITs and IIAs to be signed and negotiated by State parties and investors. Until and unless domestic and international space promulgated such institutional infrastructure to enliven the market without transgressing the Westphalian notion of state sovereignty and the social deficits concomitant with the BITs and IIAs, neighbouring Asian countries and the participating APEC members would be braver enough to embark on this new game of the Belt Road and Silk Road Initiative. State and foreign investors are certainly eyeing on investor-state arbitration mechanisms that would give them the best advantageous positions or at the least, the better Solomonic solution of the game, as well as a pro-enforcement environment as spotlights for the success of foreign investment.

¹⁴⁷ Zárate, José Manuel Alvarez. 2019. Legitimacy Concerns of the Proposed Multilateral Investment Court: Is Democracy Possible?. Investment Policy Brief. Vol. 18. June 2019.

The recent Philippine Supreme Court ruling in *Mabuhay* case was indeed a great prelude, though the long road is not over yet as there are still ramifications that need to be filled and addressed. Success is not only the collaborative effort of the private sector and foreign investment firms but also the government in order to adapt with the changing landscapes of investment arbitration in the domestic and international sphere and attract foreign investments to trickle the fruits of development in the remotest and far flung areas of the Philippines. It is further recommended that the United Nations adopt the establishment of the multilateral investment court in order to foster legitimacy and transparency among arbitral tribunals and therefore, address the issues on the malleable and amorphous nature of public policy to promote not only the economic interest of the State parties and foreign investors but also the sustainable development of the people.

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ASIA-PACIFIC IN THE WORLD ECONOMY: TRENDS AND OPPORTUNITIES FOR PERU

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Introduction

In 2021, Peru celebrates the bicentennial of its independence. The occasion is ideal to think long-term and to reflect about what the agenda of its relations with Asia-Pacific for the next decades should be. It is common practice to compare Peru with the rest of Latin American economies. In turn, this research work offers a comparative analysis of Peru vis-à-vis economies from “the other side” of the Pacific basin, which includes several of its main economic partners, as well as benchmark economies regarding several pillars that sustain competitiveness and productivity. This approach has allowed to identify huge gaps that the Peruvian economy still needs to overcome on the road to its development. In doing so, it provides insights that aim to contribute to enrich the Peruvian cooperation agenda with the Asia-Pacific region in a way that supports structural changes in Peru.

The analysis has focused on a group that has been referred to here as Asia-16, which includes the 16 economies from Asia and Oceania that are members of the Asia-Pacific Economic Cooperation (APEC). Namely: Australia; Brunei Darussalam; Chinese Taipei; Hong Kong, China; Indonesia; Japan; Malaysia; New Zealand; Papua New Guinea; People's Republic of China; Philippines; Republic of Korea; Russia; Singapore; Thailand; and Vietnam (see map 1)¹⁴⁸. In the present work, this group has also been referred to interchangeably as Asia-Pacific.

This paper has been divided into three parts: (1) an exploration of the importance and dynamism of the Asian economies in the Pacific basin, (2) a panorama and the pending challenges of the trading relations between Peru and Asia-Pacific economies, and (3) the comparative analysis of Peru with respect to these

¹⁴⁸ The names used for these economies correspond to those employed in APEC.

economies based on a series of indicators on competitiveness, productivity, logistics costs, among others. This analysis shows that there are interesting references in Asia and Oceania with which Peru should explore lessons learned that could contribute to its own development process¹⁴⁹.

1. *The Asian economies of the Pacific basin: Relative importance and dynamism*

Relative importance in the world economy

First and foremost, the relative importance of Asia-16 in the world economy can be measured by observing its share of the global GDP (at current prices) vis-à-vis other regions. Figure 1 shows that, after the significant growth sustained since 1980, the share of Asia-16 in the world GDP reached the first place in 2010. It represented 28.1% of the total, surpassing North America (the United States and Canada), and the Euro Zone.

The trend has continued to gain force over the past years. By 2019, Asia-16 already accounted for 32.5% of the world GDP. The People's Republic of China alone was responsible for half of the total GDP in Asia-16, so the weight achieved by this group in the global economy has much to do with the trajectory of the Chinese economy. As for Latin America and the Caribbean (LAC), in the past 40 years, its share of the world GDP has decreased (7.6% in 1980, compared to 6% in 2019).

Figure 2 illustrates the economic growth rates of different regions with respect to the world average. It can be observed that Asia-Pacific is the most dynamic region, surpassing the growth rates recorded for the Euro Zone, North America and LAC. In effect, Asia-16 grows above the world average, which supports the notion that the region is an engine of dynamism that can reach the world economy at large.

¹⁴⁹ The author thanks the valuable contribution, as research assistants in this study, of Mr. Gabriel Arrieta and Mr. Favio Leiva. They are, respectively, associate researcher and assistant to the director of the Center for China and Asia-Pacific Studies at Universidad del Pacífico, Lima-Peru. To them, my recognition and sincere acknowledgment.

Importance in world exports

International trade is an engine that has contributed to the greater sustained economic growth in the Asia-Pacific region. According to Brooks (2018), within the framework of an export-oriented growth model, this region became the center of low-cost production and logistics for international trade in the past decades.

Figure 3 shows this development using data on the share of Asia-Pacific exports in relation to the world total. In 2001, this region accounted for 27.6% of all exports globally, ranking second in the world. Back then, the Euro Zone was the leading exporting region with 31% of the total. By 2005, this order had already been reversed. Additionally, the North American share of world exports had declined.

Over the years, Asia-16 has been consolidating the position of leader in world exports, reaching 35.8% of the total in 2018. The People's Republic of China alone accounted for 12.9% of all exports worldwide, which corresponds to 36.2% of the total exported by Asia-16 in the same year (see table 1). In contrast, LAC's share of world exports remained stagnant at around 5.6% over the whole period analyzed (2001-2018). Complementing this overview, table 1 also shows that Asia-16 exports to the world increased four-fold between 2001 and 2018, reaching US\$ 6,981.5 million in the latter year. The economies with the highest dynamism in the period were Vietnam (value exported increased 16.2 times) and the People's Republic of China (value exported increased 9.4 times).

A significant part of the Asia-16 trade takes place within the region. In fact, in recent years, the proportion of intra-regional trade represented more than 50% of its total exports (see table 2). Intra-regional trade drives the productive integration in the context of global (and/or regional) value chains. Furthermore, the high weight of intra-regional trade contributes to strengthening the region in face of uncertainties of world trade and global economic growth (ADB, 2017).

According to the WTO, ESCAP & OECD (2011), Asia-Pacific economies have been taking increasingly more measures to support intra-regional trade. Their

purpose is to strengthen the regional productive capacity by improving human capital, increasing liquidity of companies and aligning regional standards.

The role of manufacturing and services exports

Its manufacturing exports put in evidence the capacity of the Asia-Pacific region to produce and export goods with high value-added. In 2001, Asia-16 accounted for 30.9% of total manufacturing exports worldwide, being surpassed by the Euro Zone. However, in 2018, the situation had more than reversed. Asia-16 reached 41.6% of world manufacturing exports, compared to 29.7% of the Euro Zone and 10.6% of North America. In the case of LAC, not only is its share marginal for this type of exports, but it is also decreasing. In 2018, it represented 1.3% of world manufacturing exports, which is slightly less than the percentage observed in 2001 (see figure 4).

The case is different for service exports, as the Asia-Pacific region does not fare well in the comparison. In 2005, Asia-16 accounted for 18.1% of service exports globally.

Meanwhile, the Euro Zone led the sector with almost double that, representing 34.2% of the world total. More than ten years later, the Euro Zone is still responsible for a third of the world service exports, whereas Asia-16 reached more than 20% of that total. For their part, North America fluctuated around 16% and LAC held a marginal share of around 3% throughout the period analyzed (see figure 5).

According to the Pacific Economic Cooperation Council – PECC (2011), the development of the services sector is crucial for economic growth and increased competitiveness. Moreover, it is important to note that the services sector is the main source of job creation in the Asia-Pacific region and it supports global/regional value chains in an interconnected world economy. According to ESCAP (2020), trade in services in Asia-Pacific is essentially dominated by a few

economies, such as the People's Republic of China, Japan, Singapore, Republic of Korea and Hong Kong, China.

Trends in direct investment

Finally, another important indicator of the Asia-16 dynamism is the rise of investments. Figure 6 presents the evolution of stocks of inward and outward foreign direct investments (IFDI and OFDI respectively) in this region between 2010 and 2018. It shows that the OFDI stock surpassed the IFDI stock in 2014, a trend which has been gaining force thereafter. By 2018, the OFDI stock reached US\$ 8,450.3 billion, which represented almost twice as much as the figures recorded for this concept in 2010. The People's Republic of China accounted for 23% of the OFDI stock from Asia-16 in the world.

Additionally, according to UNCTAD (2019), the flows of intra-regional investments have increased. To illustrate, there has been a rise in investments in the People's Republic of China (mainland) which originated in Hong Kong, China¹⁵⁰, the Republic of Korea and Singapore. At the same time, Southeast Asia is also attracting more investments, mainly Singapore, Indonesia, Vietnam and Thailand, such inflows have been invested in the financial, retail and digital economy sectors (infrastructure and services, e.g. information and e-commerce business centers).

2. *Panorama of the Peruvian trade with Asia-Pacific: Concentration vs diversification*

Evolution of exports

Peruvian exports to Asia-16 have shown a rising trend over the past twenty years. In 2000, Peru exported US\$ 1,263 million to that region. By 2019, such exports increased 15-fold, reaching US\$ 19,199 million (see figure 7). As a result, the

¹⁵⁰ It should be noted that part of these flows is composed of the so-called “round-trip investments” originated in the People's Republic of China mainland (Xiao, 2004, p. 11; Damgaard, Elkjaer, & Johannesen, 2019, p. 18).

Asia-Pacific region has consolidated itself as the main destination for Peruvian exports. Its share has reached 41.6% of the total in 2019, compared to 18.4% at the beginning of the millennium (see table 3).

From the total exported to Asia-16, three major trading partners emerge as the main destinations. Namely, the People's Republic of China, Republic of Korea and Japan, which together accounted for 92.7% of the total exported to the region in 2019. This concentration has become more accentuated over time, seeing as the three markets aforementioned accounted for 71.7% of the Peruvian exports to the region in 2000. This trend is a result of the evolution of the People's Republic of China as the main market for Peru in Asia-Pacific and in the world. For their part, Japan decreased its share and the Republic of Korea remained more or less constant in the same period, despite the growth in the value of Peruvian exports to these two economies (see table 4).

The exports to the People's Republic of China experienced sustained growth over the past twenty years. It went from US\$ 443 million (35.1% of the total exports to

2019. In other words, the Chinese economy doubled their share as a destination for Peruvian exports in the Asia-Pacific region in this period. The annual average growth rate of Peruvian exports to the People's Republic of China was 20%, much greater than the growth of its exports to other economies in Asia-Pacific (except for Vietnam). Indeed, it was greater than the annual average growth rate of Peruvian exports to the world, which was 10.5% in that period (see Tables Table 3 and Table 4).

As for other main destinations for Peruvian products, in the case of the EU and LAC, each one grew annually by around 10% on average. Meanwhile, the exports to the United States increased by an annual average rate of 5.9% in the same period (see table 4).

Exports composition

Another important aspect of the Peruvian trade with Asia-Pacific is the concentration of exports in traditional sectors, a trend which has gained force over time. In 2000, such sectors accounted for 88.8% of the Peruvian exports to this region, but that share rose to 91% in 2019. These exports were mostly composed of mineral commodities, which represented 79.2% of the trade flows to Asia-Pacific in 2019, compared to 34.8% in 2000. The foregoing figures largely surpass the traditional fishing sector, which is the second most important (see table 5).

Certainly, this increased share of mining exports was a result of the rise in the Chinese demand. The People's Republic of China received 77% of the Peruvian mineral exports to Asia-Pacific, which represented 44% of such exports to the world in 2019. In the specific case of copper, its share is even greater, that economy is the main destination for Peruvian copper, responding for 67% of this export to the world or 80% of such shipments to the Asia-Pacific region in 2019. This commodity is exported in the form of concentrates, cathodes and sections of cathodes, and anodes (see table 6).

As for non-traditional exports to the region under analysis, notwithstanding the high growth experienced (12-fold in the period 2000-2019), their share in the total is still very low and declining. In 2019, non-traditional sectors responded for 9% of the Peruvian exports to Asia-Pacific, compared to 11.2% at the beginning of the millennium. Twenty years ago, the fishing, textile, metallurgical, and steelmaking sectors were the most important Peruvian non-traditional exports to these markets. In 2019, the fishing, livestock and agro-industrial sectors dominated widely in this category (see table 5).

It is very important to note that the traditional sector weight is greater in the case of Peruvian exports to the People's Republic of China. In effect, it accounted for 95.5% of the total in 2019, whereas non-traditional exports represented the remaining 4.5%. What is more, the share of the latter has declined in relation to the beginning of the period under analysis (see table 7).

However, the efforts to expand non-traditional exports are noteworthy, as it has grown from US\$ 25 million in 2000 to US\$ 611 million in 2019. This expansion was driven by the fishing, agriculture and agro-industrial sectors. The transformation of the People's Republic of China after four decades of reforms and internationalization resulted in poverty reduction, rise of the middle class, urban population growth, among other trends. Clearly, this scenario shows a market with great potential for exports of fresh and processed food products from the agricultural and fishing sectors in Peru.

Trade balance

The trade balance has fluctuated in period analyzed. After the economic crisis of 2008, it is possible to identify three phases of the Peruvian trade balance with the Asia-Pacific region. The first of them (2009-2011) was marked by a surplus for Peru. In the second one (2012-2016), the Peruvian economy experienced a trade deficit. During the third phase (2017-2019), the exports from Peru regained momentum and tilted the balanced in its favor once again (see figure 8).

This development has been influenced by the international prices for copper (BCRP, 2020), the main Peruvian export. Indeed, in 2009, copper presented an average price of US\$ 234.3 cents per pound, which went up to US\$ 397.5 cents in 2011. In the second phase, copper prices fell sharply from US\$ 360.9 cents per pound in 2012 to US\$ 220.8 in 2016. Between 2017 and 2019, the increase of Peruvian mineral exports coincided with a significant rise in international copper prices, which reached around US\$ 300 cents per pound.

Trade agreements with Asia-Pacific economies

Out of the 20 trade agreements in force between Peru and other countries, six are with economies in the Asia-Pacific region. Since it joined APEC in 1998, Peru deepened its perspective on opportunities presented by closer relations with countries from Asia and Oceania in the Pacific basin. Not only on diplomatic matters, but also in trade and investment. Since then, the country has expanded its

strategy with the negotiation of free trade agreements (FTA) aiming to improve the conditions to access these markets.

In effect, one of the first FTA to enter into force in Peru was with an Asian economy, namely, Singapore in August 2009. The other five bilateral FTA with countries in the region came into force between 2010 and 2020: the People's Republic of China in 2010; Republic of Korea and Thailand¹⁵¹ in 2011; Japan in 2012; and Australia in 2020 (see table 8).

The early treaties have been followed by the negotiation of more in-depth trade agreements that include relevant provisions on: intellectual property rights, competition policies, labor issues, environmental protection, public procurement, telecommunications, among others. These topics would contribute to further develop the Peruvian trade with its main trading partner in the Asia-Pacific region. In line with this, the upgrading of the trade agreement with the People's Republic of China is under negotiation, which includes: trade in services, investment, intellectual property, electronic commerce, competition policies, customs procedures, trade facilitation and rules of origin (MINCETUR, 2019).

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is another important trade agreement, which is still awaiting approval in Congress to enter into force in Peru. It is considered an in-depth and up-to-date agreement. This treaty entered into force on December 30, 2018 for the first six members to complete the ratification process (Australia, Canada, Japan, Mexico, New Zealand and Singapore). Subsequently, on January 14, 2019, it entered into force for Vietnam. In the case of the remaining countries (Chile, Peru, Malaysia and Brunei Darussalam), once ratified, the agreement will enter into force automatically after 60 days. Notably, this agreement makes it possible to use the accumulation of origin among the eleven-member economies, which would facilitate the insertion of Peru into global value chains in Asia-Pacific.

¹⁵¹ In the case of Thailand, it consists of the "Protocol between the Republic of Peru and the Kingdom of Thailand to Accelerate the Liberalization of Trade in Goods and Trade Facilitation." Building upon this document, amendments were negotiated and resulted in additional protocols. These agreements constitute prior steps that pave the way for the negotiation of a more in-depth FTA in the future.

In line with these more in-depth and plurilateral agreements, the Pacific Alliance, a scheme of integration between four Latin American countries in the Pacific basin (Chile, Colombia, Mexico and Peru), has opened a space for "associated countries." In this framework, trade agreements are under negotiation, simultaneously, between the four member-countries and Australia, Canada, New Zealand and Singapore.

Peruvian trade with the Asia-Pacific region: Pending challenges

As noted above, in the past twenty years, Peruvian exports to Asia-Pacific have increased more than to any other region or trading partners. The People's Republic of China, in particular, has been playing a protagonist role as a destination for such exports. However, the limited share of non-traditional sectors in the exports to Asia-16 is a distinctive aspect of this commercial exchanges, which contrasts with the importance that such products gained for Peruvian exports to other destinations.

Two very different patterns can be observed in the exports from Peru. In the first one, non-traditional exports to the EU, United States and LAC, which were already relatively important, gained more weight. In 2000, the beginning of the period under analysis, non- traditional exports accounted for more than 30% of shipments to those

destinations. By 2019, the shares rose to almost 50% for the EU, around 60% for Latin America, and 70% for the United States¹⁵² (see figure 9).

As for the second pattern, the share of non-traditional products in total exports to the People's Republic of China and Asia-Pacific remained relatively low and

¹⁵² In the case of the United States, it should be noted that, while non-traditional exports were on the rise, the higher share was a result mostly of the fall in traditional exports. Gold exports to the United States dropped from US\$ 1,856 million (in 2018) to US\$ 331 million (in 2019), while for oil products it went from US\$ 1,526 million (in 2018) to US\$ 475 million (in 2019). In contrast, agricultural exports grew significantly, from US\$ 1,875 (in 2018) to US\$ 2,262 (in 2019), which represented a historic record, with fruits at the forefront as the main product (Adex Data Trade, 2020). Be that as it may, as shown in figure 9, non-traditional exports to the United States have remained above 40% of the total since 2014.

declined slightly in the period analyzed. The respective shares reached 6% and 11% in 2000, compared to 5% and 9% in 2019. Nevertheless, if the People's Republic of China is taken out of the equation, the numbers for the rest of Asia-16 show a different picture. The share of non-traditional sectors rises to 20% of the total exported to those economies in 2019, indicating that the challenge is basically to diversify exports to the People's Republic of China, with especial attention to higher value-added products.

Decidedly, the challenge for Peru is in the adoption of policies aimed at diversifying exports. The country is already moving in this direction, seeing as non-traditional exports from agriculture and agro-industries as well as sea products have been notably gaining importance in recent years (see figure 10). It is necessary to make efforts in another complementary front for export diversification, namely, manufacturing. Special attention should be given to intermediate goods that can be inserted into global value chains led by Chinese firms or from other economies in the Asia-Pacific region.

To contribute to this process, the manufacturing delocalization and integration experience between Northeast and Southeast Asia should be studied. Such an analysis could offer insights on how to promote a process like this between Asian and Latin American countries in the Pacific basin, particularly Peru. This kind of research should:

- Examine trends in trade and direct investment between the countries in Northeast and Southeast Asia.
- Analyze driving forces for manufacturing delocalization involving these economies.
- Study industrial policy instruments implemented to attract companies in process of delocalization.
- Assess the role of FTA and treaties for the promotion and protection of investments, in this process of delocalization.

- Identify the benefits obtained by both the economies that are the origin (Northeast Asia) and the hosts (Southeast Asia) of the delocalized production.
- Explore the part played by other factors, such as the availability of resources, labor cost, logistic costs, connectivity efficiency, degree of informality in the economy, innovation, among others, either to attract or discourage the manufacturing delocalization.

The objective would be to identify lessons learned from this intra-Asian process, which could be useful for the design of public policies and business strategies in Peru with respect to Asia-Pacific. Additionally, a study like this should identify advantages and disadvantages Peru would have to participate in a process of manufacturing delocalization similar to that involving Northeast and Southeast Asia. Possibly, such process could focus firstly in Peru-China relations.

Furthermore, it would be important to understand if the driving forces of the production delocalization in East Asia could play a role in the case of Peru. For instance: how significant would the role of connectivity be? what aspects of industrial policy in Asian economies could be applied? among other questions. This reflection should be placed in the framework of a long-term projection of the Peruvian relations with Asia-Pacific.

3. Comparative analysis between Peru and Asia-Pacific economies: The challenge of competitiveness and productivity

While free trade is essential for economic growth, high priority should be given to factors affecting competitiveness and productivity. Against this backdrop, the present section focuses on examining the conditions in Peru vis-à-vis those in Asia-Pacific economies with regards to a group of indicators on both concepts aforementioned.

Among their recommendations for the future agenda of APEC, the reports from PECC (2019) and the Asia-Pacific Economic Cooperation Vision Group, AVG

(2019) proposed that high priority should be given to structural reforms in member economies in order to increase productivity through open, well-functioning, transparent and competitive markets. It considers that a competitive and open economy contributes to sustaining growth and increasing productivity and income. Likewise, digital and technological transformation would bear an enormous potential to support growth, promote innovation and facilitate connectivity, in addition to being an important instrument for social inclusion (AVG, 2019: 15-21).

In the case of Peru, these recommendations are of utmost importance, as suggested by the comparison of the Peruvian economy with respect to Asia-16.

Per capita income and competitiveness

The World Bank classifies economies in high, medium and low-income based on their Gross national income (GNI) per capita, Atlas method (see table 9), which is an indicator of the standard of living. According to data from 2018, half of the Asian-16 economies have high-income. In other words, with the other side of the Pacific, Peru has the opportunity to interact with high-income economies.

Peru is located in the upper middle-income group, along with the People's Republic of China, Russia, Malaysia and Thailand, thus sharing with them the challenge of reaching the high-income stage. In this group, Peru is the economy with the lowest per capita income. Overall, it only surpasses the four Asia-16 economies at lower middle-income.

For its part, the World Economic Forum Global Competitiveness Index (GCI) assesses the set of institutions, policies and factors determining the level of productivity (Schwab, 2019). This index shows that the eight high-income Asia-16 economies also hold the best positions in the competitiveness ranking (see table 10), except for Brunei Darussalam, whose high-income is correlated to its oil exports, which accounted for 91% of its total exports in 2019 (Department of Economic Planning and Statistics of Brunei Darussalam, 2019). Comparatively,

Peru has a poor performance vis-à-vis Asia-16, seeing as it sits at the penultimate place, only surpassing Vietnam.

Pillars of competitiveness

The GCI is based on twelve pillars. Figure 11 presents a comparison between Peru and the most competitive Asia-16 economy in each pillar. As it can be observed, only in the Pillar IV "Macroeconomic Stability" does Peru have a high score. In effect, it shares the top position with Hong Kong, China; Chinese Taipei; Republic of Korea; Australia; New Zealand; and Malaysia. In the other eleven pillars, there is a considerable gap between Peru and the most competitive Asia-16 economy.

Notably, there is a great gap in the Pillar III "Information and Communication Technology (ICT) Adoption," where the score for the most competitive economy in the group (Republic of Korea) is twice as much as that of Peru. In the Pillar XII "Innovation Capability," the most competitive economy (Chinese Taipei) is even further ahead of Peru. Its score in this pillar is 2.4 times that of the Peruvian economy.

Singapore has the best competitiveness index in Asia-16 for pillars I "Institutions," II "Infrastructure" and VIII "Labor Market". The Peruvian competitiveness index reaches around 60% to 70% of the Singaporean in these areas. In other pillars, the gap to the most competitive Asia-16 economy is of the same order. The Peruvian score is around 70% that of New Zealand in the pillars VI "Skills" and XI "Business Dynamism." A similar gap is observed with Hong Kong, China in the pillars VII "Product Market" and IX "Financial System."

In order to see where Peru stands in relation to the People's Republic of China, its main partner in Asia-Pacific, figure 11 also includes the Chinese score for each GCI pillar. The greatest differences between these two economies can be observed in the pillars III "ICT Adoption" and XII "Innovation capacity." There is also a significant gap in the pillars II "Infrastructure", IX "Financial System" and XI "Business Dynamism." Naturally, due to the different scale of their economies, the

size of the market (Pillar X) offers a much more important support for competitiveness in the People's Republic of China than in Peru. Overall, in at least

half of the GCI pillars, there is a significant gap between the level of competitiveness that the Chinese economy has reached and that of Peru.

In sum, this panorama shows that there are economies in Asia-Pacific that can be interesting references for Peru. They represent a source of lessons learned that could contribute to the Peruvian development process, this notion gains even more importance when considered how Peru lags behind Asia-16 economies. With that in mind, next, this paper deepens in the analysis of some selected pillars.

Connectivity, ICT, innovation and skills

In these four pillars, Peru is quite far behind Asia-16 economies. In Infrastructure, it holds the penultimate position in the ranking of competitiveness in the comparison with Asia-16 economies, surpassing only the Philippines (see table 11). This pillar includes transport, electricity and water. Therefore, in order to focus on the concept of connectivity, the relevant ranking is relative to transport for the economies under consideration. This comparison shows that Peru remains also at the penultimate place, only ahead of the Philippines. However, its overall comparative situation in the world is worse, seeing as it holds the position 96 in transport, compared to the position 87 in infrastructure at global level.

In terms of transport by road, the comparative performance is even worse, as it is ranked at position 111 (out of 141 countries), once more, only ahead of the Philippines in Asia-16. In transport by air and sea, Peru does relatively better, as it is more or less in the middle of the world ranking (position 65 in transport by air and 52 by sea – out of 141 and 108 countries, respectively). However, relative to Asia-16, it also sits at penultimate place in transport by air and, in terms of transport by sea, it is surpassed by 13 out of the 16 economies from Asia and Oceania under analysis (see table 12).

The GCI Skills pillar is based on years of schooling, extent of staff training, quality of vocational training, skillset of secondary-school and university graduates, digital skills among the economically active population, ease of finding skilled employees, school life expectancy, critical thinking in teaching, pupil-to-teacher ratio in primary education. Compared with Asia-16, Peru reaches a competitiveness score that also places the country at the penultimate position, only ahead of Vietnam (see table 13).

Nonetheless, it is in the pillars of ICT Adoption and Innovation that Peru lags behind the most. ICT adoption supports the innovation capability of people and businesses, so both topics are interconnected. At the global level, the Peruvian economy holds position 90 in terms of Innovation Capability and position 98 in ICT Adoption (out of 141 countries in both cases). However, vis-à-vis Asia-16, Peru is at the very bottom of the competitiveness ranking (see table 13). The Asia-Pacific region is one of the most dynamic and innovative regions in the world, whereas the Peruvian current capacity seems extremely frail in those areas.

In this context, as a topic closely related to these pillars, it is worth looking into the issue of digital transformation in the framework of the Fourth Industrial Revolution (Pertuze, 2019). Related to that, the "Vision to 2040," prepared by the AVG, highlighted that it is necessary to foster an environment that enables individuals and companies to benefit from the digital transformation. It was also noted that universal and fast broadband Internet connection is indispensable to support the digital economy development. Furthermore, while the technological and digital transformation has the potential to raise productivity, generate new business models and highly qualified jobs, it also brings disruptive effects to the traditional production processes. In view of the foregoing, it is fundamental to prepare the workforce to absorb and adapt quickly to new technologies (AVG, 2019).

ICT, innovation, education and skills complement each other and represent areas with great potential for international cooperation with the Asia-Pacific region. Peru, which lags behind Asia-16 economies in these aspects, should make efforts to take

full advantage of this opportunity in the framework of its strategy to improve competitiveness and productivity. It is also necessary to rethink how education and ICT can be combined in a single strategy (Gonzales et al., 2016).

Macroeconomic stability, institutions and business dynamism

As already noted, Peru has much better performance in the pillar of Macroeconomic Stability. It even outperforms Singapore, the economy that holds the top position worldwide in the overall GCI (i.e. considering all pillars). In fact, in Macroeconomic Stability, Singapore is at position 38, whereas Peru ranks number 1 (see table 14).

This pillar measures how favorable the economic background is through indicators on inflation and public debt dynamics. Meanwhile, the Institutions pillar assesses the quality of the institutional framework in the country. The solid macroeconomic stability of Peru contrasts with the score attained in Institutions. In this case, like in other pillars, Peru sits at the bottom of the ranking with regards to Asia-16 economies (see table 14). It should be noted that this pillar measures various indicators on areas such as judicial independence, crime rates, future orientation of government, freedom of the press, burden of government regulation, among others. Peru is ranked 94 globally (out of 141 countries).

Business Dynamism represents another pillar in which there are pending tasks for the Peruvian economy. Once again, Peru holds the last position in the comparison with Asia- 16 economies and, globally, it is considerably below the average, at position 96 (out of 141 countries). The pillar assesses the cost and time necessary to start a business, insolvency regulatory framework, growth of innovative companies, among others. It is worth noting that 12 of the Asia-16 economies have earned positions in the upper third of the global ranking, while Peru is in the lower third.

Logistics competitiveness and trade openness

It is important to explore another set of relevant indicators that impact the Peruvian ability to compete with other economies in international trade. The World Bank (2018) provides an index on logistics performance that is based on six components: efficiency of customs and border clearance; quality of trade and transport infrastructure; ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignments; and frequency with which shipments reach consignees within scheduled or expected delivery times. This index reveals a scenario similar to that of the GCI. Peru is second to last in logistics performance in the ranking with Asia-16, only ahead of Papua New Guinea (see table 15).

Peru fares better regarding trade openness, although quite behind some Asian-16 economies. Using data from 2018, this indicator presents the ratio of trade (exports and imports of goods and services) to GDP (see figure 12). Notwithstanding the Peruvian progress in this area, its trade represents 49% of the GDP, which is comparable to the ratios of the largest Asia-16 economies, such as the People's Republic of China, Indonesia, Russia and Australia. Seeing as Peru is an economy with a relatively small market, its engagement in international trade should be greater. That being said, it is worth noting the progress that Peru has made in trade liberalization, which can be seen in the low average tariff of 1.25% recorded in 2018. In this regard, Peru does very well in the comparison with Asia-16 economies (see figure 13).

From competitiveness to productivity: Absolute value and growth rate

Labor productivity, measured as the average output per worker in constant 2011 PPP dollars, shows positive growth rates in the past almost thirty years (1990-2018) in all Asia-16 economies (except for Brunei Darussalam) and in the case of Peru as well (see table 16). The People's Republic of China presented the highest dynamism. It has sustained an annual average growth rate of 8.52% in labor

productivity, which resulted in a 10-fold increase in its level of productivity in less than three decades.

The Chinese productivity per worker went from US\$ 3,055 in 1990 (the lowest in Asia-16) to US\$ 32,718 in 2018 (see table 17). Even so, the gap with Singapore (the top economy in productivity in Asia-16) is still very large, around 5 to 1 in 2018. Vietnam enjoys the second place in growth of productivity per worker, with an annual average rate of 4.62% in the period 1990-2018. As a consequence, Vietnam has nearly quadrupled its productivity in the period, though the starting point was very low with respect to other Asian-16 economies (similar to the Chinese case).

It is possible to identify six different groups when observing the annual average growth rate of productivity in Asia-16 economies and Peru in the period analyzed. 1) high growth (the People's Republic of China and Vietnam); 2) annual average growth rate equal or greater than 3% (Thailand, Republic of Korea, Indonesia, among others); 3) annual growth between 2% and 3% (e.g. Malaysia, Singapore, Philippines, among others); 4) growth between 1% and 2% (including Peru and Australia); 5) growth between 0% and 1% (the case of Japan and others); and finally 6) decrease (Brunei Darussalam) (see table 16).

Against this backdrop, although the Peruvian productivity grew at an average rate of 1.91% a year, most Asia-16 economies progressed faster, which has increased the gap between Peru and these economies in terms of productivity per worker. Consequently, the productivity of Peru (in absolute terms and growth rate) is among the lowest vis-à-vis the Asia-16 economies. This means that the country has the important challenge of increasing productivity and such a priority issue should also be reflected in the Peruvian agenda of economic insertion in Asia-Pacific.

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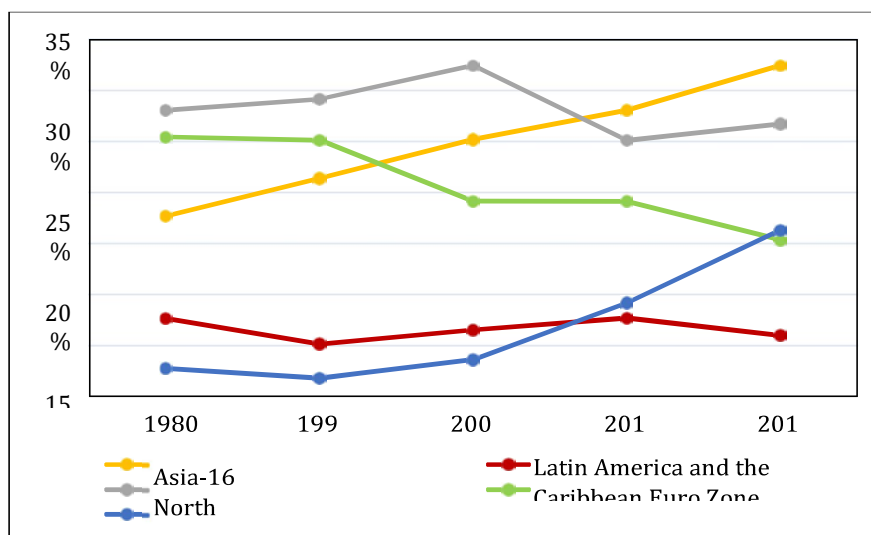
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Acronyms

ADB	Asian Development Bank
LAC	Latin America and the Caribbean
APEC	Asia-Pacific Economic cooperation ASEAN Association of Southeast Asian Nations AVG APEC Vision Group
BCRP	Banco Central de Reserva del Peru / Central Reserve Bank of Peru
CEPLAN	Centro Nacional de Planeamiento Estratégico / National Center for Strategic Planning
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
ESCAP	Economic and Social Commission for Asia and the Pacific EU European Union
FDI	Foreign Direct Investment
FTA GCI	Free Trade Agreement Global Competitiveness Index
GDP	Gross Domestic Product
ITC	International Trade Centre
MINCETUR	Ministerio de Comercio Exterior y Turismo – Peru / Ministry of Foreign Trade and Tourism
MRE	Ministerio de Relaciones Exteriores – Peru / Ministry of Foreign Affairs OECD Organization of Economic Cooperation and Development
PECC	Pacific Economic Cooperation Council
PPP	Purchasing Power Parity
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization

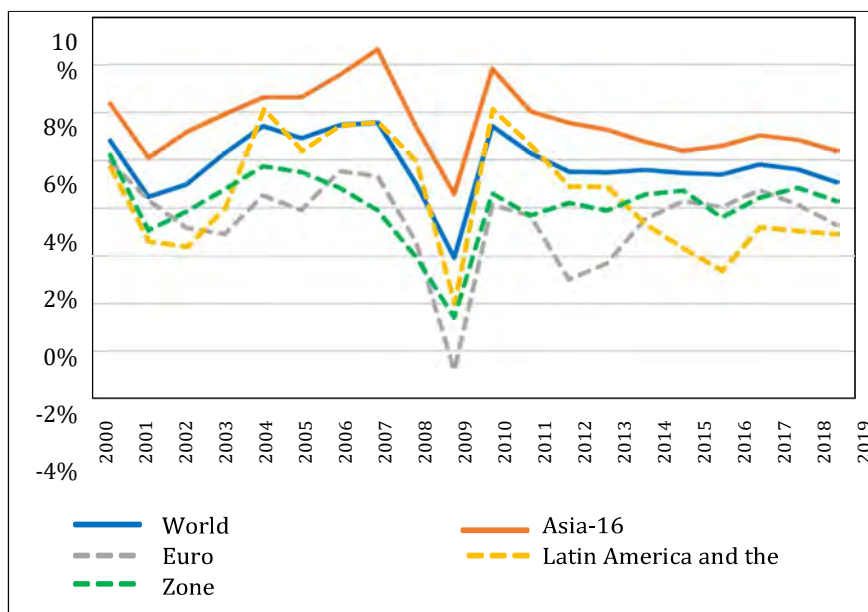
Appendix 1: Figures

Figure 1: Share of regions in the world GDP, 1980-2019 (in %)



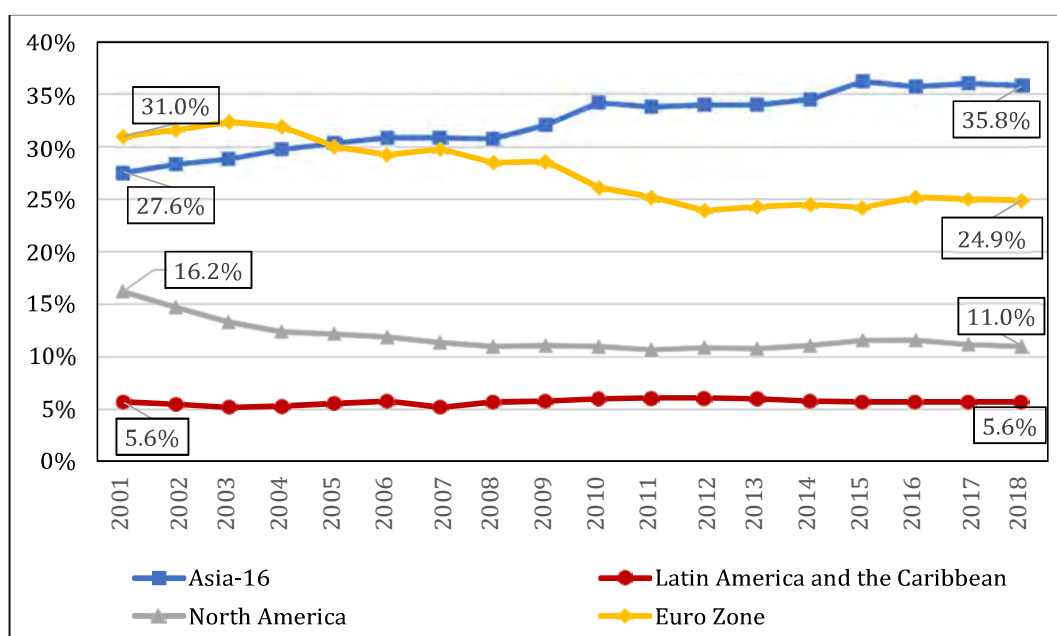
Source: International Monetary Fund (2019). Own elaboration.

Figure 2: Average growth rates by regions of the world, 2000-2019 (in %)



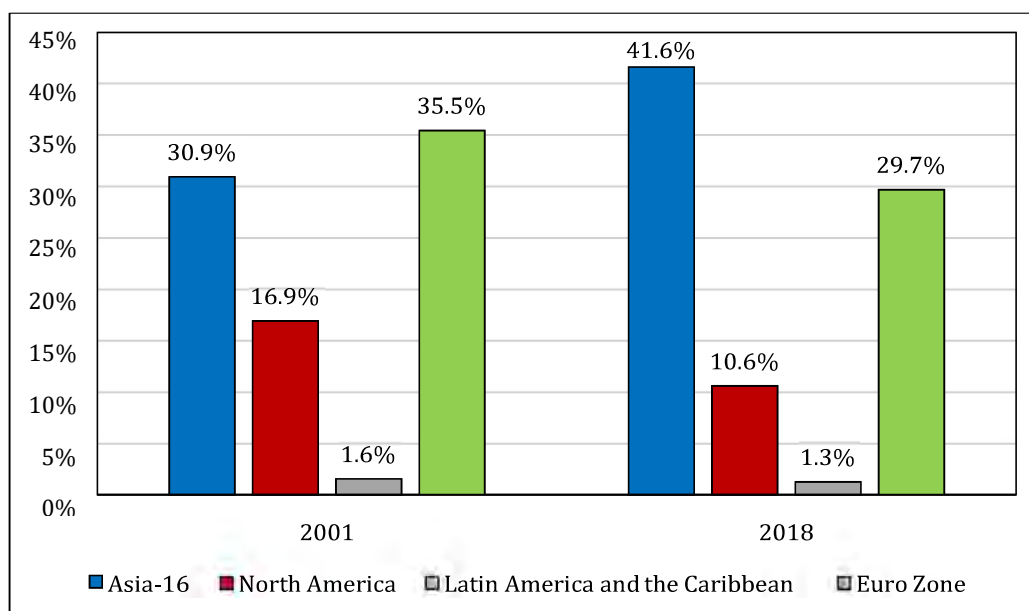
Note: Based on GDP at current prices in purchasing power parity (PPP)

Source: International Monetary Fund (2019). Own elaboration.

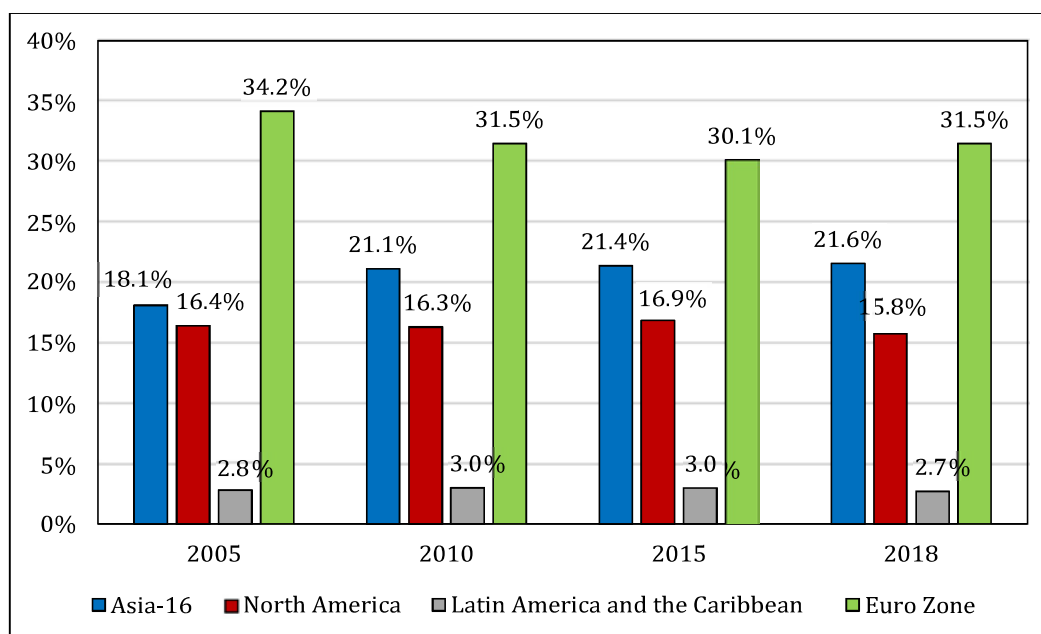
Figure 3: Share of regions in world exports, 2001-2018 (in %)

Note: North America is composed of the USA and Canada. Mexico is included in LAC.

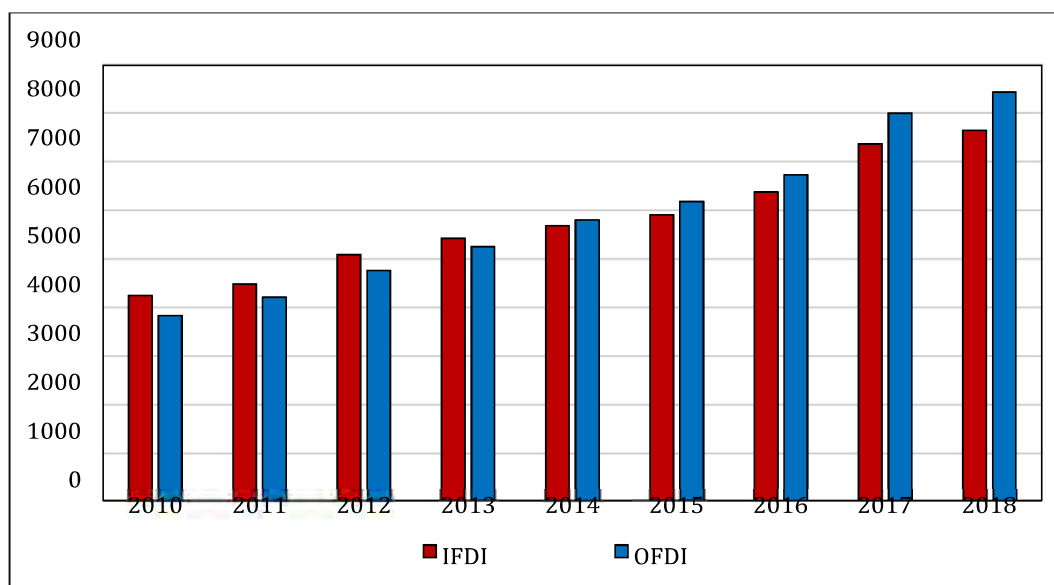
Source: International Trade Centre – ITC (2020). Own elaboration.

Figure 4: Share of regions in world manufacturing exports, 2001 and 2018 (in %)

Note: North America is composed of the USA and Canada. Mexico is included in LAC. Source: World Trade Organization – WTO (2020). Own elaboration.

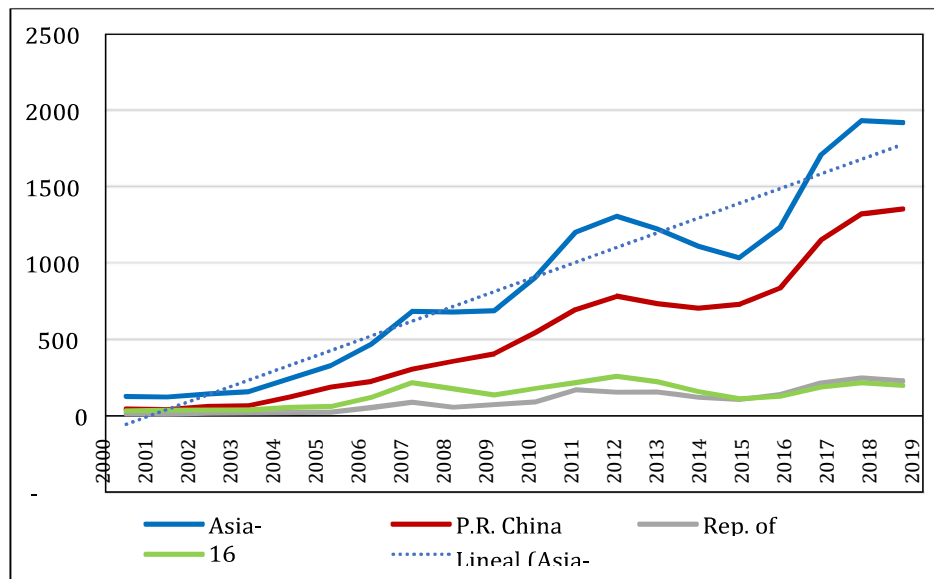
Figure 5: Share of regions in world trade in services, 2005, 2010, 2015 and 2018 (in %)

Note: North America is composed of the USA and Canada. Mexico is included in LAC.
 Source: World Trade Organization – WTO (2020). Own elaboration.

Figure 6: bIFDI and OFDI stocks in and from Asia-16 economies (in billions of US\$)

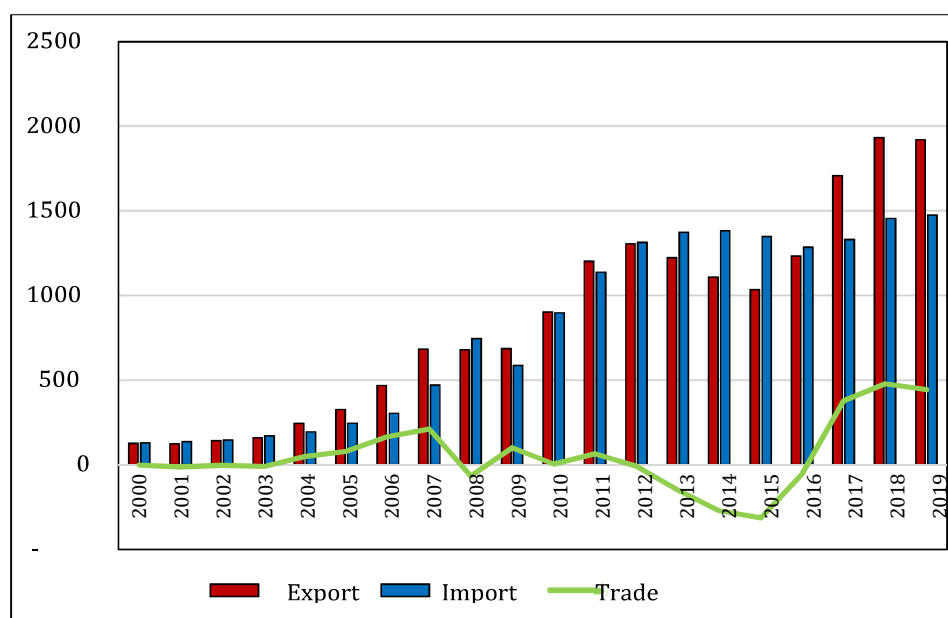
Source: UNCTAD (2020). Own elaboration.

Figure 7: vPeruvian exports to selected regions and countries, 2000-2019
(in millions of US\$)



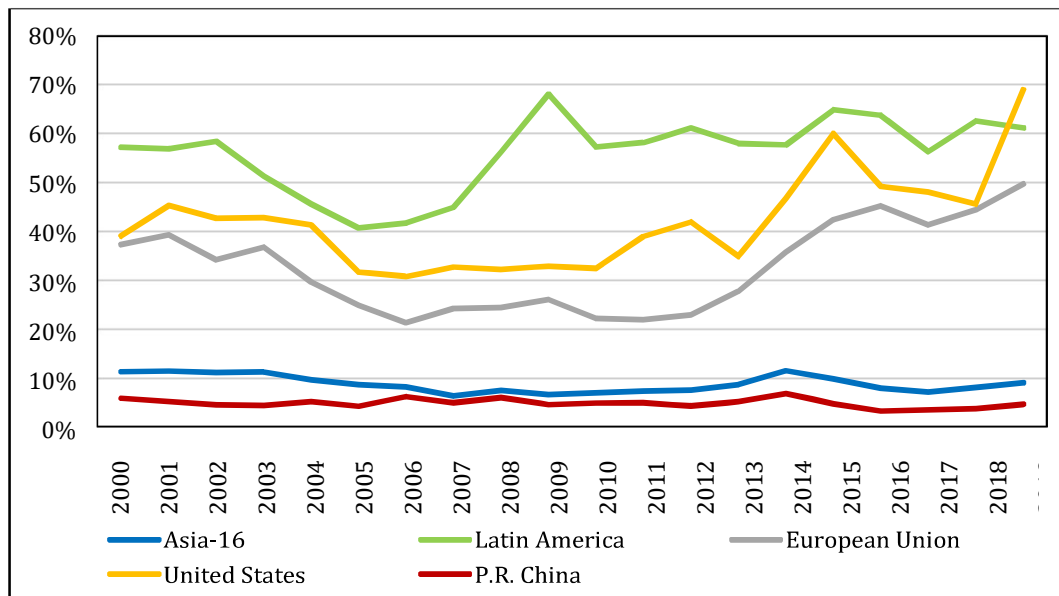
Source: Adex Data Trade (2020). Own elaboration.

Figure 8: Peruvian trade balance with Asia-Pacific, 2000-2019 (in millions of US\$)



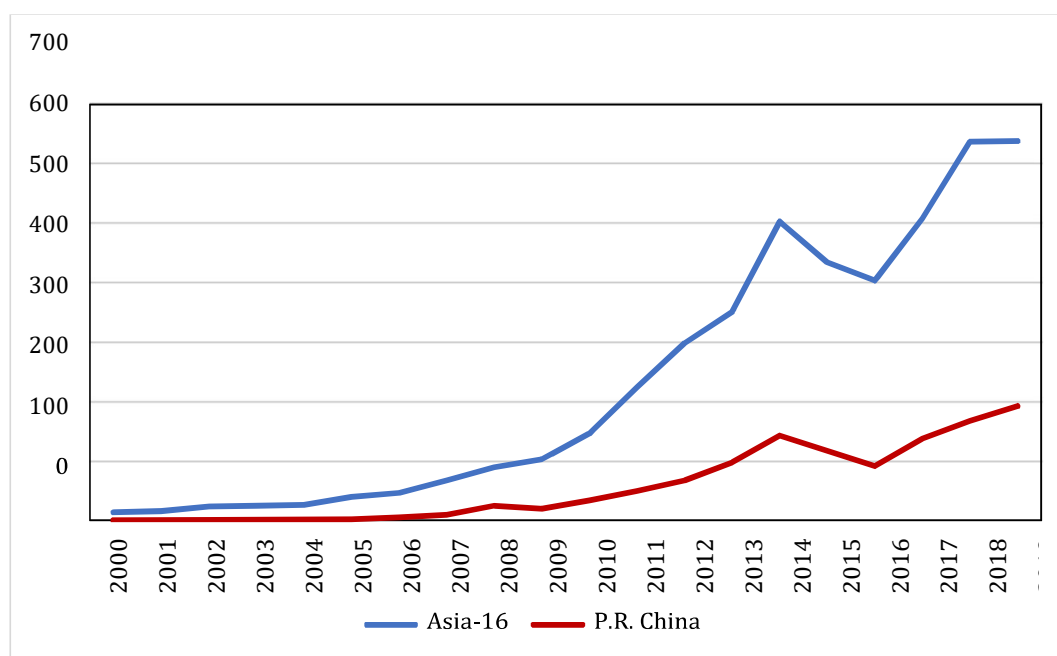
Source: Adex Data Trade (2020). Own elaboration.

Figure 9: Share of non-traditional Peruvian exports in trade with its main trading partners, 2000- 2019 (in %)



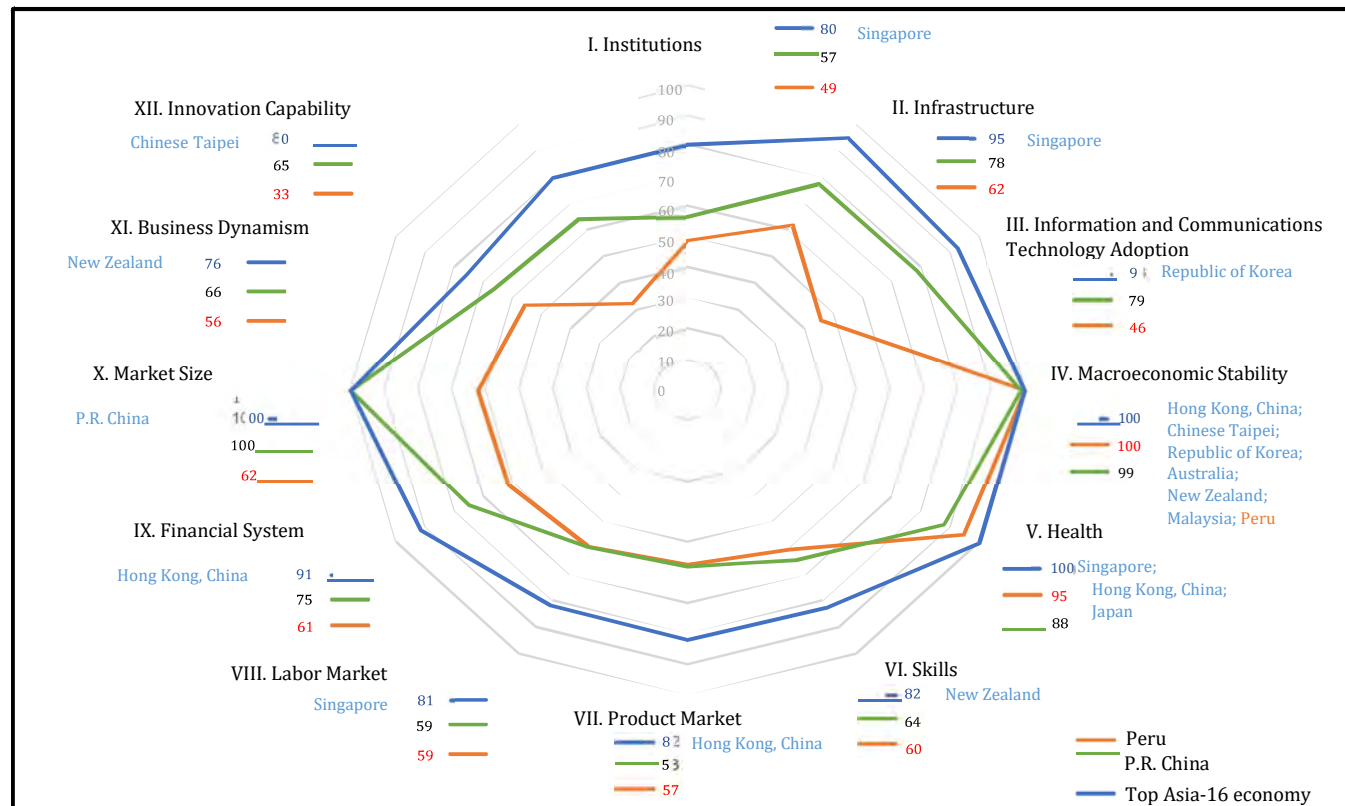
Source: Adex Data Trade (2020). Own elaboration.

Figure 10: Evolution of Peruvian agricultural and livestock industry exports to the Asia-Pacific region and the People's Republic of China, 2000-2019 (in millions of US\$)



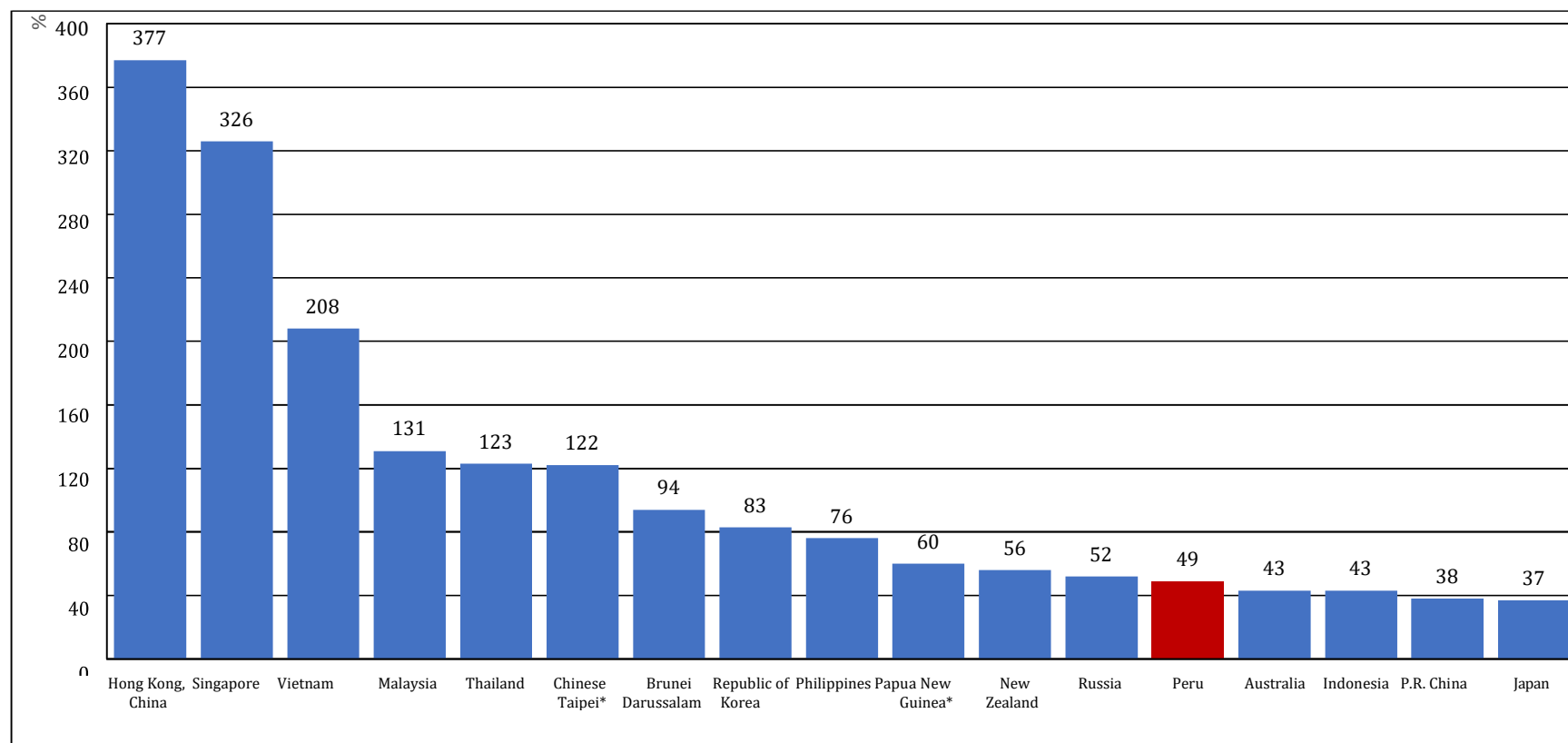
Source: Adex Data Trade (2020). Own elaboration.

Figure 11: Comparison between Peru, People's Republic of China, and the most competitive economy in Asia-16 by pillars of the Global Competitiveness Index 2019



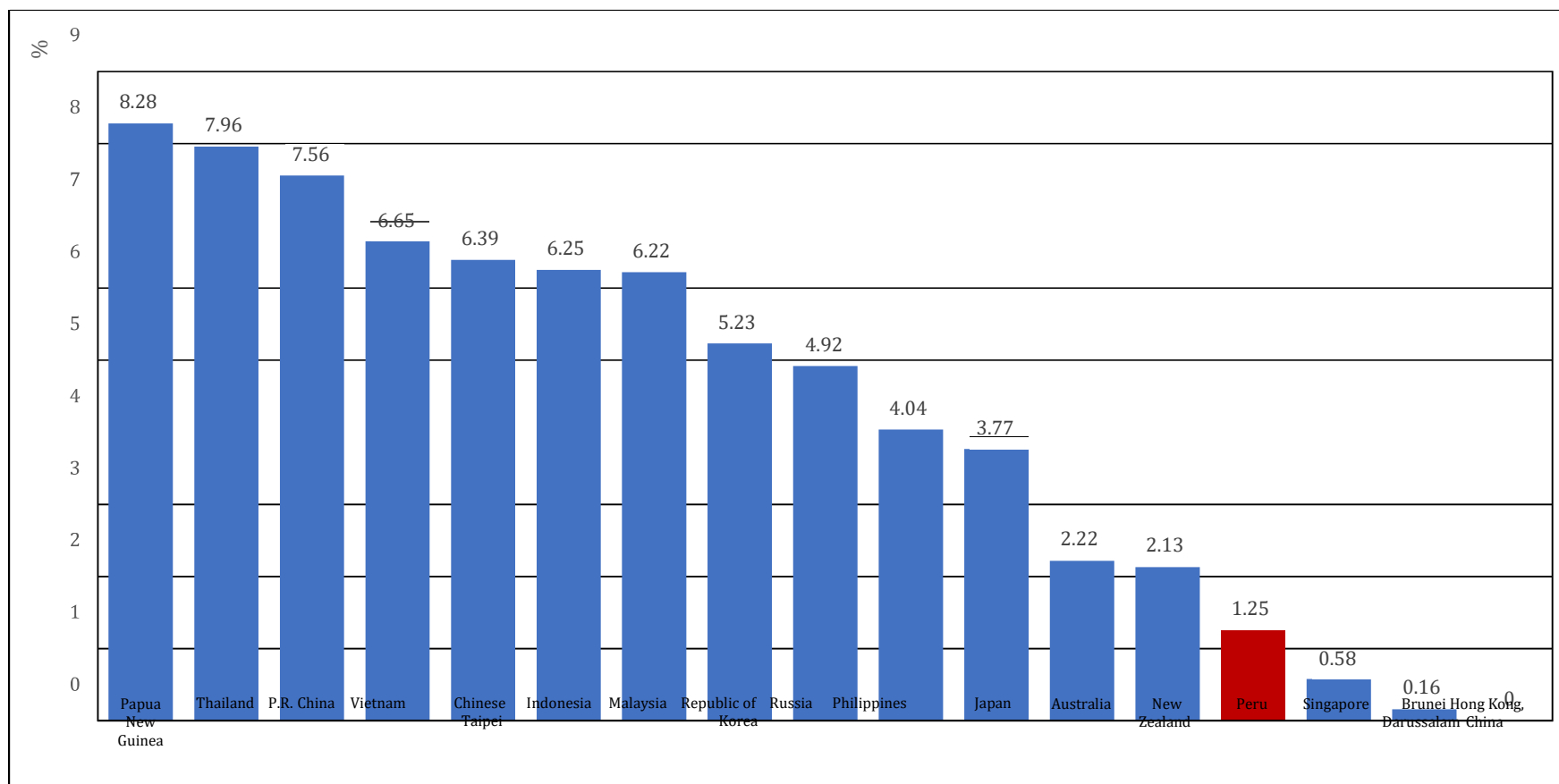
Note: Peru is compared with a benchmark in Asia-16, that is, the economy that reaches the highest competitiveness score in this region in the corresponding pillar and, therefore, is considered as a reference for Peru. The competitiveness index scores range from 1 to 100, the closer an economy is to 100, the more competitive it is in a given pillar. For the sake of the comparison, the graph features the scores and names of the Asian-16 benchmark, Peru and the People's Republic of China in each pillar of the index.

Source: Schwab (2019). Own elaboration.

Figure 12: Trade openness index in Asia-16 economies and Peru in 2018 (trade as a % of GDP)

Note: The sum of exports and imports in goods and services is calculated as a percentage of GDP.

Source: World Bank (2020). In the case of Chinese Taipei, a source from this economy was used, Directorate-General of Budget Accounting and Statistics (2020), and the data for Papua New Guinea was retrieved from APEC (2020). Own elaboration.

Figure 13 Average tariff in Asia-16 economies and Peru in 2018* (in %)

Note: The data displayed for New Zealand; Malaysia and Thailand are from 2017, 2016 and 2015, respectively.
 Source: World Bank (2020) and International Trade Administration of the United States (2019). Own elaboration.

*Appendix 2: Tables***Table 1: Asia-Pacific exports to the world in 2001 and 2018 (in billions of US\$)**

Economy	2001	Share (2001)	2018	Share (2018)	Multiplication
P.R. China	266.1	15.7%	2,494.2	36.2%	9.4
Japan	403.3	23.8%	738.2	10.7%	1.8
Rep. of Korea	150.4	8.9%	605.2	8.8%	4.0
Hong Kong, China	191.1	11.3%	569.1	8.3%	3.0
Russia	99.9	5.9%	449.3	6.5%	4.5
Singapore	121.8	7.2%	411.7	6.0%	3.4
Chinese Taipei	122.9	7.3%	335.8	4.9%	2.7
Australia	63.3	3.7%	253.8	3.7%	4.0
Thailand	64.9	3.8%	249.8	3.6%	3.8
Malaysia	88.0	5.2%	247.3	3.6%	2.8
Vietnam	15.0	0.9%	243.0	3.5%	16.2
Indonesia	56.3	3.3%	180.2	2.6%	3.2
Philippines	32.2	1.9%	67.5	1.0%	2.1
New Zealand	13.7	0.8%	39.8	0.6%	2.9
Brunei Darussalam	3.5	0.2%	6.5	0.1%	1.9
Papua New Guinea	1.8	0.1%	-	-	-
Asia-16 total	1,694.2	100.0%	6,891.5	100.0%	4.1

Note: No data available for Papua New Guinea in 2018.
Source: International Trade Centre – ITC (2020). Own elaboration.

Table 2: Asia-Pacific trade within the region and with the world 2001 and 2018
(in billions of US\$ and in %)

	2001	2018
Trade within Asia-16	1,657.3	7,283.9
Asia-16 trade with the world	3,193.2	13,116.5
Share of intraregional trade	51.9%	55.5%

Source: International Trade Centre – ITC (2020). Own elaboration.

Table 3: Share and average growth rate of Peruvian exports to selected regions and countries in 2000-2019 (in millions of US\$ and in %)

Economy / Region	2000	Share (2000)	2019	Share (2019)	Average growth rate
Asia-16	1,263	18.4%	19,199	41.6%	15.4%
P.R. China	443	6.4%	13,546	29.4%	19.7%
European Union	928	13.5%	5,709	12.4%	10.0%
Latin America and the Caribbean	1,142	16.6%	6,474	14.0%	9.6%
United States	1,902	27.7%	5,690	12.3%	5.9%
Rest	1,631	23.8%	9,037	19.6%	9.4%
World	6,866	100.0%	46,109	100.0%	10.5%

Source: Adex Data Trade (2020). Own elaboration.

Table 4: Peruvian exports to the Asia-Pacific region in 2000 and 2019
(in millions of US\$ and share %)

No.	Economy	2000	Share (2000)	2019	Share (2019)	Growth rate
1	P.R. China	443	35.1%	13,546	70.6%	20%
2	Rep. of Korea	138	10.9%	2,277	11.9%	16%
3	Japan	325	25.8%	1,975	10.3%	10%
4	Russia	19	1.5%	211	1.1%	14%
5	Philippines	39	3.1%	211	1.1%	9%
6	Chinese Taipei	97	7.6%	202	1.0%	4%
7	Thailand	75	5.9%	192	1.0%	5%
8	Hong Kong, China	21	1.7%	149	0.8%	11%
9	Vietnam	4	0.3%	141	0.7%	20%
10	Malaysia	22	1.8%	102	0.5%	8%
11	Australia	40	3.1%	92	0.5%	5%
12	Indonesia	34	2.7%	60	0.3%	3%
13	New Zealand	2	0.2%	27	0.1%	15%
14	Singapore	4	0.3%	15	0.1%	8%
15	Brunei Darussalam	0	0.0%	0	0.0%	-11%
16	Papua New Guinea	0	0.0%	0	0.0%	-100%
	Asia-16 total	1,263	100.0	19,199	100.0	15%
			%		%	

Note: Ordered by the column “2019.”
Source: Adex Data Trade (2020). Own elaboration.

Table 5: Sectoral composition of Peruvian exports to Asia-Pacific in 2000 and 2019**(in millions of US\$ and share %)**

Sector	2000	Share (2000)	2019	Share (2019)
TOTAL EXPORTS	1,263	100.0%	19,199	100.0%
Total traditional	1,121	88.8%	17,478	91.0%
Mining	440	34.8%	15,209	79.2%
Fishing	593	47.0%	1,461	7.6%
Oil and natural gas	71	5.6%	754	3.9%
Agriculture	17	1.3%	55	0.3%
Total non-traditional	142	11.2%	1,720	9.0%
Fishing	44	3.5%	790	4.1%
Livestock and agro industries	13	1.1%	638	3.3%
Timber	3	0.3%	60	0.3%
Steelmaking and metallurgy	27	2.2%	58	0.3%
Chemical	6	0.5%	52	0.3%
Textile	36	2.8%	35	0.2%
Garments	7	0.5%	32	0.2%
Non-metal mining	2	0.1%	25	0.1%
Metalworking	1	0.1%	14	0.1%
Others	2	0.1%	17	0.1%

Note: Ordered by column "2019"

Source: Adex Data Trade (2020). Own elaboration.

Table 6
Peruvian mining exports, copper and its main products in 2000 and 2019
(in millions of US\$ and share %)

	2000	World share (2000)	Asia-16 share (2000)	2019	World share (2019)	Asia-16 share (2019)
World	3,209			26,494		
<i>Copper</i>	<i>930</i>			<i>13,948</i>		
Concentrated	141			12,192		
Cathodes	739			1,620		
Anodes	0			84		
Asia-16	440	14%		15,211	57%	
<i>Copper</i>	<i>110</i>	<i>12%</i>		<i>11,693</i>	<i>84%</i>	
Concentrated	68	49%		10,481	86%	
Cathodes	40	5%		1,092	67%	
Anodes	0	0%		81	96%	
P.R. China	86	3%	19%	11,642	44%	77%
<i>Copper</i>	<i>43</i>	<i>5%</i>	<i>39%</i>	<i>9,318</i>	<i>67%</i>	<i>80%</i>
Concentrated	32	23%	47%	8,318	68%	79%
Cathodes	10	1%	24%	952	59%	87%
Anodes	0	0%	0%	46	55%	57%

Note: The column "World Share" shows the share of Asia-16 and the People's Republic of China in the total exports to the world. The column "Asia-16 Share" presents the Chinese share in the total exported to that group. The table is ordered by column "2019."
Source: Adex Data Trade (2020). Own elaboration.

Table 7: Sectoral composition of Peruvian exports to the People's Republic of China in 2000 and 2019 (in millions of US\$ and share %)

Sector	2000	Share (2000)	2019	Share (2019)
TOTAL EXPORTS	443	100.0 %	13,546	100.0 %
Total traditional	417	94.2%	12,934	95.5%
Mining	86	19.4%	11,642	85.9%
Fishing	330	74.6%	1,167	8.6%
Oil and natural gas	0	0.0%	121	0.9%
Agriculture	1	0.3%	4	0.0%
Total non-traditional	25	5.8%	611	4.5%
Fishing	0	0.1%	314	2.3%
Livestock and agro industries	0	0.0%	192	1.4%
Timber	1	0.2%	51	0.4%
Textile	22	4.9%	21	0.2%
Chemical	0	0.1%	20	0.2%
Garments	0	0.0%	5	0.0%
Steelmaking and metallurgy	2	0.4%	5	0.0%
Metalworking	0	0.1%	1	0.0%
Non-metal mining	0	0.0%	1	0.0%
Others	0	0.0%	1	0.0%

Note: Ordered by column "2019".
Source: Adex Data Trade (2020). Own elaboration.

Table 8: Trade agreements of Peru with economies in the Asia-Pacific region

Status	Trading partner	Entry into force
In force	Singapore	Aug-09
	P.R. China	Mar-10
	Republic of Korea	Aug-11
	Thailand (Protocols)	Dec-11
	Japan	Mar-12
	Australia	Feb-20
Signed	CPTPP (Australia, Chile, Mexico, Canada, New Zealand, Brunei, Malaysia, Japan, Singapore and Vietnam)	
Under negotiation	Pacific Alliance with Associated States (New Zealand, Australia, Canada and Singapore)	
	Upgrading with P.R. China	

Note: Consulted on March 31, 2020.

Source: Ministry of Foreign Trade and Tourism - MINCETUR (2020). Own elaboration.

Table 9: Classification of Asia-16 economies and Peru according to income level in 2018
(GNI per capita, Atlas method)

Economy	US\$	Classification
Singapore	58,770	High
Australia	53,190	
Hong Kong, China	50,310	
Japan	41,340	
New Zealand	40,820	
Brunei Darussalam	31,020	
Republic of Korea	30,600	
Chinese Taipei	25,501	
Malaysia	10,460	Upper middle
Russia	10,230	
P.R. China	9,470	
Thailand	6,610	
Peru	6,530	
Indonesia	3,840	Lower middle
Philippines	3,830	
Papua New Guinea	2,530	
Vietnam	2,400	

Note: In the case of Chinese Taipei, the source is APEC (2020), which is based on sources from that economy.

Source: World Bank (2020). Own elaboration.

**Table 10: Global Competitiveness Index 2019:
Positions of Asia-16 economies and Peru in the global index**

Economy	Position in the Global Index
Singapore	1
Hong Kong, China	3
Japan	5
Chinese Taipei	11
Republic of Korea	13
Australia	16
New Zealand	19
Malaysia	27
P.R. China	28
Thailand	40
Russia	43
Indonesia	50
Brunei Darussalam	56
Philippines	63
Peru	65
Vietnam	67

Note: The position in the ranking is determined based on 141 economies.
Source: Schwab (2019). Own elaboration.

Table 11: Global Competitiveness Index 2019: “Infrastructure” pillar. Positions of Asia-16 economies and Peru in the ranking

Economy	Infrastructure
Singapore	1
Hong Kong, China	3
Japan	4
Republic of Korea	6
Chinese Taipei	16
Australia	29
Malaysia	35
P.R. China	36
New Zealand	46
Russia	50
Brunei Darussalam	58
Thailand	71
Indonesia	72
Vietnam	77
Peru	87
Philippines	96

Economy	Transport
Singapore	1
Hong Kong, China	3
Japan	4
Republic of Korea	5
Chinese Taipei	13
P.R. China	24
Malaysia	28
Australia	38
Russia	49
Thailand	53v
Indonesia	55
New Zealand	57
Vietnam	66
Brunei Darussalam	77
Peru	96
Philippines	102

Note: The position in the ranking is determined based on 141 economies. Source: Schwab (2019). Own elaboration.

Table 12: Global Competitiveness Index 2019:
Transport by road, air and sea. Positions of Asia-16 economies and Peru in the ranking

Economy	Road transport
Singapore	1
Republic of Korea	9
Japan	20
Australia	22
P.R. China	24
Hong Kong, China	30
Chinese Taipei	33
New Zealand	45
Thailand	49
Brunei Darussalam	58
Russia	65
Malaysia	85
Indonesia	85
Vietnam	103
Peru	111
Philippines	120

Economy	Air transport
Japan	1
Hong Kong, China	2
Singapore	3
Republic of Korea	7
Australia	9
Thailand	15
Indonesia	16
Malaysia	18
P.R. China	21
Chinese Taipei	22
Russia	24
New Zealand	37
Vietnam	39
Philippines	40
Peru	65
Brunei Darussalam	83

Economy	Sea transport
Singapore	1
Hong Kong, China	3
Republic of Korea	4
Malaysia	6
P.R. China	11
Japan	13
Chinese Taipei	15
Vietnam	32
Indonesia	39
Russia	42
Thailand	44
Australia	48
Peru	52
New Zealand	56
Philippines	71
Brunei Darussalam	85

Note: The position in the ranking is determined based on 141 economies (road and air) and 108 (sea). Source: Schwab (2019). Own elaboration.

Table 13: Global Competitiveness Index 2019: “Skills,” “ICT Adoption” and “Innovation Capability” pillars.**Positions of Asia-16 economies and Peru in the ranking**

Economy	Skills
New Zealand	10
Australia	13
Singapore	19
Hong Kong, China	20
Chinese Taipei	23
Republic of Korea	27
Japan	28
Malaysia	30
Russia	54
Brunei Darussalam	59
P.R. China	64
Indonesia	65
Philippines	67
Thailand	73
Peru	81
Vietnam	93

Economy	ICT Adoption
Republic of Korea	1
Hong Kong, China	3
Singapore	5
Japan	6
Chinese Taipei	11
P.R. China	18
New Zealand	21
Russia	22
Brunei Darussalam	26
Australia	29
Malaysia	33
Vietnam	41
Thailand	62
Indonesia	71
Philippines	88
Peru	98

Economy	Innovation Capability
Chinese Taipei	4
Republic of Korea	5
Japan	7
Singapore	13
Australia	18
P.R. China	24
Hong Kong, China	26
New Zealand	27
Malaysia	30
Russia	32
Thailand	50
Brunei Darussalam	51
Philippines	71
Indonesia	74
Vietnam	76
Peru	90

Note: The position in the ranking is determined based on 141 economies.

Source: Schwab (2019). Own elaboration

Table 14: Global Competitiveness Index 2019: “Macroeconomic Stability,” “Institutions” and “Business Dynamism” Positions of Asia-16 economies and Peru in the ranking

Economy	Macroeconomic Stability
Hong Kong, China	1
Chinese Taipei	1
Republic of Korea	1
Australia	1
New Zealand	1
Malaysia	1
Peru	1
Singapore	38
P.R. China	39
Japan	42
Thailand	43
Russia	43
Indonesia	43
Philippines	43
Vietnam	64
Brunei Darussalam	85

Economy	Institutions
Singapore	2
New Zealand	3
Hong Kong, China	5
Australia	17
Japan	19
Chinese Taipei	24
Malaysia	24
Republic of Korea	26
Brunei Darussalam	50
Indonesia	51
P.R. China	56
Thailand	67
Russia	74
Philippines	87
Vietnam	89
Peru	94

Economy	Business Dynamism
New Zealand	13
Singapore	14
Hong Kong, China	15
Australia	16
Japan	17
Malaysia	18
Chinese Taipei	20
Thailand	21
Republic of Korea	25
Indonesia	29
P.R. China	36
Philippines	43
Russia	53
Brunei Darussalam	62
Vietnam	89
Peru	96

Note: The position in the ranking is determined based on 141 economies. Source: Schwab (2019). Own elaboration.

Table 15: Logistic Performance Index 2018:
Positions of Asia-16 economies and Peru in the ranking

Economy	Position in the ranking
Japan	5
Singapore	7
Hong Kong, China	12
New Zealand	15
Australia	18
Republic of Korea	25
P.R. China	26
Chinese Taipei	27
Thailand	32
Vietnam	39
Malaysia	41
Indonesia	46
Philippines	60
Russia	75
Brunei Darussalam	80
Peru	83
Papua New Guinea	148

Note: The position in the ranking is determined based on 160 economies.
Source: World Bank (2018). Own elaboration.

Table 16: Labor productivity:
average annual growth in Asia-16 economies of and Peru in the period 1990-2018 (in %)

Economy	Average annual growth rate (1990-2018)
P.R. China	8.52
Vietnam	4.62
Thailand	3.31
Republic of Korea	3.30
Chinese Taipei	3.27
Papua New Guinea	3.10
Indonesia	3.01
Malaysia	2.59
Hong Kong, China	2.32
Singapore	2.21
Philippines	2.12
Peru	1.91
Australia	1.31
New Zealand	0.92
Russia	0.84
Japan	0.73
Brunei Darussalam	-1.13

Source: The Conference Board (2019) and World Bank (2020). Own elaboration.

Table 17: Labor productivity: levels in 1990 and 2018 (in constant 2011 PPP dollars)

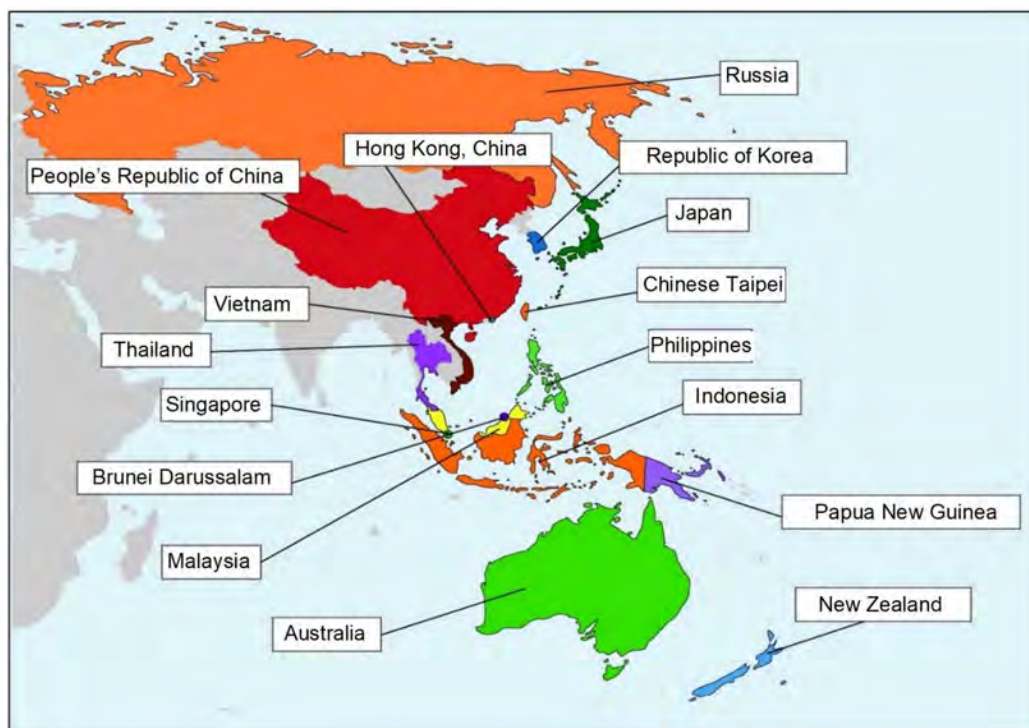
Economy	1990	2018
Singapore	81,337	153,412
Brunei Darussalam	199,059	143,071
Hong Kong, China	63,838	124,132
Chinese Taipei	43,078	109,451
Australia	71,701	104,677
Japan	65,725	81,219
Republic of Korea	31,021	79,647
New Zealand	58,138	75,817
Malaysia	32,077	67,295
Russia	45,577	58,166
Thailand	13,548	34,870
P.R. China	3,055	32,718
Indonesia	11,860	28,037
Peru	15,645	27,094
Philippines	12,582	23,145
Vietnam	3,550	13,152
Papua New Guinea	5,251	12,721

Note: Productivity per person employed, or GDP per person employed, represents the GDP per unit of work. The output is measured as "value-added," which refers to the total production minus the value of intermediate goods. The data for Brunei Darussalam and Papua New Guinea was calculated by dividing GDP in constant 2011 PPP dollars (according to the World Bank) by the employment estimated by the World Labor Organization (retrieved from APEC, 2020).

Source: Own elaboration based on The Conference Board (2019) and APEC (2020).

Appendix 3: Maps

Map 1: Asia-16: Economies from Asia and Oceania in the Pacific Basin members of APEC



Note: Asia-16 grouping developed for the present study. Source: Own elaboration

Priority Area 2

Inclusive Economy Participation through Digital Economy and Technology

1. SME Digitalization in a Post-COVID World: Implementing a Gender Inclusive Action Agenda
Justin Kwan, Phebe M. Ferrer & Karina Kwok
2. Research on the Internet Financing of APEC and The Financing Problems of MSMEs
Jingjia Zhang
3. MSMEs : Digitization and e-commerce, Base for the development and diversification of markets
Esteban Zottele & Aníbal Carlos Zottele
4. Higher Education, Knowledge Economy and Tourism Competitiveness in The APEC Area
Carlos Mario Amaya Molinar, Juan Carlos Yáñez Velazco & Irma Magaña Carrillo

**MSME Digitalization in a Post-COVID World:
Implementing a Gender Inclusive Action Agenda**

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Abstract

The COVID-19 pandemic has made digitalization a priority for micro, small and medium enterprises (MSMEs) in the Asia-Pacific Economic Cooperation (APEC) region. While efforts to engage MSMEs in the digital economy precede the pandemic, social distancing measures now require MSMEs to adapt from in-person to online operations. As economies prepare to assist MSMEs in digitalizing their operations, governments' policy approaches must account for the pre-existing inequalities facing underrepresented groups in entrepreneurship – especially women- and youth-led MSMEs – in order to ensure an inclusive transition to the digital economy. Drawing from the implementation experiences of the APEC-Canada Growing Business Partnership, a joint international development project between the Asia Pacific Foundation of Canada and APEC Secretariat, this paper analyzes the Partnership's on-the-ground activities promoting inclusive growth among MSMEs in Indonesia, Peru, the Philippines, and Vietnam. Based on the project's preliminary findings, this paper provides two policy recommendations on how to (1) utilize a gender-based analytical framework in MSME digitalization; and (2) build the capacity of on-the-ground partners to provide gender-based training and research concerning digitalization. We highlight both international strategies (e.g.: APEC Policy Partnership on Women in the Economy) and Canadian tools (e.g.: Canada's Feminist International Assistance Policy and gender-based analysis plus (GBA+) approach), which recognize the specific context of women-led businesses in the Partnership's implementation. We therefore recommend that government measures regarding MSME digitalization operate through an analytical gender-based lens. Ensuring an inclusive transition of

MSMEs to digital operations is crucial toward facilitating the full economic participation of underrepresented groups moving forward.

Keywords: MSMEs, Entrepreneurship, Gender Equality, Digitalization, COVID-19

Introduction

The COVID-19 pandemic has made digitalization a priority for micro, small and medium enterprises (MSMEs) in the Asia-Pacific Economic Cooperation (APEC) region. While efforts to engage MSMEs in the digital economy precede the pandemic, social and physical distancing measures now require businesses to adapt from in-person to online operations. This is not to say that the promotion of MSME digitalization was incentivized solely by the pandemic. The APEC Secretariat, among other international bodies, has instituted a number of actions promoting MSME digitalization, such as the 2019 *APEC Workshop on Harnessing Digital Trade for SMEs* hosted by Vietnam, and the *Guidebook on SME Embracing Digital Transformation*. However, the present crisis now makes these efforts more crucial, as digitalization becomes a matter of MSMEs' survival.

As economies prepare to support and assist MSMEs in digitalizing their operations, they must ensure an inclusive transition to the digital economy for underrepresented groups like women and youth entrepreneurs, as mandated by the La Serena Roadmap for Women and Inclusive Growth. In adjusting for a long-term strategy in dealing with COVID-19, government approaches that promote MSME digitalization must recognize and account for the pre-existing inequalities that entrepreneurs face, in order to ensure that MSMEs will thrive moving forward in the post-pandemic world.

With COVID-19 significantly changing the landscape in which MSMEs operate, there has been an increasing need to focus on the challenges that these small businesses will face as they transition to the digital economy. **The purpose of this paper is to propose a gender-analytical framework and approach that can be incorporated into MSME digitalization policies and projects**, in order to ensure that these are targeted and made accessible for underrepresented groups. In the context of this paper, we focus on women entrepreneurs. In proposing this framework, we draw from the

implementation experiences of the APEC-Canada Growing Business Partnership (“the Partnership”), a joint international development initiative funded by Global Affairs Canada and implemented between the Asia Pacific Foundation of Canada (APF Canada) and APEC Secretariat. Using the Partnership’s high-level policy research and on-the-ground activities promoting gender-inclusive growth among MSMEs in Indonesia, Peru, the Philippines, and Vietnam, we review two areas of the Partnership’s work. First, we examine the research studies conducted by the Foundation and experts from Canada and APEC economies, and the on-the-ground mentorship and collaboration undertaken in the Partnership’s focus economies. Second, we assess the approaches that the Partnership has adopted toward promoting inclusive growth, and the lessons learned from implementing the project.

By assessing the Partnership’s work, we will provide two policy recommendations derived from the Partnership’s best practises learned in promoting inclusive growth among women entrepreneurs, and show their applicability in policy approaches for MSME digitalization. These recommendations discuss how to utilize a gender-based analytical framework in MSME digitalization policies and projects, and secondly, how to build the capacity of on-the-ground partners to provide gender-based training and research concerning digitalization.

MSME Digitalization and Challenges Prior to COVID-19

The term ‘digitalization’ refers to the ongoing transition of physical business operations into digital ones, utilizing a robust information and communications technology (ICT) infrastructure, online applications, innovative technology, and other digital tools. This encompasses several areas of MSME operations, from payment systems and e-wallets, to online shopping platforms like Shopee used in Southeast Asia. Typically, the process of digitalization will involve MSMEs’ hybrid usage of physical and digital processes, depending on entrepreneurs’ needs and adaptation to digital interfaces.

Prior to the COVID-19 pandemic, entrepreneurs were already encouraged to digitalize their MSMEs due to its numerous benefits in both domestic and international

business. For example, the Association of Southeast Asian Nations (ASEAN) conducted a 2012 study on MSMEs' adoption of digital technologies within the region. This study found that digitalization facilitated the expansion and optimization of business operations by enabling entrepreneurs to reach more clients and reduce operation costs.¹⁵³ In 2015, the APEC Secretariat passed the Boracay Action Agenda to Globalize MSMEs, which promoted the usage of ICT and e-commerce platforms to expand MSMEs' participation in international markets. The Boracay Action Agenda recognized that digitalization would allow MSMEs to more easily and inexpensively reach wider markets, engage with more clients, and network with partners around the world. APEC soon followed this agenda with further actions including the 2019 *APEC Workshop on Harnessing Digital Trade for SMEs* hosted by Vietnam, the 2020 *Guidebook on SME Embracing Digital Transformation*, and recent publications like the APEC Policy Support Unit's policy brief titled *Supporting MSMEs' Digitalization amid COVID-19*.

While digitalization was seen as an advantageous option for MSMEs prior to the pandemic, the COVID-19 crisis now requires MSMEs to digitalize in order to survive. As physical distancing measures and national lockdowns are enforced worldwide, one crucial way for MSMEs to continue doing business is by taking advantage of the digital economy.

However, MSMEs confront difficulties in reaching the digital stage, especially those owned and led by women entrepreneurs. Emerging research shows that women entrepreneurs and their MSMEs are especially impacted by the COVID-19 pandemic. Preliminary data from the World Bank, the OECD and Facebook show that women-owned businesses are more likely to shut down than male-owned enterprises as a result of the pandemic's negative economic effects.¹⁵⁴ The specific issues faced by women-led MSMEs include difficulties with product distribution, service offerings,

¹⁵³ ASEAN, *Study on MSME Participation in the Digital Economy in ASEAN* (ASEAN, 2012), p.7.

¹⁵⁴ Women Entrepreneurs Finance Initiative, "Research and Data on the Impact of the coronavirus on women-led SMEs," We-Fi, 2020, <https://we-fi.org/research-and-data-on-the-impact-of-the-coronavirus-on-women-led-smes/>.

and increased unpaid care duties in the home, as shown by a UN Women report on the gendered dimensions of COVID-19 in the Philippines.¹⁵⁵

Moreover, women entrepreneurs contend with structural challenges that precede the pandemic. A 2018 OECD study argues that some of the main barriers preventing women entrepreneurs' full participation in the digital economy include affordability and access to technology, education, digital literacy, and inherent societal biases toward women.¹⁵⁶ The Partnership has found similar results in its own research by conducting national survey studies of entrepreneurs and MSMEs in Indonesia, Peru, the Philippines and Vietnam. Gender-disaggregated data collected through these surveys show that financing and a lack of access to business support services are consistent barriers for women-owned businesses across these four economies.¹⁵⁷ More specifically, many women entrepreneurs reported a difficulty in accessing financing, and a lack of knowledge of key support services meant to assist MSMEs in their home economy. These barriers then impede women entrepreneurs from obtaining the resources and help they need to digitalize their MSME.

The need to support women-led MSMEs' digitalization is timely and crucial. There is evidence showing that women entrepreneurs, like others, are actively engaging in setting up online businesses during the pandemic.¹⁵⁸ It is therefore vital that resources and support for MSME digitalization is targeted toward women-owned enterprises, and is made accessible, available, and well-known among women entrepreneurs. In recognition of this context, a gender-analytical framework and approach to the issue of MSME digitalization policies can help recognize and account for the distinct experiences and challenges that women entrepreneurs face.

Gender-Inclusive Approaches to International Development

¹⁵⁵ UN Women Philippines, *Gendered Dimensions of COVID-19 in the Philippines* (UN Women, 2020), p.4.

¹⁵⁶ OECD, *Bridging the Digital Gender Divide* (OECD, 2018), p.22.

¹⁵⁷ For more information, please view the national survey reports at apfcanda-msme.ca/research

¹⁵⁸ UN Women Philippines, *Gendered Dimensions of COVID-19 in the Philippines* (UN Women, 2020), p.4.

The APEC-Canada Growing Business Partnership's primary mission is to help build the potential of MSMEs in APEC developing economies to foster sustainable inclusive growth and poverty reduction. To achieve this goal, the Partnership provides tailored research and mentoring to MSMEs, entrepreneurs, and other underrepresented communities in their respective economies, drawing upon Canadian expertise and best practices on MSME capacity development from the APEC Secretariat and member economies. This section elaborates on the institutional context of the Partnership by identifying its collaboration with APEC and highlighting the overall strategy and design of the Partnership. This knowledge network is informed by existing frameworks and guidelines geared toward inclusive growth, most notably APEC's Policy Partnership on Women and the Economy, the La Serena Roadmap for Women and Inclusive Growth, the United Nations Sustainable Development Goals, and Canada's Feminist International Assistance Policy.

Since its inception in 2016, the Partnership has executed a strategy of research, action and dialogue by creating an on-the-ground network that connects government officials, policy-makers, academics, MSMEs, entrepreneurs and members of civil society. These best practices, tools, ideas, knowledge and critical connections are shaped by the Canadian experience of MSME champions and are tailored to local APEC markets, especially the economies of focus for the project. Thematically, the Partnership aims to address key challenges faced by MSMEs and aspiring entrepreneurs from APEC developing economies in the areas of technology and innovation, market access, human capital, and social entrepreneurship, with an overall emphasis on cross-cutting themes of women empowerment, youth, governance, and the environment.

In accomplishing its goals, the Partnership has sought to forge closer ties with not only APEC, its sub-committees and working groups, but also with government officials, policymakers, industry experts, entrepreneurship ecosystem organizations, and aspiring entrepreneurs in the APEC region. The Partnership takes advantage of this opportunity to consult the expertise of this extensive network to create a robust project strategy. Overall, a key foundational principle of the Partnership is connection, consultation and collaboration with a set of diverse actors, from government bodies to

on-the-ground practitioners and MSMEs. These partners are engaged early on in the process to ensure a robust and lasting dialogue throughout the Partnership's work that ultimately informs better decision-making and more effective policy solutions.

Another foundational principle and strategy that guides the Partnership's work is the belief that empowering women entrepreneurs is essential to achieving sustainable inclusive growth. Evidence from the International Monetary Fund and other international organizations demonstrates that promoting women's economic empowerment is one of the most effective ways to reduce poverty and promote inclusive growth.¹⁵⁹ Women and girls can be powerful agents of change and improve not only their own lives, but also those of their communities and countries. For the Partnership, this involves the integration of a gender-based analytical framework throughout its work, starting from its alignment with high-level policy mechanisms, including international and domestic approaches. In doing so, the project draws its gender-based approach from four main sources.

First, the Partnership's methodology is guided by [APEC's Gender Inclusion](#) guidelines developed by the [Policy Partnership on Women and the Economy \(PPWE\)](#). The PPWE aims to "advance the economic integration of women in the APEC region for the benefit of all members and to coordinate gender activities across other APEC working groups."¹⁶⁰ APEC's Gender Inclusion guidelines are consolidated through five foundational pillars: Access to capital and assets; Access to markets; Skills, capacity building and health; Leadership, voice and agency; and Innovation and technology. An area that demonstrates the application of APEC's Gender Inclusion guidelines in the Partnership can be seen in the Partnership's choice of thematic areas in its focus economies, such as technology and innovation in Vietnam, and market access in the Philippines.

Second, the Partnership aligns itself with the [La Serena Roadmap for Women and Inclusive Growth \(2019-2030\)](#), which seeks to ensure the greater integration and

¹⁵⁹ International Monetary Fund, *Pursuing Women's Economic Empowerment* (IMF, 2018).

¹⁶⁰ APEC, "Policy Partnership on Women and the Economy," APEC, 2020, <https://www.apec.org/Groups/SOM-Steering-Committee-on-Economic-and-Technical-Cooperation/Working-Groups/Policy-Partnership-on-Women-and-the-Economy>.

empowerment of women in the Asia Pacific region by building on APEC's previous gender equality efforts. Founded on APEC's Gender Inclusion guidelines, this roadmap aims to encourage action in empowering women through reinforcing their access to capital and markets, strengthening women's labour force participation, improving access of women to leadership positions in all levels of decision-making, supporting women's education and skills development, and advancing women's economic empowerment through data collection and analysis. The Partnership continues to stay informed of the Roadmap's short-term and long-term goals to help complement APEC's current efforts, as well as to contribute toward advancing gender equality.

Third, the Partnership uses the United Nations (UN) Sustainable Development Goals (SDGs) as reference for its work. The Partnership particularly pays close attention to [SDG #5](#) which focuses on achieving gender equality and empowering all women and girls. Against the backdrop of a global pandemic, the UN has published updates on the adverse effects of COVID-19, particularly toward women and girls. The Partnership ensures to follow the steps of the UN in mitigating the impact of COVID-19 on women and girls to aid in their recovery and protect their long-term benefits.

Finally, the Partnership's strategy and work are also derived from domestic Canadian approaches, most notably [Canada's Feminist International Assistance Policy \(FIAP\)](#). The FIAP is a response toward protecting and promoting the human rights of all vulnerable and marginalized groups as well as increasing equitable access of resources for economic and social equality. In practice, it involves 95% of Canada's total aid budget going toward helping "advance gender equality and the empowerment of women and girls"¹⁶¹ by 2022. This policy set a new international standard on a gender-based approach to aid, and cemented Canada's commitment to put gender equality and women empowerment at the forefront of its international development and humanitarian agenda. Aligning with the FIAP, the Partnership follows its [Gender Equality Toolkit for Projects](#) as guidance for designing and implementing

¹⁶¹ Government of Canada, "Canada's Feminist International Assistance Policy," Government of Canada, 2020, https://www.international.gc.ca/world-monde/issues_developpement-enjeux_developpement/priorities-priorites/policy-politique.aspx?lang=eng.

international assistance programming – the core of the Partnership’s work. As of September 2020, 14 different tools are included in the Gender Equality Toolkit.

The Partnership especially utilizes [Tool 4: Gender-based Analysis Plus \(GBA+\)](#). This analytical approach is used to inform the overall project design process by assessing how diverse groups of women, men, and non-binary people experience policies, programs, and initiatives. The GBA+ process requires meaningful consultations before a project begins to ensure that all programming is based on evidence and analysis as opposed to assumptions. For example, the Partnership ensures that it reviews national and local gender equality commitments as well as government policies and efforts in each of its focus economies to identify how it can complement and support the work already being done. GBA+ also governs the Partnership’s measurement and data collection framework, such as using gender- and age-disaggregated research and methods.

Another notable tool for the Partnership’s work is [Tool 12: Monitoring Performance on Gender Equality](#). Similar to GBA+, this tool highlights how gender-sensitive monitoring helps to understand how the Partnership is progressing toward the achievement of gender equality outcomes while also identifying areas for improvement. The Partnership applies this tool in its project reporting, again utilizing and analyzing gender- and age-disaggregated data, tracking gender equality performance, and carrying out capacity-building activities for staff on monitoring gender equality outcomes, to name a few.

From high-level approaches such as APEC’s La Serena Roadmap, to more specific policy tools like FIAP’s GBA+, international and domestic approaches comprise of the institutional foundation of the Partnership and inform its work. Accordingly, the Partnership applies lessons from these approaches into its high-level policy research and on-the-ground collaboration with local partners, as will be discussed by the following section.

Overall, despite staying informed of all the work that is currently being done to advance gender equality, the Partnership recognizes how imperative it is to also

remain abreast of existing efforts in response to COVID-19. By exacerbating existing inequalities for women entrepreneurs, the global pandemic has stifled and potentially reversed the progress made thus far in women's economic equality. Evidence clearly illustrates how the consequences of COVID-19 disproportionately affect women, such as gender imbalances among frontline healthcare workers, over-exhaustion for caregivers at home, and steep increases in violence against women that is amplified by quarantine and shelter-in-place measures. It is clear that digitalization is a key step in moving forward amid the current capricious global context, particularly given that MSMEs which are a key component of economic growth around the world. The Partnership remains mindful of including and focusing on women-led and youth-led businesses in building a strong foundation to help recover from the detrimental effects of COVID-19.

The Partnership's Gender-Based Research and On-the-Ground Collaboration

In achieving its goal of building MSMEs' capacity in developing APEC economies, the Partnership's work serves a dual purpose of informing high-level policymakers in the APEC region and directly providing research and training for MSMEs in the project's focus economies. This section will discuss the Partnership's work in relation to the topic of MSME digitalization, and how its gender-based analytical framework is embedded throughout its research and on-the-ground collaborations.

The Partnership's deliverables include the national surveys of entrepreneurs and MSMEs, which examine the experiences of MSMEs in each economy's entrepreneurial ecosystem; tailored research studies on key issues that MSMEs face in each focus economy, conducted by Canadian and local APEC experts and practitioners; thematic toolkits that provide practical advice to MSMEs in each focus economy; training sessions and policy workshops for entrepreneurs and policymakers in each focus economy; and a virtual mentorship program for women entrepreneurs, hosted by the Cherie Blair Foundation for Women. The Partnership also periodically reports on its activities to the APEC Small and Medium Enterprises Working Group (SMEWG).

In relation to MSME digitalization, the Partnership's work has touched on the topic of digitalization in various ways throughout its thematic work in the four focus economies. In the first year of the project, the Partnership used the theme of technology and innovation for its work in Vietnam, where it investigated MSMEs' usage of mobile technologies in their business operations. In the Philippines, where the thematic area was market access, the Partnership focused on the usage of e-commerce and digital trade in broadening Filipino MSMEs' reach into domestic and international markets. In Indonesia, the Partnership looked at the theme of human capital, and how Indonesian MSMEs sought to maximize their workforce capacity given the government focus on strengthening the Indonesian digital economy. Lastly, in Peru, the Partnership focused on the theme of social entrepreneurship, where part of its research looked at social enterprises' usage of digital tools to accomplish their social mandates.

Some of the Partnership's deliverables that specifically tackle the issue of MSME digitalization include research studies in the Philippines and Indonesia, and the virtual mentorship program for women entrepreneurs. First, MSME digitization-related research papers published by the Partnership include *Entrepreneurial Drivers of Agtech in the Philippines*, *A Case Study for the Use of Blockchain Technology for Philippine Coffee*, and *Micro and Small Businesses in Indonesia's Digital Economy*. In the Philippines, researchers investigated the growing usage of technology and digital tools in the agricultural and coffee industries. The study on Filipino MSMEs' usage of AgTech (Agriculture Technology) analyses the usage of drones and agriculture-smart mobile applications as recent innovations that are now benefitting agricultural businesses. Meanwhile, the study on blockchain in the Philippine coffee industry analyses how technology can help address three key issues for MSMEs in the industry, namely data quality and transparency, financial literacy for coffee farmers, and access to bank loans. In Indonesia, experts looked at the government-led effort on building the digital capacity of Indonesian MSMEs, and how businesses can leverage technology to gain better access to the digital economy. This paper also considers the needs of women entrepreneurs in adapting to the digital economy.

Second, in attempting to maximize the potential of women entrepreneurs, the Partnership created an online female mentorship program which provided mentoring, knowledge facilitation and best practices for women who wish to grow their businesses. The Partnership worked with the Cherie Blair Foundation for Women to operate this mentorship program, wherein mentors and mentees met online twice a month for one year to work on a personalized business action plan. The mentees included women from the four focus economies who hoped to gain a variety of skills such as how to expand and grow their business, financial planning and accounting, marketing and communications processes, and networking and partnership building abilities. In turn, the mentors were Canadian professionals and entrepreneurs who were matched to their mentee based on an alignment between the expertise and interest of both parties. An important design feature of the mentorship program is the use of online platforms, such as Bespoke Access Platform, which allowed for a fully customized training platform. The online training resources created not only an opportunity for the mentor and mentee to meet on an online platform but also gave the mentorship participants access to various training resources such as an e-library, business planning templates and webinar series.

In the current context of the pandemic, the creation of mentorship programs across various economies can create opportunities for uninterrupted programming due the online format which eliminates issues like social distancing and the logistical challenges of in-person meetings. In the context of the Partnership, the mentorship program was a particularly impactful component, with 86% of mentees reporting an increase in business to consumer sales during their time in the program, and 67% of mentees directly attributing their business revenue growth to the program. Thus, the wealth of benefits of such programs for women entrepreneurs, which encourage the expansion of their networks, the growth of business teams and the further development of their skill sets, should also be re-examined in the context of COVID-19 to further encourage and replicate networks that have been disrupted due to social distancing and limitations placed on in-person gatherings.

In relation to the mentorship program, the Partnership also provided a platform for feminist entrepreneurial researchers and trainers through the active involvement and

participation of women in business networks like the Indonesian Business Coalition for Women's Empowerment (IBCWE) and the Business Professional Women Makati and Network for Enterprising Women in the Philippines to better guide discussions around the existing resources that women empowerment networks provide to local women-led MSMEs and entrepreneurs. In turn, the Partnership also expanded and complemented these activities by integrating these actors into the training and policy workshops that were conducted in these two economies.

Throughout these activities, the Partnership ensures that there is a consistent strategy that incorporates a gender-based analysis and captures the distinct experiences of women entrepreneurs. At a local level, the Partnership attempted to address barriers specific to women entrepreneurs through the compilation and analysis of gender-disaggregated data in its national surveys. The questions for the national survey studies were also created through consultations with in-country government representatives and ministries that have a specific gender focus. The Indonesian Ministry of Empowerment and Child Protection and the Peruvian Ministry of Women and Vulnerable Populations were two examples of government ministries that were consulted in order to understand the full landscape of national gender issues that currently exist. This consultation enabled the Partnership to more fully capture economy-specific gender issues in its work. For example, the theme of human capital drew upon consultations with the Indonesian government to understand how issues of violence and sexual harassment in the workplace affect women entrepreneurs.

Overall, the Partnership ensures that its local partners in each economy have input on the design of the national surveys, as well as the training sessions, policy workshops, and MSME toolkits. To further ensure transparency, the Partnership then reports its findings to partners through report publications and events like the policy workshops.

Policy Recommendations

Given that MSMEs are particularly vulnerable to the effects of the COVID-19 pandemic, especially due to social and physical distancing measures, government policies to support and assist their adaptation to the new digital economy are being

discussed around the world. In the current phase of the pandemic, the use of digital technology has become one of the more viable solutions to maintain the sustainability of MSMEs until traditional in-person businesses are able to operate again. At this time, a critical component of policy interventions moving forward will need to address pre-existing gender inequalities, such as a lack of access to financing and lack of knowledge of business support programs. Moreover, we recognize that it is also important to continue fostering a culture that supports women in STEM (science, technology, engineering and math), in addition to efforts to assist women in accessing technologies to become part of digital MSME ecosystems. It must also consider methods in implementing, educating, monitoring, and evaluating workforces across APEC economies that use these assistance programs. **Based on the project's preliminary findings, this paper provides two policy recommendations on how to (1) utilize a gender-based analytical framework in MSME digitalization; and (2) build the capacity of on-the-ground partners to provide gender-based training and research concerning digitalization.**

First, policies and projects related to MSME digitalization must have an effective implementation framework that addresses gender equality issues, by providing a reliable, evidence-grounded perspective to barriers in digitalization as well as generally in the workplace for women in MSMEs. The broad model for this framework should follow three key principles - research, action, and dialogue - wherein each component happens simultaneously to inform one another. Furthermore, this framework must have four parts, namely research and the collection of gender-disaggregated data; policy or project planning, with an intentional gender-based analytical and theoretical foundation, consultation with key local partners and in particular the participation of women actors in each local ecosystem, as well as setting of defined goals to achieve; policy or project implementation and monitoring with ongoing consultation and feedback; and policy or project wrap-up, with reflections and lessons learned.

As the first step of a gender-based analytical framework, the collection of gender-disaggregated data would provide the necessary evidence, information, and analysis about women in entrepreneurship that is needed in order to understand the power and

gender dynamics in this industry. Like the Partnership's national surveys, this data collection would help policymakers have a clearer picture of women's experiences in entrepreneurship, such as the barriers and opportunities they perceive for their MSME. The Partnership in particular uses Canada's GBA+ approach to inform its gender-disaggregated research and data collection, and we recommend that a similar method be used in APEC economies. More specific to the topic of MSME digitalization, this data collection should seek to understand the policy landscape related to MSMEs in a given economy, and in doing so, bring to light whether there are gender-specific policies in place and the reasons why they may or may not be present. Overall, gender-disaggregated data should be utilized to inform policies and laws of the multiple gender factors involved when providing support to MSMEs in digitalization.

The second step of a gender-based analytical framework is policy and project planning that incorporates a gender analysis into the core of the project. Initiatives to assist MSME digitalization should strive to integrate and target gender equality and women's participation in the process of MSME capacity building. This step must therefore consider how immediate, intermediate and ultimate outcomes of the project incorporate a gendered component. Accordingly, policies or projects must set goals that clearly define the expectations these outcomes, and hold these goals accountable through reporting and the collection of statistics and feedback throughout policy or project implementation. For example, the Partnership uses a results-based management framework for its international development programming, drawing from guidelines provided by Global Affairs Canada. The goals of the Partnership, including the gender-based components, are built into both a Logic Model (which acts as a roadmap that highlights connections between key project outputs) and the Performance Measurement Framework (which specifies the systematic collection of data for the entire lifetime of the project). This framework outlines the expected deliverables and goals of the project with the required statistics and evidence to confirm that these have been achieved.

In this step, it is crucial to base policy and project planning onto an analytical and theoretical foundation that references international approaches such as Canada's Feminist International Assistance Policy, APEC's Policy Partnership on Women and

the Economy, the La Serena Roadmap, and the UN's Sustainable Development Goal #5 on Gender Equality. In the case of the Partnership, these guiding principles allowed it to refine its on-the-ground approach by working in specific target areas that furthered the understanding of working towards gender equality, such as through the national surveys.

The third step is then ongoing monitoring during the policy or project's implementation. Similar to the planning phase of a gender-based analytical framework, implementation and monitoring must be conducted with an ongoing consultative and feedback-based process, with periodic review by the implementing body or an external auditor. One important component of this step is the periodic collection of survey data and statistics from stakeholders. For example, the Partnership has collected survey data from entrepreneurs during its training sessions in each economy. This survey data collected specific information in relation to the Partnership's thematic areas. For instance, during the Partnership's events in Indonesia related to the theme of human capital, event attendees were asked about their plans to increase female employment in their businesses. These statistics were collected both during the event and after a period of 6-to-8 months, to see how entrepreneurs' views and practises change over time.

Another crucial component in this third step is ongoing consultation with local stakeholders and partners in an economy's entrepreneurial ecosystem on a policy or project's goals and activities. The implementing body must work in coordination with on-the-ground actors, to ensure that its research and events fit the self-stated needs of women-led MSMEs. Other vital components include external policy or project audits, commissioned as required by the implementing body, and capacity building activities for policy or project staff in relation to gender-based analysis. Together, these components should ensure that there is a transparent feedback process with the project's stakeholders and partners.

Lastly, the fourth step of a gender-based analytical framework is to conduct institutional reflections on the successes and failures of the policy or project in question. These policy or project-end reflections should be conducted by both the

participating government or implementing body and their respective partners, and then be applied to inform future reiterations of the present policy or project. This step of a gender-based analytical framework includes tasks such as reviewing the policy or project's achievement of its framework and defined goals, through the collection of statistics and feedback throughout the lifecycle of the project. Another important task is policy or project-end reporting for accountability. Finally, for transparency, these statistics and reports must be made available and accessible to local stakeholders upon their request.

Our second recommendation is to complement a policy or project's top-down framework with on-the-ground capacity building for local partners, including MSMEs, on providing gender-based training and research. In addition to the technical hard skills that are required to operate and digitalize MSMEs, we want to highlight the importance of gender-inclusive sensitivity training for entrepreneurs and other local partners. The Partnership has learned that gender-inclusive sensitivity training is an effective and sustainable way to tackle the issues that women entrepreneurs face, by directly confronting entrepreneurs' gender biases and incorporating gender-inclusive strategies into their MSMEs' business models. Moreover, this training has been well received by the MSME owners that participated in the Partnership's events. For instance, the Partnership's MSME training event in Da Nang, Vietnam included bias training hosted by Dr. Sarah Saska, a leading diversity and inclusion expert who leads the organization [Feminuity](#). Dr. Saska's presentation used an interactive format with situational questions that prompted the audience of their own unconscious biases in entrepreneurship and the workplace, with an emphasis on gender biases. Dr. Saska also presented case studies demonstrating that companies that embed diversity and inclusion strategies into the core of their businesses have a better chance of succeeding long term. Following entrepreneurs' positive feedback of this session, among other events, we recommend for similar training sessions to be conducted in conjunction with gender-inclusive policies and projects.

Conclusion

Throughout its five years of operation, the Partnership learned that the best way to ensure that its activities follow a gender-based analytical framework is to build it into

the planning and implementation of the project, with defined goals set at the project's onset. Put differently, the project's gender-based analysis must be a core mandate of the project, with reporting and accountability measures to ensure that the project achieves its goals. For instance, though the Partnership has a broad focus on building the capacity of MSMEs in the APEC regions, one of its key components is the economic empowerment of women entrepreneurs. The Partnership has accordingly set defined goals and mechanisms to ensure that it realizes this component. Moreover, the Partnership learned that this framework is most effective when there is consistent follow up with on-the-ground partners, not just through reporting but also through building their own capacity to provide gender-specific research and services. In other words, the high-level research component of the Partnership must be complemented by on-the-ground gender-based training for and by the project's local partners. The basis of this research also forms some important next-steps for policymakers moving forward. This includes not only the encouragement of a gender-inclusive action agenda can be applied to other projects and policies but also the ability to scale-up these initiatives so that these models can be replicated across developing APEC region.

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Research on the Internet Financing of APEC and The Financing Problems of MSMEs

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Abstract

As the booster of economic growth in the Asia-Pacific region, micro, small and medium-sized enterprises (MSMEs) in the APEC region employ more than half of the labor force in the market, and play a positive role in promoting economic growth. However, for most of MSMEs in the Asia-Pacific region, the difficulties encountered in financing from credit institutions cannot be ignored. Difficult financing and expensive financing has become one of the most concerned issues of global MSMEs and government departments. The emergence of Internet finance has effectively impacted the Pareto's principle, gradually meeting the financing needs of MSMEs, achieving a long tail effect and promoting effective resource allocation. From the perspective of Internet financial services for MSMEs, this article explains the financing obstacles for MSMEs in the APEC area and the feasible ways to use Internet finance to solve financing problems.

Internet Finance and MSMEs

By broadening the financing channels, Internet finance has injected a new path into the financing of small and medium-sized enterprises. Due to the high threshold of equity financing and bond financing, the "difficult financing and expensive financing" of MSMEs has become the problem of difficult and expensive loans. The MSMEs with limited financing channels are more inclined to bank loans and family financing, and the financing mode is single. The development of Internet finance has diversified the financing channels of small, medium and micro enterprises, resulting in multiple methods such as P2P online lending, Internet banking, and crowdfunding financing, which greatly enrich the financing paths of small, medium and micro enterprises.

Internet Finance provides a data base for the financing of MSMEs by effectively alleviating information asymmetry. The implementation of Internet big data makes Internet credit investigation move forward from structured and traditional data to unstructured and non-traditional data. It not only refers to the "hard" data of borrowers' credit qualification in the past, but also collects and analyzes the "soft" data of social data, transaction data and personalized data, eliminating the information asymmetry of small and medium-sized enterprises in advance and strengthening the information asymmetry after the event Risk control. Internet big data promotes profound changes in Internet credit investigation, provides information soil for small, medium and micro enterprises to obtain credit support, and lays a foundation for the development of P2P lending, Internet lending, and Internet banking. In crowdfunding, the transparency of project information reduces the asymmetry of information. Investors make choices according to their own risk preference and income expectation to prevent blind investment and reduce unnecessary losses.

Internet finance promotes competition and reduces borrowing costs for MSMEs. Internet banking, Internet credit investigation, P2P lending, Internet payment and other emerging financial methods communicate through the Internet. The collection and processing of Internet data are all done online, reducing the cost of communication, collection and processing of information. Internet banks are no longer restricted by the laying of physical outlets, but also reduces the cost of channels. This allows Internet banks to compete for loans with traditional banks at lower lending rates, reducing the borrowing costs of small and micro enterprises, and partly solving the problem of financing small and micro enterprises.

Internet finance will reduce the financing gap between the sexes and improve the financing level of MSMEs led by women. Women own one-third of small and medium-sized enterprises in the APEC region, and compared with men, they face financing discrimination. Traditional credit has limited information available for consideration, and gender factors may interfere with the results of lending. However, Internet credit investigation based on the background of big data will comprehensively consider the qualifications of loan applicants, blur gender differences, and improve female-led small, medium and micro enterprises Level of financing.

Internet finance promotes the informal small and medium-sized enterprises to be normalized and helps to regulate the healthy development of small and medium-sized enterprises. Some potential small and medium-sized and micro enterprises know their own financing difficulties, or the potential small and medium-sized and micro enterprises are located in remote areas with closed information, and are unwilling or unable to contact traditional financing institutions, resulting in a large number of potential small and medium-sized enterprises to evade supervision and tax, and are in a gray area. However, with the development of Internet finance, financial instruments have become more popular through daily interactive software, and their financing applications are convenient and fast. The monitoring of big data in the banking system can identify the changes of cash flow in bank accounts, so that potential small and medium-sized enterprises can constantly "de virtual to real" and accept supervision. Accurate number of small and medium-sized enterprises is the basis and basis for the government to formulate relevant policies, which can improve the effectiveness of policies and promote the healthy and stable development of MSMEs.

Financing situation of small and medium-sized enterprises in China

In China, small and medium-sized enterprises account for the majority, and more than 98.64% of them are small enterprises with no more than 300 employees. In 2017, new business creation reached an all-time high, with an average of 16600 new companies created every day, an increase of 9.9 per cent over 2016. In 2016, the loan stock of SMEs increased to RMB 40517.3 billion, an increase of 14.8% over 2015. However, the loan share of SMEs declined slightly to 64.7% compared with 2014-16, because the loans of large companies increased during this period. In 2017, the proportion of short-term loans to total loans of SMEs dropped to 40.97%, down 13.74%. The loan ratio of collateral-backed SMEs dropped to 52.05%, down 3.62%.

In 2017, although the benchmark lending rate remained unchanged, the real interest rates on bank loans for small and medium-sized enterprises and large companies rose to 5.78% and 5.4% respectively, up 1.01% and 0.51% respectively over the previous year. The interest rate gap between small and medium-sized enterprises and large enterprises widened from 0.12% in 2016 to 0.38% in 2017. In addition, the average

additional loan fees charged by SMEs account for about 1.31% of total bank loans. In 2017, the one-year interest rate in the shadow banking sector was between 13% and 17%, which is about 9% different from that of normal bank loans.

In 2017, 73.9% of small and medium-sized enterprises applied for bank loans. The rejection rate of loan applications for small and medium-sized enterprises was 4.1%, down 2.06 percentage points from 2016. On average, only 53.1% of the applications were approved. The utilization rate of bank loans for small and medium-sized enterprises is 89.9%, and that for large companies is 95.7%.

In 2017, payment delays in B2B and B2C departments dropped to 44 days and 11.5 days, respectively. The proportion of non-performing loans of small and medium-sized enterprises to the total loans of small and medium-sized enterprises is 2.6%, which is 0.53 percentage points higher than that of all enterprises. According to the survey, the bankruptcy rate of small and medium-sized enterprises was 3.7% in 2017, down 21.78% from last year.

During the period 2009-17, the Chinese government carried out large-scale policy adjustments and reforms aimed at reducing the barriers for small and medium-sized enterprises to access diversified financing channels. The Chinese government has made a lot of efforts to improve the business environment by relaxing regulation, providing high-quality and efficient public services, strengthening the official supervision of illegal market behavior, and reducing the tax burden on small and medium-sized enterprises.

Conclusions and policy recommendations

After the financial crisis of 2008-2009, the development of small and medium-sized enterprises deteriorated, and the bankruptcy rate and debt default rate continued to rise. Under the background of the active assistance of governments and the vigorous development of Internet finance, the problem of "difficult and expensive financing" of small and medium-sized enterprises has been alleviated to a certain extent, but financing difficulties are still the main factor restricting the development of small and

medium-sized enterprises. About 40% of small and medium-sized enterprises in developing countries are subject to varying degrees of financing constraints (65 million). Microenterprises subject to financing constraints account for 40 per cent (56.2 million) of the total, and small and medium-sized enterprises account for about 44 per cent (9 million) of the total. The government is more inclined to increase the money supply and reduce the loan interest rate to solve the financing problem of small and medium-sized enterprises. Due to the interference of information asymmetry, rent-seeking and other factors, the government has not really solved the financing problem of small and medium-sized enterprises. At the same time, Internet finance has entered the fast lane of development. Internet credit reporting has eased the information asymmetry, promoted the in-depth development of many financial services such as P2P network lending, crowdfunding financing, Internet banking, etc., broadened financing channels, made Internet finance a booster of Inclusive Finance, made resource allocation more efficient and realized the "long tail effect".

However, the development of Internet finance has also exposed some problems, which need to be actively addressed by government departments of various countries:

1. Standardize the development of Internet finance and improve the supervision and legislation of Internet finance.

Compared with the traditional financial industry, the supervision and legislation of Internet finance is not perfect. It is necessary to gradually establish a supporting legal supervision system, and formulate corresponding threshold standards from access to operation, so as to effectively protect the interests of investors and safeguard the legitimate rights and interests of small and medium-sized enterprises. Establish a multi-channel supervision mechanism to prevent major systemic risks caused by Internet finance, and promote its stable, healthy and sustainable development by coordinating supervision with multiple departments.

2. Keep policy leeway, give room for growth to new Internet financial instruments, and avoid making a one-size-fits-all approach.

Under the general trend of Internet finance, some Internet financial instruments are in the initial stage, and the regulatory authorities should maintain strategic determination for the emerging Internet financial instruments, neither flooding economy with liquidity nor hindering their development across the board. We need to clarify the boundary between the market and the government, and establish a negative list system, so that "the law can be used without prohibition". Some emerging industries should be given policy inclinations to promote their long-term development, and should not be strictly prohibited due to short-term conflicts with traditional industries, thus missing the precious opportunity of industrial upgrading and upgrading.

We need to clarify the boundary between the market and the government, and establish a negative list system for market access, so that "all is permissible unless prohibited". Some emerging industries should be given policy inclinations to promote their long-term development, and should not be strictly prohibited due to short-term conflicts with traditional industries, thus missing the precious opportunity of industrial upgrading and upgrading. Some emerging industries should be given policy inclinations to promote their long-term development, and should not be strictly prohibited due to short-term conflicts with traditional industries, thus missing the precious opportunity of industrial upgrading and upgrading.

3. Standardize credit information content, establish information sharing mechanism and build social credit information system.

Different Internet financial entities have different credit information systems, which collect different credit information according to their platform advantages, resulting in one-sidedness and repeatability of credit information and increasing the cost of credit information. In the information era of the Internet of Everything, it is necessary to establish an information sharing mechanism to prevent the moral hazard of borrowers, reduce the information asymmetry between borrowers and lenders, reduce the default

rate and ensure the legal benefits of investors. The imperfection of social credit system has become a bottleneck restricting Internet finance. A nationwide credit information system should be established with the central bank as the main body and various financial institutions as a supplement to realize the joint and sharing of data.

4. Improve and perfect the punishment mechanism for dishonesty, and enhance the risk control ability of Internet financial enterprises.

It is necessary to improve and perfect disciplinary mechanism of faith-breaking, strengthen the education for breach of trust so that MSMEs do not dare to break their promises maliciously. For those with serious malicious dishonesty, it is necessary to limit their consumption level in all directions, guide and establish a correct view of borrowing and lending, and prevent speculation and encroachment on public resources. It is necessary to strengthen the risk prevention ability, risk control ability and risk resolution ability of Internet financial enterprises, strictly prevent the recurrence of P2P thunder incidents, establish and improve the social security system for Internet finance, and effectively protect the legitimate rights and interests of investors.

MSMEs: Digitalization and e-commerce, a base for the development and diversification of markets.

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Abstract

The impact of COVID-19 in the economies of APEC has among its worst consequences the weakening and closure of a significant number of micro, small and medium-sized enterprises (MSMEs) with the consequent loss of jobs and the worsening of imbalances in the regional economies. This situation is not new, although it is more critical in this scenario. As it has been widely expressed in different forums, including APEC, the difficulties that affect MSMEs, are issues with financing, access to technological progress, and International markets, among others. Besides, in the face of each global or local crisis, and each advance especially related to the development of interconnectivity, the digital gap increases concerning large companies. This affects the competitiveness of MSMEs, especially in the face of global processes. Therefore, the digitalization of these companies and the use of e-commerce must be incorporated as basic tools for their growth. Digital transformation is essential, as it boosts efficiency, streamlines processes, reduces costs, stimulates productivity, reduces human errors, and opens companies to new markets. This process involves various challenges, investment, connectivity, staff training, and innovation. In this way, the specific support for digitalization and e-commerce for MSMEs must have public policies, so that these companies can reach international standards.

Introduction

MSMEs corresponds to a large part of the companies in the APEC Economies, their development is directly related to the possibility of including a greater number of social actors in them. During the last years, MSMEs have been a recurring theme on the APEC Agenda. The need for its progress as a basis for inclusive development is a central issue, however, the impact of COVID-19 has generated an even more critical situation than in previous years, since many of these companies have reduced their sales, and in many cases closed, which implies a direct impact on employment and development. Its importance is due, among other factors, to its regional distribution and its implication as a direct option in the inclusion of the labor market for a large part of the population. This allows us to affirm that the economic development of APEC Economies, is closely related to the development potential of these enterprises. The presence of MSMEs in international trade is low, which has led to a bias of concentrating trade gains in a few big enterprises, and the lack of diversification.

Among the situations that have had an important influence on its evolution are:

- a) Since 2008, the international economic crisis has particularly affected many APEC Economies.
- b) The development of new technology has led to the paradigm shift of economic relations.
- c) The impact of the COVID-19

In that way, this article analyzes the importance of the Micro Small and Medium Enterprises (MSMEs) in APEC Economies, their production structures, their domestic characteristics and circumstances, restrictions and opportunities for access to international markets, the impact of COVID-19, and how from the implementation of policies focus in the access of digitalization and e-commerce could be improved within the framework of competitiveness.

About Micro Small and Medium Enterprises (MSMEs)

One of the main objectives of the policies proposed by APEC Members from its origin, is to achieve greater social inclusion, reduce poverty and improve the quality of life of the vast majority of the social actors. Some of the main mechanisms that are associated with the advancement of these objectives are:

- a) Progress in the productivity of the workforce, which allows the generation of higher income among wage earners.
- b) A more efficient management of governments, in terms of the application of their income and public spending policies.
- c) The importance assigned to sustaining growth based on a prosperous domestic market.
- d) The application of a quality educational system, accessible to the entire population.

These instruments are effective, based on the creation of productive activities that demand a higher level of education and the use of scientific and technological advances, which allow the application of the intellectual capacity created, together with the raising of income levels. This inner development of the MSMEs means in the international trade a greater and more sophisticated exchange of qualified goods and services. In that way and considering MSMEs as a fundamental factor in the progress of the societies, it must be understood that part of their competitiveness is based on their development and their insertion in international markets. Gonzalez Bonilla (2016), indicate that MSMEs refer to Micro, Small, and Medium-sized Enterprises in a regional market. They are enterprise organizations composed of limited assets, workers, and sales.

In the APEC Economies, MSMEs have different classifications, taking into account employment, sales, and, in some cases, asset levels, but we can identify some similar characteristics in MSMEs:

- a) Represented the backbones of productivity.

MSMEs comprise more than 95 percent of all the companies, occupy up to 80 percent of the workforce, and contribute 30 to 60 percent of the GDP of APEC Economies, many of these being family businesses.

- b) Widely regional distribution

The MSMEs are distributed all over the country and are the engine of regional economies, creating employment, value-added, and productivity and represent a possibility of regional distribution of resources and opportunities.

However, due to globalization, the opening up of regional integration, the information and communication technology revolution, and the reform of industrial development policies, they are facing difficulties in competitiveness. (Angelelli et al, 2010)

- c) Job distribution.

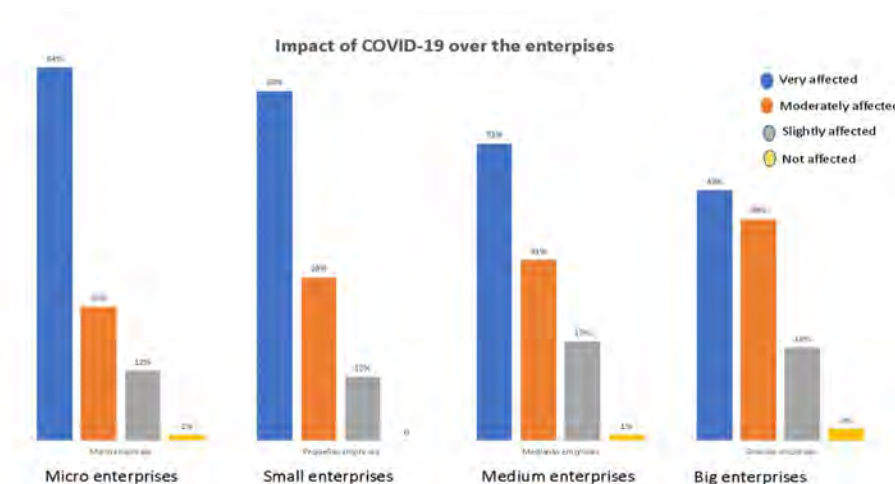
Besides, MSMEs are a job opportunity for vulnerable sectors of the Society, which otherwise would not have the opportunity to be hired by large companies.

- d) Owner Company possibility

MSMEs represent a tangible possibility for entrepreneurs to develop their projects.

The impact of COVID-19 has generated losses in sales, reduction of personnel, and market in most companies globally, however as shown in Graphic 1, MSMEs have been the most affected. This leads to the consequent drop in income, loss of jobs, and deterioration in the structures of these companies with its consequent impact on the development of economies. Compare the graphic 2 and 3 we can notice that the MSMEs, have more risk of closure due to COVID-19 impact than the big companies, which show that the gap between this kind of companies was increased in this period.

Graphic 1. Impact of COVID-19 on global businesses

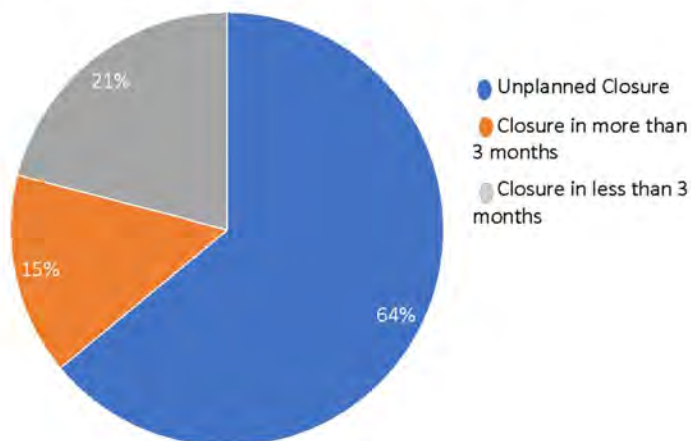


Source: Own elaboration based on SME Competitiveness Outlook 2020: COVID-19: The Great Lockdown and its Impact on Small Business; International Trade Centre (ITC) 2020.

<https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/ITCSMECO2020.pdf>

Graphic 2. Risk of business closure in MSMEs due to COVID-19

Risk of business closure in MSMEs due to COVID-19

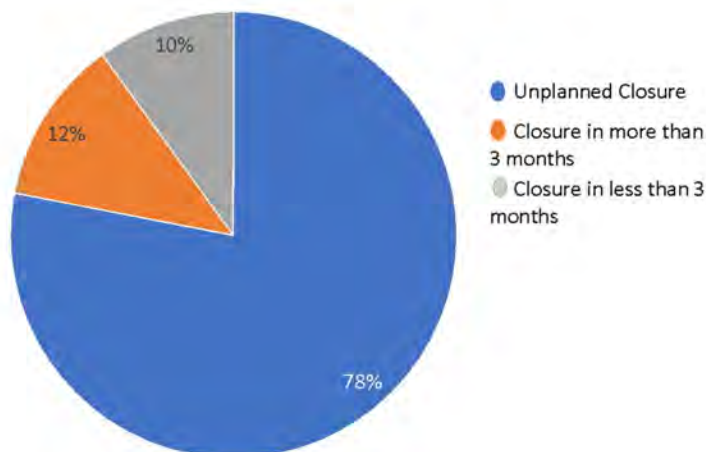


Source: Own elaboration based on SME Competitiveness Outlook 2020: COVID-19: The Great Lockdown and its Impact on Small Business; International Trade Centre (ITC) 2020.

<https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/ITCSMECO2020.pdf>

Graphic 3. Risk of business closure in big enterprises due to COVID-19

Risk of business closure in big enterprises due COVID-19



Source: Own elaboration based on SME Competitiveness Outlook 2020: COVID-19: The Great Lockdown and its Impact on Small Business; International Trade Centre (ITC) 2020.

<https://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/ITCSMECO2020.pdf>

MSMEs on the APEC Agenda

This section analyzes the inclusion of MSMEs in the APEC agenda, as a fundamental issue to understand how their evolution and treatment have been in recent years, promoting an understanding tool, to be able to analyze how it should continue its treatment in future agendas. As mentioned above, MSMEs are an essential mechanism for the balanced progress of societies in the APEC economies. This dimension is increasingly valued and its importance lies, among other reasons, in that MSMEs are an integrating tool for regions and various social sectors.

It should be noted that since the crisis at the end of the previous decade there have been fewer dynamics in foreign trade and a growing questioning of globalization in its most orthodox terms. In the midst of this: low dynamics of foreign trade and new political challenges, a systematic action that prioritizes the presence of MSMEs and with them vast sectors of companies located in broad regional spaces and generating employment are essential because they represent a range of possibilities who are ready to sign up representatives of all trends.

Evolution of SMEs on the APEC Agenda

Before the 1994 Bogor Summit, the goals were formalized, the APEC authorities established the need to create a Pacific Business Forum to identify the problems that APEC should address to facilitate regional trade and investment and promote the development of market networks. The advisability of strengthening the political dialogue on small and medium-sized commercial enterprises was also indicated. The agenda on SMEs has been progressing as APEC has been considered as one of the responses to the criticisms about the doubts about the benefits of foreign trade in terms of the income distribution, which come largely from the recognized low participation of those companies.

In this regard, the Vancouver 1997 meeting should be highlighted, where the leaders declared that SMEs are an important factor in the Forum. The final document cites that these organizations comprise more than 95 percent of all businesses, occupy up to 80 percent of the workforce, and contribute 30 to 60 percent of the GDP of APEC Economies. Also stressed the importance of taking advantage of and increasing the potential of SMEs to contribute to growth and development in the region.

During Shanghai 2001, the importance of small and medium-sized enterprises (SMEs) and micro-enterprises were reiterated, and their respective Ministers were instructed to build the APEC Integrated Plan of Action for SMEs and to place special emphasis on micro-enterprises.

But it was in Mexico in 2002 when the treatment of SMEs took on an identity that has been increasing to date. In Los Cabos, in their final declaration, they welcomed the results of the Meeting of Ministers responsible for SMEs and observed with great interest the progress, including the incorporation of micro-enterprise development issues. They also recognized the substantial contribution of MSMEs to trade and economic development in the APEC region.

In Bangkok 2003, communicated that to create the conditions that allow peoples and societies to take full advantage of their potential and prepare for the challenges of the future, efforts must be intensified to build knowledge-based economies.

APEC's efforts in 2004 in the field of education were redoubled, in particular, the work carried out to promote the use of English and other languages for small and medium-sized enterprises, as well as the use of information technology tools to help the learning process. During Busan, 2005 APEC Summit decided to foster an enabling environment to boost small businesses.

In 2006 expressed the effort of the previous years in terms of the development of the private sector of the work plan aimed at reducing bureaucracy and raising the quality of business regulation, especially for the benefit of SMEs and with the slogan of advancing coordination of the issue among all APEC Members.

2009, they agreed that APEC's inclusive growth agenda builds on ongoing efforts on structural reform that increase opportunities for all segments of society to benefit from growth. They emphasized in the following areas support to develop small and medium-sized enterprises (SMEs), which represent more than 90% of all businesses in the APEC region and employ between 50 and 80% of the workforce. Help SMEs to gain better access to global markets, technology, and finance, as well as to detonate their crisis management capabilities. (APEC, 2009).

In 2010 and line with the G20 Summit in Seoul, APEC Leaders set out to rebalance and strengthen global demand, improve fiscal management, and increase financing in favor of more open markets that promote regional trade (ANNEX IV), It was also agreed to specify the following measures:

a) Establish that low-value shipments are subject to minimum customs charges to improve their trade, as well as simplify the entry documentation requirements. This achievement was a contribution from APEC, which favored 2015 supply chain performance by 10 percent;

b) Carry out specific actions that reduce the trade barriers faced by SMEs in the region, boost their production capacity, and thereby increase their contribution to economic growth and job creation in our Economies.

That year, an annex was presented on Improvement of Small and Medium Enterprises, participation in global production chains, of great importance for the future insertion of SMEs in the trade of APEC member countries. In 2012 the final declaration did not lose sight of the recognition of the value of SMEs, declaring that MSMEs are an important engine of development and innovation in the Asia-Pacific region, which will improve the quality of economic integration and the competitiveness of economies by supporting support for export-oriented SMEs, strengthening their access to markets and financing. (APEC, 2012)

In Bali 2013, Leaders emphasized APEC's path towards sustainable growth with equity and it was established to expand the participation of women in the economy by creating an enabling environment, through gender development, which contributes to training. in ICT, as well as the deed of business culture; equality in education and quality employment opportunities; greater access to the market and financial services, particularly for women-owned SMEs, as well as Improving competitiveness by facilitating access to finance and markets for SMEs to participate in global supply chains; accelerate the growth of start-ups; ensure the strengthening of the capacities of SMEs to prolong their permanence and possible expansion in the region and promote regional collaboration to facilitate trade finance for SMEs, recognizing their importance in a global context;

On the other hand, in Beijing 2014, Leaders welcomed the Nanjing Declaration on Promoting SMEs as Development Innovators:

We commit ourselves to support and provide a favorable environment for SMEs in innovation activities; We join the cooperative efforts promoted by APEC in the Asia-Pacific region to involve them in the production and supply chains. We support the promotion of ethical business practices and those that help your immersion in the international market. We also welcome the joint efforts of the member economies and appreciate their drive for development and the establishment of the foundations for comprehensive connectivity. (APEC, 2014)

In Manila 2015, the Economies Members agreed to support comprehensive structural reforms, to obtain optimal economic, social, and environmental results, and to improve government systems. They reiterated the importance of facilitating the full participation of all sectors and segments of their societies, specifically SMEs, to achieve inclusive growth within the Asia Pacific region. Established the need to build an open economy in this region, based on the development of interconnected growth and shared interests; in other words, fostering a commercial environment that responds to the new ways in which goods and services are produced and delivered; In this sense, they recognized that they are no longer generated in one place, but are the result of companies that cooperate within and outside national borders.

The leaders underscored the importance of the participation of SMEs in world trade and recognized that if they are given an international orientation, they can make substantial contributions to poverty reduction through job creation, productivity improvement, and economies of scale. In Lima 2016, the Leaders of the APEC Economies signed four general agreements, anchored in basic points: foreign trade, workers and small businesses, connectivity, and climate change and food security.

On the other hand, in August 2016, Lima hosted a substantial experience where APEC Economies shared their programs to promote micro, small and medium-sized enterprises, during the Workshop to support SMEs to facilitate trade through the generation of quality infrastructure. (APEC, 2016) It was stated that:

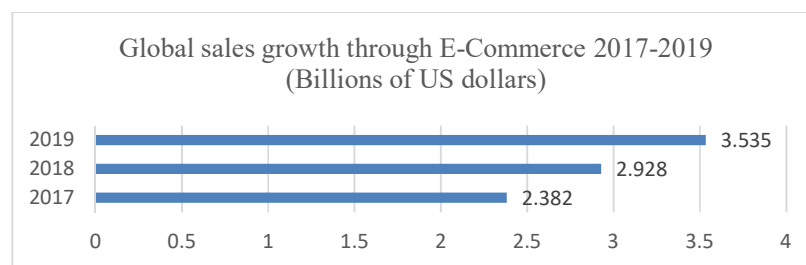
The strengthening of SMEs will imply concrete progress in increasing their innovation and competitive capacities, including the commercialization of intellectual property rights, work to guarantee access to financial means and the development of capacities, and thus improve their participation on the Internet and the digital economy and through electronic commerce to reduce the technological gap, strengthen ethical business practices to support the growth of SMEs and cross-border trade, progressively induce a shift towards more sustainable and ecological production, and support its internationalization, including through ICT. (Ibid)

In Manila 2015 and Lima 2016, as well as in the meeting of leaders of Vietnam 2017, the treatment of SMEs occupied a distinguished place on the agendas of the Economies, they are interested in highlighting the approaches that contain evaluations and responses to the growth of their participation in their economies.

MSMEs digitalization and e-commerce

E-commerce has modified the way of doing business for all companies at a global level, beyond the category or size of the companies, so that companies can expand local markets, diversify and internationalize electronic commerce is essential, in Graphic 4 the growth of e-commerce at a global level is shown. Table 1 shows that the region with higher development and projection of the world in e-commerce, is the Pacific Asia region. Due to the impact of COVID-19, the projections for e-commerce are for 2020 has a growth trend.

Graphic 4 sales growth through E-Commerce 2017-2019 (Billions of US dollars)



Source: Own elaboration based on eMarketer. (2020). Global Ecommerce 2020 Report. <https://www.emarketer.com/content/global-ecommerce-2020>.

Table 1. E-commerce sales by region (2019-2020)

E-commerce sales by region		
Region	2019	2020
	% growth compared to 2018	Billions of dollars (USD)
Pacific Asia	25%	2,448.33
North America	21.3%	749
Western Europe	21.3%	498.32
Central and Eastern Europe	19.4%	92.91
Latin America	14.5%	83.63
The Middle East and Africa	10.2%	41.56

Source: Own elaboration based on eMarketer. (2020). Global Ecommerce 2020 Report. <https://www.emarketer.com/content/global-ecommerce-2020>.

MSMEs continue to face great difficulties, their development problems and low insertion in international trade, although this is related to a series of situations that

have been previously mentioned, digitization and insertion in electronic commerce are fundamental, since a tool to face changes in strategies and organizational structures to face the challenges posed by globalization and the high competitiveness they face and the even greater problems that the impact of COVID-19 has generated. Digitalization is a fundamental basis for MSMEs that wish to enter international markets. Hervé, Schmitt, & Baldegger. (2019) state that digitalization plays a very important role in the growth of small businesses, contributing to structural and strategic transformations. For MSMEs that decide to internationalize, the use of digital infrastructures will generate the possibility of successfully carrying out their activities in foreign markets.

COVID-19: impact on e-commerce traffic

That we mentioned before due COVID-19 has been affected the performance of all the companies, especially MSMEs, but many of these companies business have been incorporated into the e-commerce generating average change in e-commerce traffic by category

From the week ending July 12, 2020, compared to the pre-pandemic based on the average weekly e-commerce traffic for the respective category between January 06 and on February 16, 2020, we can observe the categories that had a significant increase, in terms of traffic, are the following¹⁶²:

- 35.3% in the supermarket category.
- 34.2% in the sports team category.
- 27.8% in the category of retail sales in technology or retail tech.
- 14.9% in the bank and insurance category.
- 13.2% in the cosmetics category.
- 11.6% in the jewelry and watches category.
- 8.0% in the telecommunication category.

¹⁶² T. (2020, 19 agosto). *COVID-19 E-Commerce Global o Comercio electrónico (July, 2020)*. Yi Min Shum Xie. <https://yiminshum.com/covid-19-ecommerce-comercio-electronico/>

- 6.9% in the category of home furniture and DIY.
- 2.1% in the fashion category.
- 0.5% in the category of luxury products.

The categories that had a significant decrease, in terms of traffic, are the following:

- 31.1% in the tourism category.
- 43.8% in the category of retail sales of health-related products.
- 46.4% in the media category.

It is key for MSMEs to define a new value proposition, based on a digital strategy integrated with all stakeholders of the ecosystem in various parts of the world. In this way, digitization is an opportunity for MSMEs to achieve internationalization using low-risk export modes such as direct exports, using machine learning, and the effects of digital leverage in their global value chain (Schmitt, et al 2020).

In recent years, the internet has generated profound changes in all aspects of daily life, from the way we interact with others, to the way we buy and sell. Therefore, MSMEs must continue to deepen how to find innovative ways of communication and contact with customers through new technologies. As Delgado Cih, Delgado Cih, & Arteaga Castillo, (2019) point out, electronic commerce is not only vital for virtual companies that develop their businesses through the internet, it is also vital for those that carry out traditional operations because it allows access to more quantity of public. Loor, Navarro, De Lucca & Gonzabay (2018) state that electronic commerce encourages business development, generating competitive advantages based on new strategies and reducing costs, thus generating a higher profit margin for companies.

Opportunities for digitalization and e-commerce for MSMEs

The improvement in the quality of life of more social actors in the APEC Economies will be deeply related to the contribution of MSMEs, which will, directly and indirectly, be a key element in economic development. In this sense, digitalization and electronic commerce will provide new opportunities to promote the growth and development of MSMEs.

Digitalization provides a more attractive way to enter markets and identify the most interesting niches for companies, with innovation and high-quality goods and services, reducing distances between countries and cities, accessing users from international communities, and democratizing consumption globally, in addition to improving communication channels. (Schmitt et al, 2020)

Regional economies and MSMEs will have the possibility through digital platforms to bridge the gaps with potential customers, but also with competitors, Schmitt et al (2020) affirm that digital platforms can provide key databases to give companies real opportunities through innovative ways of reaching potential customers, generating new opportunities in terms of sharing knowledge, fostering innovation and fostering cooperation between companies. In addition to the terrible impact that the Covid 19 pandemic has had on MSMEs, those that have been able to incorporate electronic commerce in time have had a greater chance of maintaining their market share and even incorporating electronic commerce as one of the possibilities of post-pandemic expansion.

Among the advantages generated by the use of electronic commerce for MSMEs, the following can be identified:

- a) Improve the image of the company and reach more potential customers

Being able to apply more effective marketing strategies and promoting greater visibility at a regional and international level. Electronic commerce connects MSMEs and regional economies with different regions of the world that would otherwise be very difficult to access, thus increasing the client portfolio.

- b) Contributes to business innovation and direct sales

New technologies applied in electronic commerce will generate innovative forms of contact with customers.

- c) It allows greater availability of customer service hours and increased sales

Electronic commerce is a window open twenty-four hours a day, allowing different regions to access at any time to carry out transactions with MSMEs, being a factor that contributes to the increase in sales

- d) It generates greater efficiency, promoting the improvement of internal administration and productivity levels

With the contribution of digital platforms and electronic commerce, companies will be able to improve their efficiency in processes and achieve permanent feedback with customers, which will promote greater speed in solving problems and creating new processes, reducing costs.

Barriers in the development of digitalization and e-commerce for MSMEs

MSMEs face different types of problems, some of which could be solved through improved digitalization and access to electronic commerce, some of these problems affect access to international markets that can be developed by introducing technologies that allow direct contact with suppliers and potential clients, thus promoting the internationalization of companies. On the other hand, companies that do not access digitalization and electronic commerce will lose competitiveness with other companies that join and the gap with large companies will also widen, this situation also generating weakness in terms of innovation and generation of new opportunities market, implying the need for a greater number of employees in the processes that could be simplified and accelerated through appropriate technological platforms.

All these problems are directly related to the fact that MSMEs cannot develop effectively and in many cases causing their definitive closure, taking into account that in many APEC Economies MSMEs on average does not exceed two years of their business cycle, lifetime.

Obsolete infrastructure, or the lack of it, are factors that affect the logistics development of some of the APEC Economies and therefore the insertion of regional economies to participate in electronic commerce. Promote rapid progress in the infrastructure is required for development and could generate the material conditions conducive to bringing the appropriate instruments closer to each of the economies, thus it will be possible to recreate local alternatives, small and intermediate cities, including their participation in the integration process. E-commerce implies, in addition to the appropriate digital platform and the training of personnel, a set of infrastructures that allow the transport and distribution of the goods and services offered. Also has been considerate the aspects related to logistics and legislation. Administrative and regulatory barriers related to fragmented regulations, because retailers have to deal with different national laws and regulations, and to make large costs to adapt to all these different legal contexts.

The complex and bureaucratic procedures that affect the logistics of the exchange processes in customs, cause increased time in operations and transit costs. These drawbacks can be found in requesting excessive documentation, immigration, and quarantine requirements–; as well as the insufficiency of information and communication technologies. Although measures are being taken, coordination in practice requires training, exchange, modification of limiting regulations, and cooperation between countries. (Zottele, Zottele, 2020)

Some of the legal modalities that affect the development of MSMEs and their insertion in international markets and electronic commerce are:

- Different environmental regulations.
- Tax regulations.
- Bank transfers.
- Differences between central governments and local governments.

Topics related to staff training should also be noted. The lack of digital competences for professional success is a key issue in the development of digitalization and e-commerce,

Magro et al. (2014) indicates 8 necessary competencies that the members of the organization must acquire and develop to face the current digital transformation process.

- Digital knowledge: Training that allows us to function professionally and personally in the digital economy.
- Information management: Ability to search, obtain, evaluate, organize, and share information in digital contexts.
- Digital communication: Ability to communicate, interact, and collaborate efficiently with tools and in digital environments.
- Network: Ability to work, collaborate, and cooperate in digital environments.
- Continuous learning: Ability to manage to learn autonomously, know and use digital resources, maintain and participate in learning communities.
- Strategic vision: Ability to understand the digital phenomenon and incorporate it into the strategic orientation of your organization's projects.
- Leadership in the network: Ability to direct and coordinate work teams distributed in the network and digital environments.
- Customer orientation: Ability to understand, understand, know how to interact, and satisfy the needs of new customers in digital contexts.

As mentioned above, most MSMEs in APEC Economies have difficulty in accessing financing, in the case of these companies, to improve digitalization and enter into electronic commerce directly, it is necessary to invest, invest that varies according to the type of company and its size, but in all cases, it is essential to be able to improve its digitalization, its insertion in e-commerce and therefore greater possibilities of expanding to foreign markets. Among some of the situations that generate the need to invest resources. On the other hand, the high costs of developing and maintaining a web site must be considered. A cost that is accessible for larger companies can be a limitation for MSMEs since this implies time and money, which sometimes this type of company uses for other purposes.

Many of the applications and systems of some enterprises are obsolete and must be changed to access to new technologies, but that could be an excessive cost for the

companies. Sometimes the old technology that must change could be a digital transformation barrier for the companies that are looking for modernization. To access new technological platforms, MSMEs must incorporate investments and adequate financing to apply this issue, which, as indicated above, is essential for development.

Proposals and conclusions.

MSMEs are a prominent part of the development of APEC Economies, not only because of the amount they represent, but also because of their regional distribution, and because in many cases they are the only job opportunity for vulnerable sectors of society. However, they face various problems that create a barrier to their expansion, through digitization and electronic commerce. That is why the policies to consider are multiple and complementary. The implementation of infrastructure improvements in APEC's developing Economies is necessary. With this, many of the logistics difficulties are minimized, especially in the transport of merchandise, the reduction of costs in the port system, and better conditions for the exchange of people. This measure is essential for the efficiency and effectiveness of the execution of projects at the national or international level, that is, both within the participating countries, as well as in the contact areas between them.

Promote regional economic development and partnership among Micro Small and Medium Enterprises (MSMEs) through infrastructure construction to achieve exportable Training programs for the staff promoting by governments are necessary. According to the scale and departments of industries or services, through interregional cooperation, through specific training to professionalize their management and they can acquire the necessary skills so that the members of MSMEs can work in digital platforms, creating a synergy that generates benefits for the companies involved, promoting innovation and new forms of commerce that generate greater competitiveness. In MSMEs, cross-cultural leadership must be promoted, because can provides solutions, helps overcome misunderstandings, and generates ideas to achieve planned objectives. This type of thinking reduces the gap between theory and practice. Cross-cultural leaders can turn differences into a synergy that brings benefits to companies.

Strengthen the cooperation among universities and research centers in APEC Economies, to define policies to increase the life expectancy of the Micro Small and Medium Enterprises (MSMEs) and to bring them into international markets. Financial support and policies that help the MSMEs to improve digitalization and e-commerce, could be a solution to those companies who have to confront many challenges for surviving in a globalized and more competitive business world. The specific initiation in digitalization must help to reduce the gap between MSMEs and big companies, promoting in that way social and economic development in the APEC Economies.

The APEC agenda must continue to insist on strengthening the coordination of policies of the economies involved, for the implementation of policies that generate greater diversification of markets for MSMEs. In this sense, the objective of increasing mutual trust in search of a new cooperation consensus can be envisaged. Policy coordination between countries with different systems and regulations is a complex issue that demands a continuous effort. Support to MSMEs will be essential to promote economic and social development in APEC Economies, digitalization, and e-commerce, are necessary tools to face the challenges posed by globalization and post-pandemic situation.

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Priority Area 3
Driving Innovative Sustainability

1. To Mask or Not to Mask
Prof. NG Ka Ho, Travis
2. Food Safety Management and Compliance among Selected Cacao Enterprises
in Davao City
Yzabela Andrea Lim, Melodee Marciana De Castro, Dinah Pura, T.
Depositario & Cherry Lou R. Nunez
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To Mask or Not to Mask: Policy Implications*

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Abstract

Scientific studies have shown that mask-wearing reduces the spread of the COVID-19 virus and helps “flatten the curve.” But they do not address the problem of whether individuals have incentives to wear one. Without explicitly taking into account individuals’ incentives, policy-makers would not know when people would comply with a mandatory mask rule. I describe a simple decision-making model that helps address the problem and discuss its policy implications.

Keywords: Mandatory mask laws; population density; public good; COVID-19; infection.

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Introduction

If one knows how masks work to prevent the spread of COVID-19, she would not have much incentive to wear one. Mask wearing resembles other costly protective actions that involves a free-riding problem: doing so protects others more than the mask-wearer herself. A mask works to block small particles from passing through. But if the particles are too small, such as a virus, it does not block them at all. Luckily, most viruses do not hang in the air by itself. They attach to certain things, such as droplets.

The science of transmission. COVID-19 viruses usually come out of an infected person through attaching themselves with the person's droplets. If one is infected, when she talks, coughs, sneezes, or simply exhales, the droplets created can have significant amount of viruses enough to infect others. At least two transmission mechanisms are involved in an infection. First, the droplets with the virus hanging in the air are inhaled by others. Second, the droplets fall on a surface and are touched by others before they are evaporated and the viruses haven't been eliminated by chemicals such as alcohol, usually with hands, which are in turn used to touch the faces. If worn properly, a mask can very effectively block droplets with virus from leaving the mask because droplets are usually large in size. In turn, it very effectively prevents the droplets from infecting others through the above two transmission mechanisms. On the other hands, if droplets have been hanging in the air, due to evaporation, the droplets will become smaller and smaller as it travels in the air. A mask-wearer may inhale the droplets because masks become much less effective in blocking smaller particles.

The bottom-line. It is basic science that wearing a mask protects others more effectively than protecting the mask-wearer herself. This creates a policy concern: if people know exactly the basic science of how masks work, wouldn't they have no incentive at all to wear one? Shall we educate the people? Or shall we just pretend wearing a mask giving us the false security?

Free-riding. If one has a choice, she would prefer others to wear masks such that she would not have to. It is because sometimes a mask is costly and uncomfortable to wear. But if everyone thinks so, no one would want to wear one. And we are back to square one. We know mask-wearing can be effective, but how do we motivate people to wear one?

A mandatory mask rule? Some policymakers would suggest a mandatory mask rule: let the government enforce a rule ordering everyone to wear a mask in public areas or risk being fined heavily or spending some time behind bars. At least two problems follow. First, what makes us believe that everyone would comply to such a rule? Second, if there is very low compliance, wouldn't it cost the government (more precisely, the taxpayers) a fortune to enforce the rule?

Conceptualizing the problem in economics

Economics has a set of tools especially handy to address policies that have to deal with free-riders. There has long been a problem of the so-called "public good." A public good is a desirable thing, such as clean air or national defense, that is both non-rivalrous and non-excludable. Something is non-rivalrous if Peter's consumption of it would not diminish Mary's enjoyment of consuming it. Something is non-excludable if once it is there, no one can block John from consuming it even though John doesn't pay for it.

Wearing a mask is a classic public good. It is non-rivalrous in a sense that Peter's consumption, who happens to be nearby the mask-wearer and is thus getting protected, does not diminish the mask's protective effects on Mary who is also nearby the mask-wearer. It is non-excludable in a sense that it is impossible for the mask-wearer to charge Mary and Peter who happen to be near her but not paying her for her wearing a mask.

One potential consequence is that no one would have an incentive to offer a public good. But as we observe all around the world, there are indeed many people who wear masks even though they are not forced to. Therefore, although not being offered is one

potential consequence of a public good, it clearly does not mean that one is *never* offered. There is another observation difficult to explain. Polar opposite cases among equally-crowded cities exist: some in which almost everyone wears masks, but few do so in others. Addressing the problem of when a mandatory mask rule would be effective cannot avoid the careful examination of individuals' choices of whether to wear a mask or not. I therefore use an economic model to model their choices. My model can also explain the polar opposite cases.

A verbal description of the mathematical model

Why would people choose to wear masks in some places but not in others? Do they simply misunderstand how masks work? Did they get the math wrong and miscalculate the risks? Do they care and thus act more responsive to the #StopTheSpread hashtag than others? Are they overly cautious? Is their action simply a political act against the advice of the government or the WHO? Do non-mask wearers feel social pressure from mask wearers? Does signaling to others that you care matter during such difficult times?

Although these explanations are not necessarily incorrect, they are behavioral assumptions that are kind of arbitrary. We cannot easily measure the extent of these behavioral traits. We therefore cannot put them into a mathematical model easily and make good use of them in policy-making. From a more conceptual perspective, it is not advisable by explaining the differences of, say, Manhattan and Hong Kong, by assuming that the people in these two cities are simply different. I therefore build a static model that rules out all these behavioral assumptions.

It is static in a sense that the abstract model is best understood as a snapshot in time. Let us say it lasts for one week. Within this one week, everyone chooses to decide whether to wear a mask, which costs her something, or not to wear a mask. Obviously, the trade-off one concerns would be what benefits wearing a mask would bring her. In a nutshell, the benefits can be summed up as the reduction in the chance of getting infected. The difficulty lies on figuring out *by how much*. The model allows

us to see the most fundamental factors that would increase or decrease such benefits. For those who are interested in the details of the model, please read [Ng \(2020\)](#).

The model has the following key ingredients concerning so-called rational individuals, i.e., everyone is emotional-less and she wears a mask as long as her privately-perceived benefits outweigh the cost.

1. **Externalities.** Wearing a mask protects others, but it is impossible for mask wearers to charge them.
2. **Weak protection.** Masks are meant for those who are sick. It offers some but limited protection to healthy people.¹ If a pair of infected and non-infected persons bump into each other, the virus spreads much slower if the infected person wears the mask instead of the healthy one.
3. **Zero protection.** To those already infected (i.e., asymptomatic), wearing a mask only prevents them from infecting others and does not benefit themselves.
4. **Asymptomatic and presymptomatic infections.** A key difficulty in dealing with the new virus is its undetected spread: an infected person without symptoms can still infect others ([He et al., 2020](#)). A person has to decide whether or not to wear a mask even without knowing if she is already infected.
5. **Self-interest.** People do not derive utility from protecting others or others' health. They only care about their own health.
6. **No one is misinformed.** Everyone knows how masks work.

These ingredients are put into play in a strategic game in which each player decides whether or not to wear a mask. A key driver in the model is the number of individuals that one person randomly “bumps” into; I regard such scenario as inevitable in our daily life. The word “bump” here does not strictly refer to seeing and interacting with someone directly. It can mean taking an elevator, riding a bus or train, or entering an enclosed area (such as a public toilet) that others have used

previously, thereby resulting in an infection. The science lies in the fact that virus transmission can be airborne, that is, a virus stays in the air even after an infected person leaves the area. Scientific studies find that coughing, sneezing, and simply breathing and talking can spread the virus; however, their findings regarding flatulence are not conclusive. These actions create droplets that can hang in the air for a certain period. One way to understand why lockdown reduces the spread of viruses is that it abruptly cuts down the number of individuals inevitably bumping into one another. While one may interpret this driver as population density, the two notions are not exactly the same. One caveat of the model is that this driver is *not* endogenous (i.e., it is assumed but not internally derived from within the model).

¹The weak protection provided by masks can be understood as a reduction in the chance of getting infected by being around an infected person. Suppose that such chance is 90% if one is not wearing a mask and 70% if one wears one; the reduction in this case is 20% only.

Modeling the transmissions. Infections are characterized by probabilities. The following is a set of four probabilities for a healthy person to remain healthy *after* bumping into an infected person. The key of the model is that such a “remain-virus-free” probability is dependent on who wears a mask.

Table 1: Transmission: probabilities of a healthy person staying healthy after “bumping” into an infected person

	Healthy	
	Mask	None
Infected		
No Mask		

The notations p_{ii} , p_{ik} , p_{ki} , and p_{kk} are all probabilities. I assume that the healthy person is the p_{ii} most likely virus-free after bumping into an infected person when p_{ii} both wear masks. Therefore, p_{ii} should be the largest probability. I also assume the healthy person is the least likely virus-free after bumping into an infected person when both do not wear masks. Therefore, p_{kk} should be the smallest probability.

Then we have to decide whether or Following a hamsters study conducted by a group of University of Hong Kong medical professionals, I assume the healthy person is more likely to be virus-free after bumping into an infected person when the infected person wears a mask rather than herself wearing one. Therefore, $p_{ii} > p_{kk}$.² This allows me to introduce free-riding incentives.

The equilibrium of the model. The equilibrium concept is Nash equilibrium. In Nash equilibrium, every player expects correctly the mask-wearing decisions of everyone else. And given others' decisions, everyone chooses her mask-wearing decision optimally, i.e., her decision whether to wear a mask or not gives her the higher payoff than the decision she does not pick.

To say it in plain English, suppose Eva expects that everyone else is going to wear a mask. She knows the four probabilities p_{ii} , p_{ik} , p_{ki} , and p_{kk} . She would be able to perceive her private benefit, denoted MB , of wearing a mask. Suppose the cost of doing so is c . Then, as long as $MB > c$ i.e., her private benefit of wearing a mask outweighs the cost, she would also wear one like everyone else.

²Hamsters have helped prove this point. [Chan et al. \(2020\)](#) place infected and healthy hamsters 66.7% 33.3% in separate cages. Air was blown from the former to the latter. The infection rate after a week depended on how surgical masks were placed: if not placed at all, if placed on the cage of the healthy hamsters, and 16.7% if placed on the cage of the infected hamsters

What if she expects everyone else is *not* going to wear a mask? Then obviously, Eva's perceived private benefit would be different from that if she expects everyone else is going to wear a mask. What if we also change her belief of the initial infection rate? Eva might have expected that around 0.5% of the population is M infected. But when she turns on the radio, the news doubles her expectation to 1%. Again, such a change in the initial infection rate will affect her perceived private benefit.

What if Eva has to inevitably “bump” into people in the game? Would her private benefit of wearing a mask change when this number increases? Certainly. M

Ultimately, the hunting of the equilibrium allows us to nail down the specific conditions under which it is in the self-interest of all the individuals to wear a mask. Once a mathematical model like mine is built, we can simulate it using computers to generate different scenarios for policy studies.

Sum up. To sum up, it is very simple to understand the individual's decision: as long as one's perceived private benefit of wearing a mask outweighs the cost, she wears a mask. What is not that straightforward is to figure out exactly what one's perceived private benefit depend on? My model suggests the following factors: [a] the initial infection rate of the population, [b] the number of people one has to randomly and inevitably bump into, [c] the expectation of everyone else's action, and [d] the four probabilities: α , β , γ , δ , and ϵ , that describes the scientific filtration efficiency of a mask.

What do we learn from the mathematical model?

7. **The outcome best for the society isn't always adopted.** While sometimes it is the best for the society for everyone to wear a mask, the model points out that we should not expect everyone would have an incentive to do so privately under all those situations. In other words, don't expect individuals would voluntarily come up with the collective actions that would be the best for the society. There is thus a potential for public policies, such as a mandatory mask rule, to play a role.

Whenever a mandatory rule is introduced, don't expect people would automatically comply. If it is not individually rational for individuals to wear masks, a mandatory rule would not magically make them all of a sudden wear masks. Unless a large amount of taxpayers' money is spent, or they will continue to not wear masks. The model points out that there are only certain conditions under which the individuals do not wear a mask in equilibrium, but they will be tilted by a mandatory mask rule to another equilibrium in which it is individually rational for everyone to wear a mask. Such a scenario sometimes happens. It is when such a scenario happens that a mandatory mask rule would play a role. Otherwise, a mandatory rule will be ineffective.

8. **Don't be too hung up with the mask quality.** It may be strange for some to find the U.S. Centers for Disease Control and Prevention in April recommending everyone to wear something, like a homemade mask or a bandana, to cover nose and mouth in public area. One would wonder if these materials even block droplets and viruses at all. Why not suggest a medical grade mask instead? The model and its simulation suggest to us that the scientific filtration efficiencies of a mask, although is still one factor, but it is definitely not *the* decisive factor. It is great to have higher quality masks, but lower quality masks with poor filtration efficiency do not mean they are useless in helping to "flatten the curve." If everyone wears low-quality masks, the curve is also considerably flattened, which is good news!

9. **Reduction of cost is the key.** Making sure the cost of wearing a mask is low enough is an overwhelmingly important key. Do not be too hung up with the quality of the mask. Just make sure people feels it really costs them little to wear a mask. What costs are we talking about? Many. One is the cost of queuing up for masks. Another is the actual monetary cost for one to buy masks. Keep them low! Yet, another one is the psychological cost of wearing one. Regulatory hurdles are another costs.³ Social stigma can be another cost: people in some areas perceive wearing masks as a sign of weakness.⁴ If anything, focusing on reducing the costs of wearing masks

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of masks. Source: Matzko, Paul. (2020 Apr 1) “To help solve the surgical mask shortage, get the FDA out of the way.” *New York Daily News* Retrieved from <https://www.nydailynews.com/opinion/ny-oped-surgical-masks-fda-20200401-vlwe72h76bb53hibyf5ddu6mou-story.html>

⁴An interesting episode happened in Czech Republic: Petr Ludwig, a key opinion leader, is the most important issue policy-makers should creatively achieve, which means it shouldn’t cost taxpayers a fortune to achieve.

12. Policy-making concerns both scientific and economic studies. Scientists can tell you suppose for whatever reasons if the society moves from no- one-wearing-masks to everyone-wearing-masks, then the infection R_0 rate will be pushed down by a certain amount. But it is economics that tells us when and why people would *choose* to take a behavioral change from no- one-wearing-masks to everyone-wearing-masks. Therefore, policy-making is advised to include both hardcore science and economic studies to complement each other.

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- Ng, Travis. 2020. “To Mask or Not to Mask.” Working paper, available at <http://teacher.econ.cuhk.edu.hk/~travisng/>.made a video on March 14, 2020, to discuss the rationale of wearing masks; this video went viral. The influential video may have been instrumental in reducing the social stigma cost of mask wearing in Czech Republic.

**Food Safety Management Practices and Compliance of
Selected Cacao Enterprises in Davao City**

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Abstract

In the Philippines, eighty percent (80%) of national cacao output is produced in Davao Region and is thus known as the “Cacao and Chocolate Capital of the Philippines”. Due to the high quality of processed Philippine cacao, it is poised to be one of the country’s top export commodities. Food safety standards must, however, be met by cacao processors for export competitiveness. The study assessed the food safety management practices and compliance of selected cacao producers and manufacturers in Davao City, Philippines. A multi-case qualitative research design was employed through interviews, survey and ocular inspection in the selected enterprises. The

findings revealed that compliance to food safety standards was highly driven by the market/buyer side of the chain. Most of the cacao enterprises perceived their operations as heavily compliant to food safety standards. However, the unavailability of equipment and lack of consistency of food safety policies were some of the identified issues among the processors. In addition, farmers' practices relied heavily on extensive experience than on properly documented procedures in the production chain. Recommendations of the study include acquisition of equipment crucial in ensuring food safety (e.g. mechanical dryers), remedial training for employees and managers on food safety, formulation of formal food safety written policies, and formalizing a traceability system for enterprises are recommended.

Background of the Study

Several opportunities are opening for the Philippine cacao and chocolate industry as global demands have been increasing. Philippine cacao beans and locally-produced chocolate products are gaining international recognition due to their excellent quality (Bureau of Plant Industry, 2016; Carillo, 2017). With the growing demand for cacao, the government has distributed (as of 2016) around 38,000,000 seedlings through the Department of Agriculture-High Value Crops Development Program (DA-HVCDP), Department of Environment and Natural Resources–National Greening Program (DENR-NGP), and the Philippine Coconut Authority-Kaanib Program (PCA-Kaanib Program) (Bureau of Plant Industry, 2016). However, production of cacao in the Philippines has only grown by 55.04% from 2008-2018. The Cacao Industry Development Association of Mindanao (CIDAMI) executive director, Valente Turtur, has stated that the annual production target for cacao may be too ambitious. Turtur recommends that focus should instead be placed on improving the quality of the cacao in order to improve its access to the global market for premium chocolate (Colina IV A. L., 2019).

Furthermore, food products are often subjected to several tests and certification requirements before they are allowed to enter certain countries, such as Japan (USDA, 2018). In the Philippines, one has to have a License to Operate (LTO) from the Food and Drug Administration (FDA) to be able to export abroad. Under the Food Safety

of 2013, the FDA requires that before products can be imported, exported, distributed, marketed, advertised or manufactured in and out of the Philippines, a foreign investor or company must first secure a License to Operate (LTO) from the FDA as: 1) Importer, Distributor or Wholesaler if their products are going to be imported from different countries; or as 2) Manufacturer if their products are going to be manufactured locally (Kittelson Carpo Consulting, 2020). Further, under the act, traceability “will be established for foods at relevant stages of production, postharvest handling, processing or distribution, when needed to ensure compliance with food safety requirements” (Official Gazette, 2015). This traceability requirement of the Act will necessitate that all coffee farms should be Good Agricultural Practices (GAP)-certified. Further, manufacturing enterprises should be Good Manufacturing Practices (GMP)- and Hazard Analysis and Critical Control Points (HACCP)-certified.

Thus, with the growing export opportunities for Philippine cacao and chocolate products, it is important that local producers are able to meet international standards for food safety. Assessing the food safety culture of an organization is a good means to raise awareness, benchmark, and promote commitment within the organization on food safety. It can also be a means for identifying weaknesses, evaluating risks, avoiding errors and legal liabilities from food poisoning cases, and making informed decisions on training and remedial actions (Griffith, Livesey, & Clayton, 2010). The study was conducted in Davao as this region produces majority (80%) of the cacao in the Philippines. The study focused largely on assessing the compliance of the three selected cacao enterprises to food safety standards during the production and processing of cacao. This study included chocolate producers that have factories located in, and source their raw materials (i.e. dried fermented cacao beans) from Davao City. The names of the processors are withheld as requested by the owners and hence hereby labelled as Enterprise 1, 2 and 3.

Food Quality and Food Safety

Food safety is concerned with all hazards in food production and assurance that the food consumed will not harm the consumer. Food quality, on the other hand, may vary

from person to person depending on their standards. A food item can be of good quality but unsafe for consumption, however, both are related in terms of having social, economic, and environmental effects. Both food quality and safety contribute to consumer confidence (Aung & Chang, 2014). Furthermore, food safety has become a major concern for most organizations due to credibility crisis and immense public opinion about the food sector. Food enterprises are in turn forced to improve the quality and food safety standards of their products. This gives emphasis on the need for food safety management systems in food supply chains in order to create a framework for an internationally harmonized market (Panghal, Chhikara, Sindhu, & Jaglan, 2018).

Food Safety Management System (FSMS)

Food safety management systems (FSMS) are prerequisites to ensuring long term quality assurance/management and later a long term managerial strategy within an organization. A FSMS is the consistent and persistent development of food safety requirements. It is a means of controlling hazards and risks in a food business (Aung & Chang, 2014; Erceg, 2015).

Several food safety management systems/quality metasystems have been developed to reflect and support several private food safety and quality standards such as Hazard Analysis and Critical Control Point Analysis (HACCP), Good Manufacturing Practices (GMP), and Good Agricultural Practices (GAP). These systems may be found within private standards (i.e. SQF 2000) and/or voluntary public standards at the national/international level (i.e. ISO 9000).

Food Safety Along the Value Chain

New food safety risks come with the increasing globalization and elongation of agri-food supply chains as food products go through more stages of processing and actors managing these processes. In response, public and private standards have tightened and evolved over the years. Gereffi & Lee (2009) created a framework (Figure 1) that relates food safety to the level of concentration of either side of the value chain.

According to their framework, value chains that are concentrated on either side – supplier and buyer side – follow more comprehensive food safety standards. Value chain actors in highly concentrated supply and demand sides have notable market & brand power, leverage, and resources to control the value chain, thus they are able to impose more comprehensive food safety standards. On the other hand, value chains with fragmented value chains follow less comprehensive food safety standards since value chain actors in the supply and demand sides do not have the power to dictate which food safety standards to abide by.

		Food Demand (retail/buyer)	
		Concentrated	Fragmented
Food Supply (processor/supplier)	Concentrated	A Bilateral Oligopolies → Private/ Most comprehensive standards	C Producer-Driven Chains → Public + private/ safety & quality-focused process standards
	Fragmented	B Buyer-Driven Chains → Public + private/ Safety & quality-focused product standards	D Traditional Markets → Limited public standards / Least comprehensive standards

Figure 1. Value Chain Standards and Governance (Source: Gereffi and Lee, 2009)

Cacao and Chocolate Production in Davao Region, Philippines

The basic process of producing chocolate occurs in two stages. The first stage includes growing, harvesting, fermenting, drying, and shipping the cacao beans, while the second stage involves the processing of the cocoa beans into dark chocolate: inspection, cleaning, roasting, shelling, winnowing, grinding, and conching (Ferrigno, Murino, Romano, & Akkerman, 2013).

Davao Region produces 80% of the Philippines' cacao with approximately 29,000 hectares of land planted with cacao trees (as of 2017), thus dubbed as the cacao and chocolate capital of the Philippines. In 2018, the total volume of production of cacao in the Philippines was at 7,983.20 MT with 6,461.77 MT of production coming from the Davao Region (Davao City Cacao Industry Development Council , 2018). Nine of the 11 administrative districts in the Davao Region are involved in the production of cacao in Davao, namely: (1) Calinan, (2) Baguio, (3) Marilog, (4) Toril, (5) Tugbok, (6) Paquibato, (7) Buhangin, (8) Bunawan, and (9) Talomo.

Research Problem and Methodology

Assessing the food safety compliance and food safety management of cacao producers and processors along the cacao value chain is of great importance. This study assessed the food safety management practices and compliance of selected Cacao producers and manufacturers in Davao City as guided by the framework below using a multi-case qualitative research design.

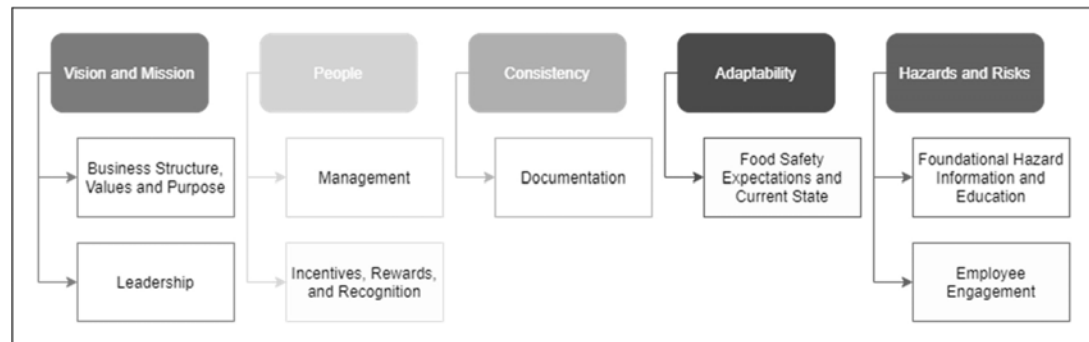


Figure 2. Framework adapted from GFSI Food Safety, & Culture Working Group (2018)

Comprehensive analysis of the food safety management, compliance, and culture of the selected cacao enterprises was conducted by combining interviews, questionnaire facilitation, observations, and document reviews.

Food safety standards (Philippine National Standard for *Tablea* and Codex Alimentarius on Low-Moisture Foods) served as basis for assessing the food safety management and compliance along the chain of selected enterprises. Critical control

points identified for cacao production and chocolate processing (Yunus, 2016; Afoawaka, Mendah-Brown, Crentsil, Frimpong, Asante, 2013) were used as basis in assessing risk and in proposing a traceability system.

Research Findings

Three cacao-chocolate enterprises served as the subjects of this case research investigation: (1) a fully integrated, OFW-owned corporation which follows a contract-farming scheme for Cacao production; (2) a forward-integrated, family-owned business which was the first to venture into dark chocolate manufacturing and practiced *suki*¹⁶³ (loyalty) system in supply chain decisions; and (3) agrarian reform beneficiary cooperative that covers over 100 hectares of cacao plantation which recently ventured into cacao chocolate manufacturing..

Food Safety Culture of the Selected Cacao Enterprises

The dimensions of food safety culture were vision and mission, people, consistency, adaptability and hazards and risks. The three enterprises perceived assessed themselves with almost similar ratings (toward the higher side of the scale) in terms of their organization's food safety culture. This is because food safety standards adopted by each organization varied with some being more stringent and others more lenient. Thus, there is a need for enterprises to benchmark their food safety policies and culture with organizations that have exceptional compliance with food safety practices and positive food safety culture.

Table 1. Food Safety Culture Self-Assessment of Enterprises

Dimension	Enterprise		
	1	2	3
Fully communicated vision and mission	5.0	5.0	5.0
Highly compliant people	4.8	5.0	5.0
Well documented consistency	4.6	4.6	4.0
Adaptability to changes	4.3	4.6	5.0
Well disseminated hazards and risks info	5.0	5.0	5.0

Legend: 5-Strongly Agree; 4-Agree; 3-Neutral, 2-Disagree, 1-Strongly Disagree

Ocular observations conducted further validated the different levels of food safety culture maturity being manifested by each enterprise. The first enterprise was found to be in the ‘Stage 4 – Predict’ of food safety culture maturity. Leaders of the enterprise made great effort to promulgate a positive food safety culture within the organization. They actively looked for the latest technologies and systems regarding food safety.

The second enterprise was in the middle stages of food safety culture maturity, that is, between Stage 3 – ‘React’ and Stage 4 – ‘Know of’. Leaders of the enterprise were aware of the food safety management systems and tried to implement these in their organization. Employees were also aware of the food safety practices necessary in their line of work and their responsibility in producing safe food. However, there was a lack of consistency within the organization with regard to conveying knowledge on food safety from management to employees as the organization does not have written policies on monitoring and evaluation of company adherence to food safety standards. It also had no clear policy on training new employees on food safety protocols.

The third enterprise was in Stage 2 – ‘React’ of food safety culture maturity. Employees were reliant on instruction from their supervisors/managers regarding food safety practices. Stricter implementation of food safety policies is still needed to improve the food safety culture in the organization. Management must develop means of teaching its employees the value of food safety and the corresponding protocols. This can be done by requiring existing and new employees to undergo training on

¹⁶³ Filipino word which means a frequent or loyal customer or a long standing customer

food safety standards and protocols to allow for the greater internalization, it may also be necessary for the cooperative to include food safety among its business objectives.

Value Addition along the Cacao Value Chain

The cacao value chain consists of five activities namely: a) input provision; b) cacao production; c) trading; d) processing; and e) distribution. Input provision includes procurement of farming materials such as fertilizers, pesticides, and seedlings. Cacao production includes all activities from soil preparation to drying of harvested cacao beans. Trading refers to transactions between cacao producers and processors. Furthermore, processing includes activities from reception of dried fermented cacao beans to packaging of chocolate products. The final activity in the value chain, distribution, refers to the mode in which final chocolate products reach the end consumers. Value addition was highest in processing based on the profit margins of the first two enterprises. This can be attributed to low production cost and high selling prices. Value addition has also served as motivation for cacao producers to remain in cacao production for the third enterprise.

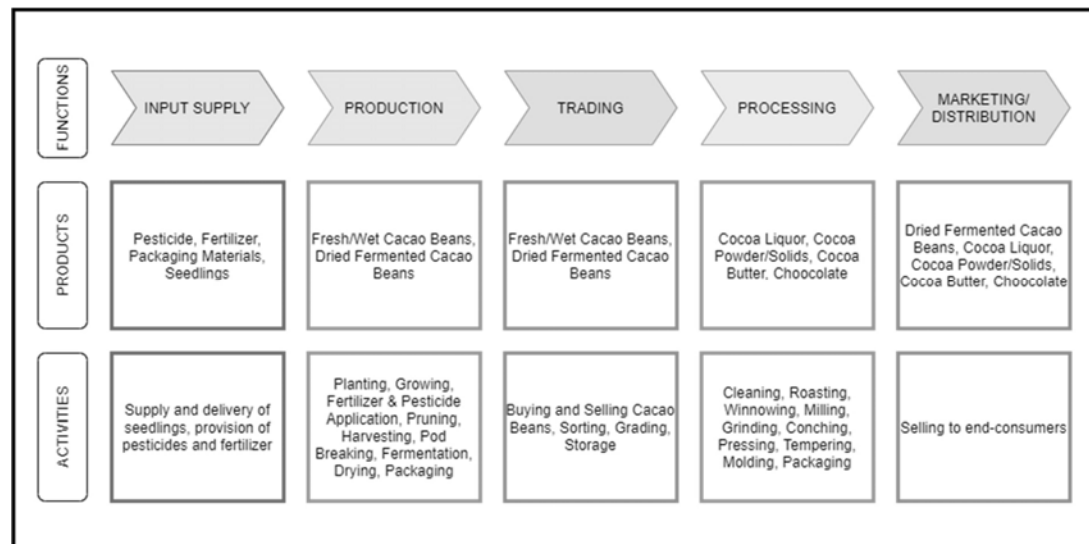


Figure 1. Value Addition Flowchart of Cacao

Food Safety Practices Along the Cacao Value Chain

Food safety compliance is related to the concentration of actors on either end of the supply chain according to a framework by Gereffi & Lee (2009). For the three enterprises studied, compliance to food safety standards was highly driven by the market/buyer side of the chain. The first enterprise ensured food safety compliance by monitoring the entire chain for chocolate production, from input provision to distribution. The third enterprise also managed the entire chain in order to meet the demands of their buyers (e.g. buyer that manufactures chocolate and exports to China). The second enterprise did not directly manage cacao production in their chain. However, since they were in a *suki* (loyal) relationship with their suppliers [the cacao farmers] by which the cacao farmers followed even stricter food safety standards in order to meet the requirements of the chocolate enterprise.

Food Safety Compliance in relation to the Critical Control Points

In terms of compliance to food safety standards as aligned with the critical control points, lack of necessary equipment and consistency in compliance to food safety policies and protocols were some of the issues discovered. Farmers' practices relied heavily on extensive experience than on properly documented procedures during cacao production. Lack of food safety control equipment as moisture meters was pointed. As testing the moisture content of dried fermented cacao beans is crucial in reducing the risk of mold growth in the cacao beans during storage.

On the other hand, Enterprise 1 employed more food safety precautions, such as wearing of hazmat suits inside the processing areas, as compared to the other enterprises. Posters reminding employees of food safety policies were also present at the factory. Enterprise 2 was able to follow minimum requirements set by the Food and Development Authority (FDA) but there were no written food safety policies available. Employees did not have a basis for verifying and monitoring food safety practices within the organization. Processing areas of Enterprise 3 were open to visitors that allowed opportunities for cross-contamination. The roasting area was located near a restroom that can be easily accessed by visitors. Employees sorting

dried fermented cacao beans can be seen following the protocol of wearing gloves and hairnets, however, compliance with the protocol was observed to be inconsistent.

Conclusion and Recommendations

The success of food safety management and compliance strongly adheres to the stage of maturity of the organization food safety culture. Aligned vision and mission must be cascaded throughout the organization in terms of formal food safety policies and protocols. Proper training of employees in the area of food safety is necessary for strong compliance. Remedial training for employees could be given to ensure proper understanding, appreciation, and implementation of food safety policies, especially regarding maintenance of surroundings of food processing areas.

Positive food safety culture can be sustained by installing posters and reminders on food safety policies and guidelines. Consistent supervision ensures implementation and adherence to food safety policies and protocols, especially on proper outerwear and personnel hygiene. Managers must also take additional/rigorous training on international food safety standards and in conducting cost-benefit analysis of adapting such food safety standards in exchange for gaining access to export markets. With appropriate knowledge on food safety, managers will be able to develop or acquire comprehensive and advance food safety management system (FSMS).

The enterprises may opt for accreditation from established FSMSs, such as the ISO22000, to ensure proper monitoring of their FSMS. ISO 22000 require the organization to have a fully documented and implemented FSMS. Formulation of written food safety policies (formal FSMS) will help ensure consistent monitoring and evaluation of food safety practices.

LGUs may support these small enterprises by investing in mechanical dryers for cacao farmers/processors. Mechanical dryers shorten the cacao production process. However, wood-fired oven dryers are not recommended since the smoke emitted by such affects the aroma and taste of the cacao beans. Thus, the mode of heat transfer must be considered when investing in a dryer.

Finally, to further improve the competence and reliability of the selected enterprises in the cacao industry, especially in the global market, an organized traceability system would guide them in their operations. Traceability allows an individual to follow the movement of a food product along the supply chain through documentation and tracking procedures (Aung & Chang, 2014). Implementation may be done through (1) external consultant, (2) empowering and training qualified employee, (3) hiring a person qualified to provide such expertise. In doing so, infusion of resources is inevitable thus, enterprises in the same industry who will work on this together will benefit from economies of scale.

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Circular Economy: Don't let Waste go to Waste¹⁶⁴

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Abstract

The waste we throw away has a tendency of coming back in our air, water and food, directly affecting our livelihoods, economy and health. The presentation will discuss the waste problem in APEC and present a more sustainable production model — the circular economy — which minimises waste and optimises resource use by incorporating reuse, repurposing and recycling of materials into manufacturing and logistics. It will point to new business and trade opportunities provided by the circular economy in general and during the COVID-19 pandemic in particular. Finally, it will present some policy recommendations and discuss the role of regional cooperation in facilitating the transition to a circular economy.

The presentation will be based on the following PSU publications:

1. Policy Brief

Circular Economy: Don't Let Waste Go to

Waste <https://www.apec.org/Publications/2020/01/Circular-Economy---Dont-Let-Waste-Go-to-Waste>

2. ARTA Theme Chapter

APEC Regional Trends Analysis - What Goes Around Comes Around:

Pivoting to a Circular Economy; Uncertainty Tests APEC's Resilience amid

¹⁶⁴ This paper is based on two APEC PSU publications: "Circular Economy: Don't Let Waste Go to Waste" (January 2020) <https://www.apec.org/Publications/2020/01/Circular-Economy---Dont-Let-Waste-Go-to-Waste> and "APEC Regional Trends Analysis - What Goes Around Comes Around: Pivoting to a Circular Economy; Uncertainty Tests APEC's Resilience amid COVID-19" (May 2020) <https://www.apec.org/Publications/2020/05/APEC-Regional-Trends-Analysis---What-Goes-Around-Comes-Around>.

COVID-19 <https://www.apec.org/Publications/2020/05/APEC-Regional-Trends-Analysis---What-Goes-Around-Comes-Around>

Waste¹⁶⁵ generation is a major global problem that is worsening by the day. Growing population, rising affluence and rapid urbanisation unsupported by proper waste management systems drive this global waste crisis. The World Bank¹⁶⁶ estimates that annual global solid waste generation will rise by 69 percent from 2.0 billion tonnes in 2016 to 3.4 billion tonnes in 2050. High-income economies contribute one-third of global waste despite accounting for only 16 percent of the world population. On the other hand, lower-income economies generate increasingly more waste per capita, an issue that is particularly exacerbated by inefficient waste management systems and lack of awareness.^{167,168} Poorly managed waste contaminates oceans, breeds diseases, releases harmful greenhouse gases like methane, and litters landscapes causing harm to health and the economy.

Managing plastic waste is particularly challenging because not only are plastics non-biodegradable, but they are also produced in colossal amounts: 242 million tonnes of plastic waste were generated globally in 2016 alone, accounting for 12 percent of all municipal solid waste.¹⁶⁹ Large amounts of plastic waste end up in the oceans contributing to gyres of garbage like the infamous ‘Great Pacific Garbage Patch,’ a floating mound of plastic waste in the ocean estimated at 80,000 tonnes.¹⁷⁰ These marine plastics are a cause for concern as they release toxic chemicals, entangle marine life, are consumed by marine animals, and can eventually enter the human food chain. Marine plastics also affect the economy by imposing costs on the tourism, aquaculture and fisheries industries. A study by

¹⁶⁵ For the purpose of this paper waste is defined as any product or material that is disposed in the process of consumption or production and may include solid, liquid, gaseous, recyclable and organic wastes.

¹⁶⁶ Silpa Kaza, Lisa C. Yao, Perinaz Bhada-Tata, and Frank Van Woerden, “What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050”, Urban Development (September 2018); Washington, DC: World Bank.

¹⁶⁷ Kaza et al., “What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050.”

¹⁶⁸ Jessica McAllister, “Factors Influencing Solid-Waste Management in the Developing World”, Utah State University (May 2015).

¹⁶⁹ Kaza et al., “What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050.”

¹⁷⁰ The Ocean Cleanup, “The Great Pacific Garbage Patch”, <https://theoceancleanup.com/great-pacific-garbage-patch/>.

Deloitte and the Ocean Cleanup estimated a yearly economic cost of around USD 6 to 19 billion due to marine plastics.¹⁷¹

The APEC region has not been spared from the impacts of the waste crisis, and Leaders have repeatedly voiced their concerns over the issue. They identified the need for better waste management and called for more work in this area in their 2015¹⁷² and 2016¹⁷³ Declarations. Similarly, concerns for better management of resources were echoed in the 2017¹⁷⁴ Leader's Declaration. More recently, APEC Chile 2019's priority on 'Sustainable Growth' looked into marine debris prevention and reduction with a specific focus on plastics.¹⁷⁵ Senior Officials endorsed the APEC Roadmap on Marine Debris at the Third Senior Officials' Meeting held in Puerto Varas in August 2019.¹⁷⁶ This work within APEC is an indication of the importance of a regional approach in addressing the waste crisis.

A new guiding principle to tackle the waste crisis has emerged in the form of a circular economy that, by design, eliminates waste, keeps materials in use and regenerates natural systems.¹⁷⁷ The circular economy presents itself as an alternative to the more familiar linear economy, which entails disposal of materials after a single use. This paper considers the transformation to a circular economy as an important step towards more sustainable growth in the region. It is organised as follows: the next section assesses the waste generated in APEC and its economic inefficiencies. The circular economy is presented as a viable solution to this problem by encouraging more sustainable and efficient use of resources with almost zero waste generation. The following section explores the various business models and trade opportunities that

¹⁷¹ The Ocean Cleanup, "The Great Pacific Garbage Patch."

¹⁷² APEC, "2015 Leaders' Declaration", https://www.apec.org/Meeting-Papers/Leaders-Declarations/2015/2015_aelm.

¹⁷³ APEC, "2016 Leaders' Declaration", https://www.apec.org/Meeting-Papers/Leaders-Declarations/2016/2016_aelm.

¹⁷⁴ APEC, "2017 Leaders' Declaration", https://www.apec.org/Meeting-Papers/Leaders-Declarations/2017/2017_aelm.

¹⁷⁵ APEC Chile 2019, "State Department, Ocean Conservancy and APEC Chile Launching "Clean City and Ocean Initiative" to Tackle Ocean Plastic Pollution", 1 July 2019, <https://www.apecchile2019.cl/apec/media/news/state-department-ocean-conservancy-and-apec-chile-launching-clean-city>.

¹⁷⁶ APEC, "APEC Roadmap on Marine Debris", https://www.apec.org/Meeting-Papers/Annual-Ministerial-Meetings/2019/2019_AMM/Annex-B.

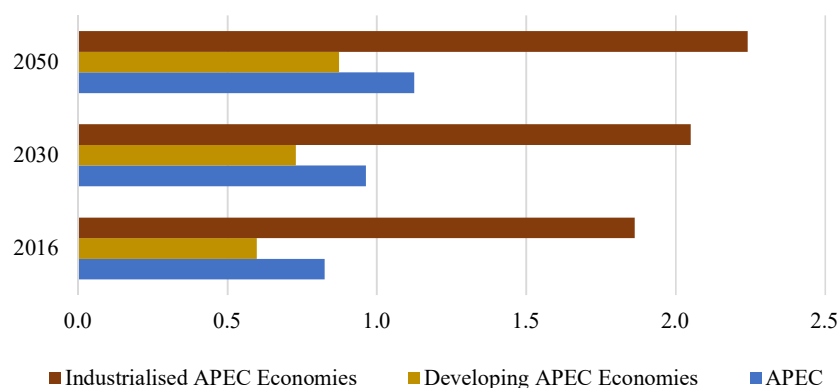
¹⁷⁷ Ellen MacArthur Foundation, "What is the Circular Economy", <https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy>.

exist within a circular economy setting before presenting some discussions on policies that can be useful in tackling the barriers and ensuring the smooth adoption of circular economy principles. The paper concludes with a discussion of APEC's current work and opportunities in this area.

The Economic Inefficiency of Waste

APEC economies are responsible for a large share of global solid waste: 43 percent of global solid waste originated from APEC economies in 2016. Projections by the World Bank in their 'What a Waste 2.0' database¹⁷⁸ show increasing trends over the next 30 years up until 2050. On average, an APEC economy resident generated 0.8 kilogramme (kg) of solid waste per day in 2016, and this number is expected to increase to 1.1 kg per day by 2050, which is a 36 percent increase over the period (Figure 1.1). There is a particular cause for concern in developing APEC economies, where daily solid waste generation per capita is expected to increase by 46 percent between 2016 and 2050. While the growth is not expected to be as high for industrialised APEC economies, their current waste generation is already at a high level of 1.9 kg per person per day. Albeit lower than their share in 2016, APEC economies are still expected to be responsible for a significant 37 percent of global solid waste in 2050.

Figure 1.1. Daily Solid Waste Generation per Capita in APEC (in kg)



Source: World Bank, 'What a Waste 2.0' database.¹⁷⁹

¹⁷⁸ The data covers only solid waste.

¹⁷⁹ The data from World Bank covers all APEC economies with the exception of Chinese Taipei.

About 59 percent¹⁸⁰ of waste in APEC economies was mismanaged¹⁸¹ (i.e., dumped into unspecified landfills, open dumps, waterways, other or unaccounted locations) according to data from the World Bank.¹⁸² A large portion of the mismanaged waste, about 66 percent, arose from developing APEC economies. A 2015 study found that four developing APEC economies¹⁸³ accounted for 60 percent of the world's mismanaged plastic waste in 2010.¹⁸⁴ Often, mismanaged waste, including plastics, are dumped into inland waterways which then empty into the oceans.¹⁸⁵ A recent study found that about 90 percent of the oceans' plastic comes from 10 rivers, of which six flow through APEC economies.¹⁸⁶

All these plastics in the oceans are expected to cost USD 1.3 billion per annum to the tourism, fishing, and shipping industries in the APEC region.¹⁸⁷ Though the health cost of mismanaged waste has not been calculated for APEC, recent work in this area found that about 400,000 to 1 million residents in developing economies die yearly due to the harmful effects of mismanaged plastic waste.¹⁸⁸

Proper waste management is a cost-effective strategy to address these issues. A study of five APEC economies¹⁸⁹ found that mismanaged household waste costs the economy approximately USD 375 per tonne¹⁹⁰, while implementing an integrated

¹⁸⁰ The year of data availability differ across the economies, ranging between 2008-2017.

¹⁸¹ Waste treatment and disposal data is provided in the following categories: Open dump, landfill unspecified, controlled landfill, sanitary landfill, recycling, composting, anaerobic digestion, incineration, waterways, other and unaccounted for. We consider waste that has been dumped into unspecified landfills, open dumps, waterways, other and unaccounted locations as mismanaged waste.

¹⁸² Kaza et al., "What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050."

¹⁸³ The economies are China; Indonesia; the Philippines; and Viet Nam.

¹⁸⁴ Jenna R. Jambeck, Roland Geyer, Chris Wilcox, Theodore R. Siegler, Miriam Perryman, Anthony Andrady, Ramani Narayan and Kara Lavender Law, "Plastic waste inputs from land into the ocean", American Association for the Advancement of Science (Feb 2015), 768-771.

¹⁸⁵ National Geographic, "What Happens to the Plastic We Throw Out",

<https://www.nationalgeographic.com/magazine/2018/06/the-journey-of-plastic-around-the-globe/>.

¹⁸⁶ Christian Schmidt, Tobias Krauth and Stephan Wagner, "Export of Plastic Debris by Rivers into the Sea", Environmental Science and Technology (October 2017), 12246-12253.

¹⁸⁷ Alistair McIlgorm, Harry F. Campbell and Michael J. Rule, "The economic cost and control of marine debris damage in the Asia-Pacific region", Ocean and Coastal Management (September 2011), Volume 54, Issue 9, 643-651.

¹⁸⁸ Tearfund, Fauna & Flora International, WasteAid, and The Institute of Development Studies, "No Time to Waste: Tackling the plastic pollution crisis before it's too late" Fauna & Flora International (2019), https://assets.fauna-flora.org/wp-content/uploads/2019/05/2019_No-time-to-waste-report.pdf.

¹⁸⁹ The economies studied are China; Indonesia; the Philippines; Thailand; and Viet Nam.

¹⁹⁰ Hauke Engel, Martin Stuchtey and Helga Vanthournout, "Managing waste in emerging markets", McKinsey & Company, 17 February 2016, <https://www.mckinsey.com/business-functions/sustainability/our-insights/managing-waste-in-emerging-markets#>.

waste management system for the same region costs only USD 50 to 100 per tonne¹⁹¹ and is therefore at least four times more economical.

Further, waste is not supportive of future economic growth since resource security and efficiency are necessary for economic resilience.¹⁹² The Sustainable Development Goal 12 on Sustainable Consumption and Production¹⁹³ also identified the importance of reducing waste and pollutants in ensuring that the needs of the future generations are met. Clearly, the waste issue is not just an environmental one, but it also has detrimental and lasting impacts on the economy and the well-being of people.

The concept of a circular economy has been gaining traction in recent years as a comprehensive response to the growing costs of the waste crisis. Less waste management is required in a circular economy model where waste is considered a raw material with value and hence there is almost no residual waste generated.

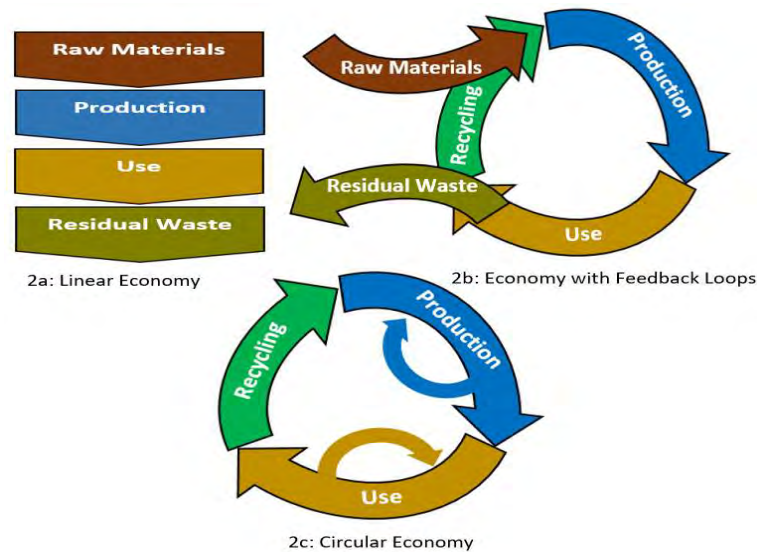
What is a Circular Economy?

Economies, firms and households often practice a linear model of production that follows a ‘take-make dispose’ pattern (Figure 2a). In the linear model, raw materials are extracted from nature, transformed into products, and consumed; unneeded by-products or residual matter are then disposed as waste. Calls for better use of resources and reduction of waste, especially non-biodegradable waste, have led to the development of resource feedback loops that aim to reduce waste. This production model with feedback loops provides an avenue for some products to be recycled or reused, but there is still a significant amount of residual waste generated (Figure 2b). The circular economy model, on the other hand, closes the loop so that almost no residual waste is released into the environment (Figure 2c).

¹⁹¹ Silpa Kaza, Lisa C. Yao, Perinaz Bhada-Tata, “Waste and Society”, In S. Kaza, L. Yao, P. Bhada-Tata, & F. V. Woerden, “What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050”, World Bank (October 2018), 115-139.

¹⁹² Felix Preston, “A Global Redesign? Shaping the Circular Economy”, Energy, Environment and Resource Governance (March 2012), Chatam House.

¹⁹³ United Nations Development Programme, “Goal 12: Responsible consumption and production”, <https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-12-responsible-consumption-and-production.html>.

Figure 1.2: Types of Material Use Life Cycles

Source: Adapted from Nicole Van Buren, Marjolein Demmers, Rob van der Heijden and Frank Witlox, “Towards a circular economy: the role of Dutch logistics industries and governments”, Sustainability (July 2016).

The circular economy model is defined as “*a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing and narrowing material and energy loops. This can be achieved through long -lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling*”¹⁹⁴. Van Buren et al. find that the circular economy plays not only an environmental but also an economic and social role. A circular economy creates economic value by ensuring the efficient consumption of raw materials and products; it creates social value by improving people’s well-being due to less competition for limited raw materials; and it creates environmental value by reducing the consumption of natural resources.

In its most extensive form, the circular economy comprises 10 stages, shown here as the 9R framework (Table 1.1). These different stages are listed in decreasing order of their circularity in the table below:

¹⁹⁴ Martin Geissdoerfer, Paulo Savaget, Nancy M.P. Bocken and Erik Jan Hultink, “The circular economy - a new sustainability paradigm?”, Journal of cleaner production (February 2017), 757-768.

Table 1.1. The 9R Framework of Circular Economy

	Strategy			Examples
Smarter manufacture and product use	R0	Refuse	Avoid the use of raw materials by abandoning the function of a product	Avoid packaging where possible
	R1	Rethink	Make the use of a product more intensive	Shared use of products like vehicles, washing machines
	R2	Reduce	Consume less raw materials or increase production efficiency	Buy fewer consumer products, build well-insulated houses to reduce energy consumption for heating
Extend lifespan of products and their parts	R3	Reuse	Use discarded products which are still in good condition and fulfil their original function	Buy second hand goods, return packaging to retailer for reuse
	R4	Repair	Repair a defective product so that it can be used for its original function	Repair defective part of an electronic product instead of buying a new product
	R5	Refurbish	Redesign and restore an old product	Refurbish an electronic product by replacing the old parts with new ones
	R6	Remanufacture	Reuse functional discarded parts to manufacture new product with the same function	Use functional parts of an old laptop to produce a new laptop
	R7	Repurpose	Reuse functional discarded parts to manufacture a new product with a different function	Use functional part of a laptop to manufacture a digital fan
Useful application of materials	R8	Recycle	Process materials to attain the same or a lower quality of the material	Recycle PET bottles to attain PET pellets
	R9	Recover	Incinerate leftover material and recover energy	Use heat from combustion to drive generators to produce electricity

Source: Adapted from Julian Kirchherr, Denise Reike and Marko Hekkert, "Conceptualizing the Circular Economy: An Analysis of 114 Definitions", *Resources, Conservation and Recycling* (December 2017), 221-232.

The 9R framework helps illustrate the difference between a circular economy model and the current linear economy model with feedback loops which practices recycling and energy recovery to some extent. The circular economy model entails many more stages which focus on rethinking the way production and consumption are conducted.

Rethinking business models in terms of the circular economy has presented opportunities for efficiency, innovation and sustainability. Firms applying a circular economy model can be categorised into five broad categories: sharing platforms, product as a service, circular supplies, product life extension, and resource recovery.

Business Models for a Circular Economy

Business models that assist the transition to a circular economy are practised on both the consumption and production sides. Models that optimise resource use on the consumers' end promote the concept of collaborative consumption, defined by Botsman and Rogers as 'traditional sharing, bartering, lending, trading, renting, gifting, and swapping, redefined through technology and peer communities'.¹⁹⁵ The concept of collaborative consumption is seen in firms that practice business models like sharing platforms and product as a service (PaaS).

On the production side, businesses have facilitated the transition to a circular economy by finding ways to make production more efficient and sustainable. According to the Organisation for Economic Co-operation and Development (OECD), three main strategies are useful in transforming production processes:¹⁹⁶

- Closing material loops – using waste as a resource through product reuse and recycling
- Extending material loops – creating more durable products to reduce demand for new goods

¹⁹⁵ Rachel Botsman and Roo Rogers, *What's Mine Is Yours: The Rise of Collaborative Consumption* (New York: HarperCollins, 2010), 15.

¹⁹⁶ Andrew McCarthy, Rob Dellink and Ruben Bibas, "The Macroeconomics of the Circular Economy Transition: A Critical Review of Modelling Approaches" (OECD Environment Working Papers, 18 April 2018, <https://doi.org/10.1787/af983f9a-en>).

- Narrowing material loops – improving the efficiency of resource utilisation to reduce generation of waste.

The concept of closing material loops can be seen in the practice of circular supplies, which involves developing products that are designed to be fed back into the production and consumption cycle. Extending material loops is reflected through product life extension, which involves creating more durable products with longer lifespans. Finally, narrowing material loops is implemented by businesses that find ways to minimise wastage in the production cycle by making use of manufacturing byproducts and waste.

Sharing platforms

Businesses engaged in sharing platforms promote the efficient use of existing resources by facilitating access to and shared use of underutilised products. Shared use allows individuals to access resources without the need to buy their own, hence reducing the demand to make more of such products while expanding their utilisation. Libraries are one of the most traditional examples of a sharing platform. Laundromats are another. Some industries have adopted rentals as their business model. For example, Bike Santiago expands public transportation options through bike sharing, while co-living and co-working space providers like Hmlet and Gorilla Space create arrangements for people to share limited living and working spaces, reducing demand for real estate.

Sharing platforms have also leveraged information and communications technology (ICT) to facilitate sharing of physical resources and services. Ride-hailing platforms like Didi, Uber and Grab match a passenger with drivers or other passengers, allowing people to share transportation options. Rentzi has taken sharing further by providing an online platform for people to advertise any item they want to rent out, whether it be cars, clothes, kitchen appliances or hardware equipment.

Product as a service

Another business model that optimises consumption is one that offers a product as a service (PaaS). PaaS focuses on maximising the usage derived from a product rather than the number of physical units of a product sold. For example, instead of selling ownership of DVDs, light bulbs and plane engines, businesses sell access to the entertainment media, number of light hours and length of distance travelled derived from these products. This incentivises firms to build products that are more durable and flexible for future maintenance and upgrades. Unlike sharing platforms, clients of PaaS subscribe to a service from the seller, which means that they would have access to the services on demand.

PaaS contributes to the circular economy on both the consumer's and producer's end. On the consumer's side, PaaS could reduce demand for more physical goods as businesses find novel ways of fulfilling the demand. Netflix and Spotify digitalised their video and music content, increasing the spread of entertainment media but also eliminating the need for physical CDs and DVDs. Moreover, they provide a way to make media content non-rival, allowing people to simultaneously access them without depriving other subscribers of access to the same content.

PaaS also improves production as it incentivises businesses to develop longer-lasting products. This can extend the usable life of products, hence tempering the demand for more of such goods. For example, light bulb manufacturer Philips provides lighting-as-a-service to clients such as airports. Under this model, Philips sells lighting services to its clients by installing and operating proprietary lamps at its clients' facilities, while maintaining ownership over the light bulbs. This is a win-win solution for Philips and its clients: clients will no longer have to do their lighting maintenance themselves, while Philips can collect data on product usage and focus on extending the life cycle of its products.

Circular supplies

Businesses have implemented the idea of circular supplies by designing products that are recyclable and reusable. Waste can be repurposed; for example, empty pasta sauce bottles could be used as pen holders, while old fabric could be stitched into bags and purses. Some large companies have expressed interest in supporting initiatives focused on reuse. Since plastic is one of the most common and problematic forms of waste, companies have focused efforts on reducing such waste.¹⁹⁷ Procter & Gamble and Unilever collaborated with TerraCycle to establish Loop, an online shopping platform that provides reusable packaging for products ranging from food to cosmetics. Customers make a one-time purchase of a reusable container for the product of their choice. This container is later returned to the manufacturers and subsequently treated, cleaned and refilled. The refilled containers can then be disseminated back to other customers.

A similar concept is practised in packaging-free stores. These stores typically sell products stored in huge containers with dispensers, and customers are expected to bring their own containers to procure the products. Packaging-free stores contribute to the circular economy as they mitigate the need for single-use packaging and empower consumers to purchase exactly how much they need, allowing them to reduce waste on their end.¹⁹⁸ Repurposing and recycling products have also proven valuable amid the shortages experienced due to COVID-19.

Product life extension

Product life extension is another strategy to support the transition to a circular economy. It entails efforts to prolong the useful life of an item to reduce the demand for a new product. Some industries have been doing this for a long time. For example,

¹⁹⁷ Laura Parker, “Beach Clean-up Study Shows Global Scope of Plastic Pollution,” *National Geographic*, 10 October 2018, <https://www.nationalgeographic.com/environment/2018/10/greenpeace-beach-cleanup-report-highlights-ocean-plastic-problem/>.

¹⁹⁸ Elisa F. Beitzten-Heineke, Nazmiye Balta-Ozkan and Hendrik Reefke, “The Prospects of Zero-Packaging Grocery Stores to Improve the Social and Environmental Impacts of the Food Supply Chain,” *Journal of Cleaner Production* 140 (1 January 2017): 1528–41, <https://doi.org/10.1016/j.jclepro.2016.09.227>.

an automobile is typically a long-term, high-cost investment, which, if maintained properly, lasts for several decades. Some companies offer lifetime warranties and repair commitments to make their products last longer. Patagonia offers repair services for their products to encourage clients to repair old items instead of replacing them with new ones.

Building upgradable products is another way to promote product life extension. The electronics industry generates large amounts of electronic waste (e-waste), which is exacerbated by the fast turnover of gadgets due to obsolescence. To address this, companies such as LG and Google are investing in research on modular phones. The hardware of these phones would be upgradable and repairable, negating the need to replace the entire device, thereby reducing e-waste.

Products with longer lifespans can in turn aid the strengthening of the resale market, or the secondhand economy. Online thrift store thredUp has projected that the secondhand apparel market would double from USD 24 billion to USD 51 billion, and that as much as one-third of the clothes in closets in the US will be composed of secondhand apparel by 2033.¹⁹⁹ Given the projected high uptake of secondhand clothes, greater focus on quality fabrics can be both profitable for businesses and sustainable for the environment. Technology can also support trade in secondhand goods: e-commerce sites like MercadoLibre and Carousell are providing new avenues for people and businesses to trade secondhand items.

Resource recovery

Resource recovery reduces waste by utilising manufacturing byproducts from other production processes. Some companies have attempted to maximise resource recovery by adopting zero-waste manufacturing as an ethos for their processes. For example, Dignity Coconuts has observed that many firms that utilise coconuts typically just use the water or oil of a coconut and leave up to 80 percent of the fruit to waste.²⁰⁰ This is extremely wasteful as the various parts of the coconut can be used for a myriad of

¹⁹⁹ thredUp, “2019 Fashion Resale Market and Trend Report,” 2019, <https://www.thredup.com/resale>.

²⁰⁰ Dignity Coconuts, “Dignity Coconuts,” 2016, <https://dignitycoconuts.com>.

things: old stems and leaves can be turned into fertiliser; the husks and fibres can be used for upholstery; and the wood of the coconut tree can be used for furniture and construction. To address this, Dignity Coconuts reached out to communities to train them on how to process the different parts of the coconut to make value-added products.

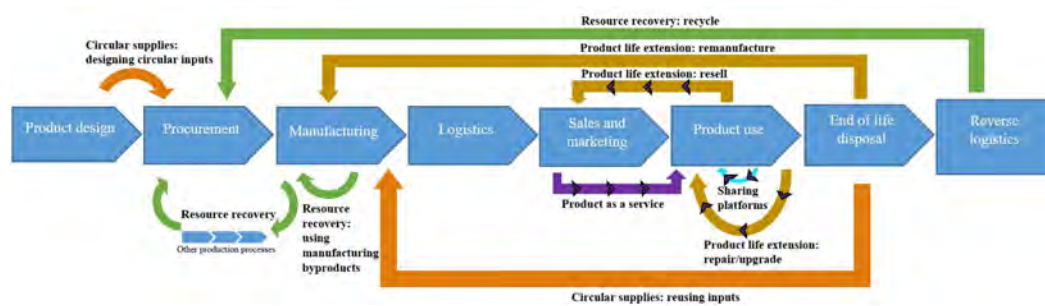
The concept of resource recovery does not have to be constrained to the same industry. For example, Nike captures waste in other sectors and incorporates it into their production processes: plastic waste from single-use packaging such as plastic bottles can be processed into polyester fabric, which can be used in textile manufacturing. In 2018, 75 percent of all shoes and apparels produced by Nike contained some form of recycled material.²⁰¹

Closing the loop

The five business models fit along different parts of the value chain, absorbing byproducts in some parts of the value chain and reinserting them back into the economy, thereby contributing to the circularity of the value chain (Figure 1.3). The circular economy has great potential to stimulate the economy by providing new trading and business opportunities.

These opportunities are not just limited to the local context. While some models in the circular economy like sharing platforms allow for more efficient use of resources in a locale, other business opportunities like resource recovery may be more efficient if economies could trade production byproducts with other economies that have the specialisations to process them. Similarly, international trade can help facilitate other business models like product life extension in the sourcing of parts necessary to repair or upgrade products, as well as in supporting wider trade of secondhand goods. As such, there is scope to introduce policies that enable the uptake of business models that promote the circular economy at a regional level.

²⁰¹ Nike, “Nike’s Latest Sustainable Innovations and Environmental Impact,” Nike News, 2018, <https://news.nike.com/news/sustainable-innovation-air-bag-manufacture>.

Figure 0.3. Integrating circular economy models

Source: Adapted from Mirjam Bani and Marieke Blom, “Rethinking the Road to the Circular Economy,” (January 2020), https://think.ing.com/uploads/reports/Rethinking_the_road_to_the_circular_economy_FINAL_RB1.pdf.

Policies for an international circular economy

The circular economy is dependent on international trade, with some economies and the OECD even going as far as to consider trade a fundamental aspect of the circular economy.²⁰² There are two reasons for this: interconnectedness and economies of scale. In today’s highly globalised and dependent world economy, global supply and value chains are deeply interlinked. A majority of products are made up of intermediate parts sourced from other economies.²⁰³ According to the World Investment Report by the United Nations Conference on Trade and Development (UNCTAD), approximately 60 percent of global trade in 2012 involved intermediate goods and services.²⁰⁴ As a result, the capacity of a business or industry to embrace circularity will depend on the ability of its partners to abide by the same principles of circularity.

The complex interdependence of international supply chains can present upfront costs to firms embracing circular principles. However, this can be overcome through

²⁰² Confederation of Danish Industry et al., “Position Paper: Nordic Approach to Circular Economy” (October 2019), <https://ek.fi/wp-content/uploads/Nordic-position-paper-circular-economy-10-2019-1.pdf>; Shardul Agrawala and Shunta Yamaguchi, “International Trade and the Transition to a Circular Economy” (OECD, October 2018), <https://www.oecd.org/environment/waste/policy-highlights-international-trade-and-the-transition-to-a-circular-economy.pdf>.

²⁰³ Deborah Kay Elms and Patrick Low, eds, *Global Value Chains in a Changing World* (Geneva: World Trade Organization, 2013).

²⁰⁴ United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2013: Global Value Chains: Investment and Trade for Development* (New York: UN, 2013).

efficiency and gains in goodwill. An increasing number of multinational businesses are pledging only to work with suppliers that abide by social and environmental standards.²⁰⁵ A study by EY finds supply chain sustainability to be a critical consideration for firms, with many businesses likely to transition to sustainable procurement within the next 10 years.²⁰⁶ The global ramifications of this transition will be significant as the increased calls for sustainability will translate into opportunities for pursuing sustainable development in other economies.²⁰⁷ As trade in sustainable goods and services grows, some economies have strengthened their standards to support these industries, requiring their trading partners to adopt similar standards as well. In light of the deep connections between trade networks and the shift in business standards and expectations toward sustainability, it is worthwhile for economies and businesses to consider how to incorporate circularity in their business models.

The second consideration is the need for scale. At various stages of the circular economy, there is a need for experts and technologies specialising in refurbishing, repurposing or recycling used goods, or recovering energy after all other options have been exhausted. At the economy level, the costs involved in building these capabilities may be significant due to the lack of scale and the specialisations needed.²⁰⁸ Trade provides business opportunities by enabling economies to use the specialisations and innovations available in other economies and by providing them access to a larger market to benefit from economies of scale. For example, economies that are manufacturing hubs are more capable of efficiently using recycled goods in production processes.²⁰⁹ Similarly, economies with more technologically savvy industries might be better able to repurpose a part of a used product in the

²⁰⁵ Verónica H. Villena and Dennis A. Gioia, “A More Sustainable Supply Chain,” *Harvard Business Review*, 1 March 2020, <https://hbr.org/2020/03/a-more-sustainable-supply-chain>.

²⁰⁶ EY, “The State of Sustainable Supply Chains: Building Responsible and Resilient Supply Chains” (EY, 2016), [https://www.ey.com/Publication/vwLUAssets/EY-building-responsible-and-resilient-supply-chains/\\$FILE/EY-building-responsible-and-resilient-supply-chains.pdf](https://www.ey.com/Publication/vwLUAssets/EY-building-responsible-and-resilient-supply-chains/$FILE/EY-building-responsible-and-resilient-supply-chains.pdf).

²⁰⁷ Marianne Kettunen, Susanna Gionfra and Misty Monteville, “EU Circular Economy and Trade: Improving Policy Coherence for Sustainable Development” (Brussels/London: Institute for European Environmental Policy, 2019), [https://ieep.eu/uploads/articles/attachments/f560794d-c411-4895-8ae9-910c65548f33/EU%20trade,%20CE%20and%20sustainable%20development%20\(IEEP%202019\)%20FINAL.pdf?v=63741577228](https://ieep.eu/uploads/articles/attachments/f560794d-c411-4895-8ae9-910c65548f33/EU%20trade,%20CE%20and%20sustainable%20development%20(IEEP%202019)%20FINAL.pdf?v=63741577228).

²⁰⁸ Bark et al., “Supporting the Circular Economy Transition: The Role of the Financial Sector in the Netherlands.”

²⁰⁹ Kettunen, Gionfra and Monteville, “EU Circular Economy and Trade.”

development of another. The circular economy does not only provide global opportunities for trade in goods but also services. Economies with a robust supply of talents and skills, such as in the ICT sector, can assist digitally enabled businesses such as sharing platforms by providing the necessary ICT skills.

Regional cooperation and policy coordination can help economies and firms to capitalise on the opportunities in a circular economy. The remainder of this section discusses some of the policy solutions that arise from the discussion above.

Develop standards and definitions. An often-discussed policy gap that hinders the implementation of circular economy principles is the lack of international standards and definitions on the processes and materials involved.²¹⁰ The lack of globally accepted definitions of waste and reusable materials impedes the adoption of circularity in a global context as it hinders cooperation. There is a further gap in identifying and harmonising the processes necessary to transform waste into a secondary raw material of a certain quality. Regulations on the processing and trading of waste cannot be more urgent, given the newly imposed bans on the trade of waste by several economies owing to the import of poor-quality waste.

Similarly, economies aiming to improve circularity will benefit from adopting global recyclability standards and eco-labelling schemes that harmonise waste standards and treatment practices.²¹¹ Such standards and labels verify the absence of hazardous materials and allow products to be recycled or reused anywhere. This will increase trust across economies and lead to more trade in intermediate and recycled products, hence supporting the development of a circular economy.

In addition to the need to benchmark the quality of waste for repurposing, there is a need to liberalise the trade of reusable materials as well as goods and innovations that promote circularity.²¹² Numerous free trade agreements (FTAs) promote the liberalisation of environmental goods and services, but these may need to be revised from time to time given the level and pace of innovations in sustainability. APEC

²¹⁰ Kettunen, Gionfra and Monteville.

²¹¹ Kettunen, Gionfra and Monteville.

²¹² Kettunen, Gionfra and Monteville.

endorsed a list of 54 environmental goods and services in 2012 for trade liberalisation;²¹³ revisions to the list could be necessary to help keep up with the needs of a circular economy.

The APEC Sub-Committee on Standards and Conformance could collaborate with APEC fora such as the Ocean and Fisheries Working Group, the Energy Working Group and the Policy Partnership on Food Security to understand waste intensity and discuss standards in these industries. This will help to identify commonalities, and assist policy formation and trade in recyclable materials and waste. APEC could also discuss the development of regional certifications pertaining to quality assurance similar to APEC's Privacy Recognition for Processors (PRP) certification, which certifies a processor's ability to effectively implement privacy requirements.²¹⁴

Incentivise sustainable practices. To encourage adoption of circular practices, there is a need to develop policies that incentivise businesses to think about the sustainability of their product or service at all points along the supply chain and across the whole duration of the product life cycle. Policies that could encourage this thinking are the extended producer responsibility (EPR) scheme as well as sustainability certificates and labels. The EPR scheme places the responsibility on producers to manage the disposal or recycling of their products at the end of their lifespans. Under this scheme, manufacturers are required to contribute to the cost of collecting, recycling and disposing products at the end of their use. Such schemes create an incentive for better product designs.²¹⁵ For example, manufacturers of heavy and bulky goods like mattresses may consider innovative designs that are more lasting or lighter, making them easier to recycle. Some economies, France and Japan for example, have already introduced EPR schemes across a wide range of industries, from electronics to packaging, footwear and furniture.²¹⁶ Overall, this new degree of

²¹³ APEC Committee on Trade and Investment, "APEC Cuts Environmental Goods Tariffs," 28 January 2016, https://www.apec.org/Press/News-Releases/2016/0128_EG.

²¹⁴ Infocomm Media Development Authority Singapore, "APEC Privacy Recognition for Processors (PRP) Certification," accessed 12 March 2020, <http://www.imda.gov.sg/programme-listing/Privacy-Recognition-for-Processors-Certification>.

²¹⁵ McCarthy, Dellink and Bibas, "The Macroeconomics of the Circular Economy Transition."

²¹⁶ Nick Oettinger, "Why Extended Producer Responsibility Holds the Key to a Circular Economy," *Environment Journal* (blog), 30 April 2019, <https://environmentjournal.online/articles/why-extended-producer-responsibility-holds-the-key-to-a-circular-economy/>.

accountability incentivises manufacturers to take more serious steps in reducing their environmental impact.

The EPR scheme has proven to be effective in increasing recycling rates. Japan implemented an EPR scheme for packaging in 1995, and saw the rate of containers and packaging being recycled rise by 27 percent between 1997 and 2000.²¹⁷ EPR also reduced public and overall spending on waste management and increased product innovation. France reduced their public spending on waste treatment by 15 percent by 2015. Japanese PET bottle producers also reduced the use of materials that are difficult to recycle.²¹⁸

Sustainability certificates or eco-labels incentivise businesses to comply with sustainability standards so that they can use them in their marketing campaigns. This is especially effective in markets where sustainability concerns are deepening among consumers, such as the tourism and cosmetic industries.²¹⁹ Recognising this, several companies have opened sustainable lines of products, among them, Nike Considered and Nissan's LEAF.

Reflect environmental costs in pricing. Environmentally conscious behaviour can also be encouraged through price signals and financial incentives to improve product designs. In a market economy, prices are supposed to reflect the full costs of consumption and production, but market prices often do not capture negative externalities (e.g., pollution or waste), leading to inefficiency. Making consumers and producers feel the negative impacts of pollution and waste through price signals – that is, by raising the relative price of unsustainable goods – is therefore an efficiency-enhancing move.²²⁰ It will also incentivise innovative activity that improves

²¹⁷ Organisation for Economic Co-operation and Development (OECD), “The State of Play on Extended Producer Responsibility (EPR): Opportunities and Challenges” (*Global Forum on Environment: Promoting Sustainable Materials Management through Extended Producer Responsibility (EPR)*, Tokyo, Japan, 2001), <https://doi.org/10.1787/9789264189867-en>.

²¹⁸ OECD.

²¹⁹ Sara Bom et al., “A Step Forward on Sustainability in the Cosmetics Industry: A Review,” *Journal of Cleaner Production* 225 (10 July 2019): 270–90, <https://doi.org/10.1016/j.jclepro.2019.03.255>; Fabian Weber, “Demand for Sustainable Tourism,” in *Corporate Sustainability and Responsibility in Tourism: A Transformative Concept*, ed. Dagmar Lund-Durlacher et al. (Cham: Springer International Publishing, 2019), 265–81, https://doi.org/10.1007/978-3-030-15624-4_16.

²²⁰ Mirjam Bani and Marieke Blom, “Rethinking the Road to the Circular Economy” (January 2020), https://think.ing.com/uploads/reports/Rethinking_the_road_to_the_circular_economy_FINAL_RB1.pdf.

sustainability. For example, an increase in the price of hazardous materials such as mercury played a part in the evolution of televisions from liquid crystal displays (LCDs) to light-emitting diodes (LEDs) that are less reliant on hazardous materials.²²¹

Further, taxing unsustainable activities can be effective in encouraging green practices.²²² The taxes will drive producers to seek or develop lower-cost environmentally friendly solutions. The numerous taxes imposed on natural resource industries such as crude oil and natural gas are an example of this policy option.²²³ The taxes affect the companies consuming the non-renewable resources as well, which could encourage them to change their product content or design.

For products that are especially damaging to the environment, a ban may be more effective. For example, the US and UK have banned the sale of cosmetics containing microbeads due to their impact on the marine environment.²²⁴ Several other economies are in the process of implementing similar bans.

APEC could hold discussions and conduct studies on the impacts of these policies and identify other ways to incentivise greater use of sustainable products. Incentives to develop greener alternatives could also be encouraged to allow for a seamless shift in production processes when bans or taxes are imposed on polluting materials.

Set credible benchmarks. Indicators to measure the circular economy are necessary to recognise progress and set benchmarks to guide businesses and economies. Some existing indicators can be used to guide circular economy policies, for example, carbon emissions, life cycle analysis and resource intensity.²²⁵ However, Preston finds that resource intensity indicators would be more fitting to measure progress only in the short term in emerging economies while using carbon emission measures to

²²¹ Oettinger, “Why Extended Producer Responsibility Holds the Key to a Circular Economy.”

²²² Bani and Blom, “Rethinking the Road to the Circular Economy.”

²²³ United Nations, *United Nations Handbook on Selected Issues for Taxation of the Extractive Industries by Developing Countries* (New York: UN, 2019), <https://doi.org/10.18356/4632a533-en>.

²²⁴ Michael Gove, “World Leading Microbeads Ban Comes into Force,” 19 June 2018, <https://www.gov.uk/government/news/world-leading-microbeads-ban-comes-into-force>; US Food and Drug Administration, “The Microbead-Free Waters Act: FAQs,” 4 February 2020, <http://www.fda.gov/cosmetics/cosmetics-laws-regulations/microbead-free-waters-act-faqs>.

²²⁵ Yong Geng, Joseph Sarkis, Sergio Ulgiati and Pan Zhang, “Measuring China’s Circular Economy”, American Association for the Advancement of Science (March 2013), 1526-1527.

develop targets is often challenged due to political and methodological issues.²²⁶ Further, Geng et al. identify the need for more suitable indicators that take into account the broad context and network of a circular economy rather than only measure effectiveness at the product or process level.

The European Commission published a monitoring framework²²⁷ in 2018 that provides a list of key indicators that will capture the important elements and complexities of transforming to a circular economy. Several efforts are also underway at the economy level: China, France, and the Netherlands have developed key indicators to measure their transformation.²²⁸ Similar research efforts are needed to develop innovative indicators that can provide a complete picture of a circular economy. Some of the more feasible and transferable indicators could then be standardised and set as benchmarks to assess the global shift to a circular economy.

Encourage collaboration. Collaboration between stakeholders along the value chain is key to the realisation of a circular economy.²²⁹ As profits in the circular economy are defined by improving resource efficiency, economies are incentivised to find ways to reduce resource use, retain the value of goods and materials by using them for as long as possible, and minimise waste and other discarded byproducts in the production cycle. In such a setting, producers and suppliers would have to collaborate within and between supply chains to ensure optimal resource efficiency.²³⁰

The opportunity for collaboration between companies and industries is significant in this setting. For example, there needs to be an understanding on the use of waste

²²⁶ Felix Preston, “A Global Redesign? Shaping the Circular Economy”.

²²⁷ European Commission, “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a monitoring framework for the circular economy”, Communication from the Commission to the Institutions (January 2018), <https://ec.europa.eu/transparency/regdoc/index.cfm?fuseaction=list&n=10&adv=0&coteId=1&year=2018&number=29&version=F&dateFrom=&dateTo=&serviceId=&documentType=&title=&titleLanguage=&titleSearch=EXACT&sortBy=NUMBER&sortOrder=DESC>.

²²⁸ European Commission, “Measuring circular economy - new metrics for development?”, Environment Newsroom (24 April 2018), https://ec.europa.eu/newsroom/ENV/item-detail.cfm?item_id=624232&newsletter_id=300&utm_source=env_newsletter&utm_medium=email&utm_campaign=Beyond%20GDP&utm_content=Measuring%20circular%20economy%20-%20new%20metrics%20for%20development&lang=en.

²²⁹ Bani and Blom, “Rethinking the Road to the Circular Economy.”

²³⁰ Bani and Blom.

streams between companies that exchange waste with one another. Cooperation will make it easier to determine the necessary infrastructure, regulate quality and maintain databases on material flows.²³¹ One of the earliest successful examples of industrial collaboration with a circular approach is the Kalundborg Symbiosis in Denmark, where trust and open communication were key to success.²³² Stakeholders could also collaborate to develop objectives that are cross-sectoral rather than industry-specific; for example, it would be more effective to work toward carbon-neutral cities rather than carbon-neutral cars.²³³

APEC provides a platform for the private sector and policymakers to collaborate toward a common goal. Discussions on best practices and lessons learnt from experiences with industrial collaboration could also be helpful in providing guidance to economies that are interested in developing such industrial symbioses.

Educate and disseminate knowledge. In order to mainstream the circular economy, there is a pressing need to disseminate knowledge about the concept and develop ‘nudging’ policies.²³⁴ Several economies have launched green campaigns to prevent the use of single-use plastics, or to encourage residents to sort their waste and dispose it into the correct bins. Educational campaigns can also be developed to increase awareness about the circular economy or give people ideas on how to recycle or reuse a product for some other purpose within their household. The European Union has organised conferences on reducing plastic use, and developed platforms to discuss circular economy finance and innovation ideas.²³⁵ Nudging policies aim to alter people’s behaviours without limiting their options or significantly altering the financial incentives.²³⁶ Some of these policies include placing green footprint stickers

²³¹ Het Groene Brein, “What Is Collaboration in the Value Chain?” *Kenniskaarten - Het Groene Brein* (blog), accessed 12 March 2020, <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/ce-collaboration-value-chain/>.

²³² Kalundborg Symbiosis, “Kalundborg Symbiosis – The World’s First Industrial Symbiosis,” accessed 12 March 2020, <http://www.symbiosis.dk/en/>.

²³³ Bani and Blom, “Rethinking the Road to the Circular Economy.”

²³⁴ Bani and Blom.

²³⁵ Bark et al., “Supporting the Circular Economy Transition: The Role of the Financial Sector in the Netherlands.”

²³⁶ Katrin Recke, “The Potential of Nudging for Greening Economic Governance at EU and National Level,” https://ec.europa.eu/environment/integration/green_semester/pdf/07_09_2015/4.%20AIM-%20Potential%20of%20Nudging%20for%20greening%20economic%20governance.pdf.

to point the way to a garbage bin or branding a clothes-washing detergent with a 30° symbol to encourage washing at 30 degrees Celsius rather than 40 or 60.²³⁷

These efforts can be supported by introducing sustainability courses in the core curriculum of schools. In Finland, the Finnish Innovation Fund is cooperating with schools at all education levels to incorporate circular economy thinking and create professionals that will build a sustainable future.²³⁸ In the Netherlands, sustainability courses have been included in the curriculum. Further, the GreenDeal Schools initiative provides schools with subsidies to make improvements that advance sustainability policies, like using green energy and maintaining better air quality.²³⁹

APEC, along with other international organisations, can play its part in disseminating knowledge about the circular economy and in encouraging people to adopt circular practices. In 2020, Malaysia as the APEC host economy placed the circular economy under ‘Driving Innovative Sustainability’, one of its priority pillars. This shows that APEC considers the circular economy to be an important factor in pursuing sustainable development in the region, and is actively seeking ways to improve literacy in and awareness of the circular economy.

APEC’s Role

As a forum representing about 60 percent of the world’s GDP, APEC can play an important role in transforming the global economy into a circular one. Work relating to the circular economy has been gaining momentum within APEC in recent years. The term ‘circular economy’ was first mentioned in the 2014 Leader’s Declaration²⁴⁰ when Leaders called for the creation of a new economy that promises growth which is, among other things, green, blue and circular. Since then, several related projects have been conducted under the Committee on Trade and Investment (CTI), the Policy

²³⁷ Recke.

²³⁸ The Finnish Innovation Fund Sitra, “Circular Economy Teaching for All Levels of Education,” accessed 12 March 2020, <https://www.sitra.fi/en/projects/circular-economy-teaching-levels-education/>.

²³⁹ Het Groene Brein, “What Can Primary and Secondary Education Do?” *Kenniskaarten - Het Groene Brein* (blog), accessed 30 April 2020, <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/what-can-primary-and-secondary-education-do/>.

²⁴⁰ APEC, “2014 Leaders' Declaration”, https://www.apec.org/Meeting-Papers/Leaders-Declarations/2014/2014_aelm.

Partnership on Science, Technology and Innovation (PPSTI), and the Chemical Dialogue (CD).

CTI conducted a two-day workshop in October 2018 to exchange best practices on the circular economy and build capacity on handling waste.²⁴¹ Similarly, PPSTI organised workshops in 2018 and 2019 to help develop a policy framework that will accelerate the transition to a circular economy.²⁴² CD contributes to APEC discussions on circular economy and has submitted a proposal to organise a workshop to highlight the role of chemistry in a circular economy.²⁴³ Further, the APEC Business Advisory Council's (ABAC) 2019 work plan prioritised promoting energy, innovation and the circular economy under their Sustainable Development Working Group.²⁴⁴

More work in APEC in this area would be beneficial. APEC could discuss how a circular economy model could be implemented in the context of the region. This can aid in developing a fitting framework that will foster transformation to a circular economy while accounting for the region's diversity.

While a number of APEC fora have been actively working in this area, there is a need for more discussions on a cross-fora level to develop initiatives that will help restructure all dimensions of the economy into a circular one. APEC provides a platform to facilitate these discussions and can encourage sharing of information and best practices across industries and economies. Given the importance and cross-fora nature of the topic, it may be beneficial to elevate circular economy discussions to a higher level within APEC to ensure that related initiatives are properly coordinated, implemented, and monitored. Work in this field will significantly contribute towards reducing environmental impact and help transform the mindsets and behaviours of industries, businesses and people to prioritise sustainability.

²⁴¹ APEC Committee on Trade and Investment(CTI), "2018 CTI Report to Ministers", November 2018, <https://www.apec.org/Publications/2018/11/2018-CTI-Report-to-Ministers>.

²⁴² APEC Project Database, "Accelerate the Transition to a Circular Economy", <https://aimp2.apec.org/sites/PDB/Lists/Proposals/DispForm.aspx?ID=2272>.

²⁴³ APEC, "Annex I - Chemical Dialogue Convenor's Summary Report to CTI 2019", http://mddb.apec.org/Documents/2019/SOM/SOM1/19_som1_010anxi.pdf.

²⁴⁴ APEC, "APEC Business Advisory Council", <https://www.apec.org/Groups/Other-Groups/APEC-Business-Advisory-Council>.

Conclusion

We cannot rely on the Earth's natural resources to fuel our growth forever. Such resources are finite and, if not managed sustainably, will run out. Moreover, our production–consumption behaviours generate an ever-increasing amount of waste, contaminating our environment. The continued depletion of the resources on the planet and the increasing waste we generate threaten our future economic growth, and our current health and standards of living. The circular economy provides one way to transition away from this unsustainable trend by optimising current material use, eliminating waste by design, and regenerating natural systems. A successful transition to the circular economy will need the support of concerted regional efforts to drive quality policy discussions and encourage the adoption of best practices. APEC, as a platform for regional cooperation and an incubator of ideas, can drive these efforts.

**Vietnam's efforts in building sustainable
economic development in the post-pandemic period**

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Abstract

The post-pandemic context is characterized by a long-term uncertainty of world economic development. The short-term prospect of recovery is unclear. Resources for development are depleting, resulting in financial and monetary difficulties, spreading to other social issues. This economic uncertainty is accompanied by the major power competition that has expanded not only in political, economic and security sectors but also in the fight against the pandemic. These events happen on top of the lasting issue of climate change. Given this uncertain external context, the issue of sustainable development has become more significant. Making efforts to overcome challenges and take advantages of emerging opportunities, Vietnam set the target for a sustainable economic development in the post-pandemic period, enabling synergies with APEC agenda in the post 2020.

Current status

Vietnam's economy has been largely impacted by the Covid-19 but remained resilient. The country has made its best to control to limit the infected patients around 1000 people so far. For the last 9 months, the Gross Domestic Product (GDP) growth rate was 2.12%, and is expected to reach 2.5% for 2020, much lower than the previous year, which was about 7%. In the first 9 months, the total import - export turnovers increased 1.6%, export increased 4% compared to the same period last year²⁴⁵, although the export market was narrow which made 47% of export enterprises unable to export. In the first six months of 2020, more than 30 million Vietnamese laborers,

²⁴⁵ Tapchitaichinh.vn, "Xuất khẩu 9 tháng: Doanh nghiệp nội vùng vang vuốt bao Covid-19" (Export in 9 months: Enterprises strongly weather the storm), 10/2020, <http://tapchitaichinh.vn/su-kien-noi-bat/xuat-khau-9-thang-doanh-nghiep-noi-vung-vang-vuot-bao-covid19-328401.html>

about half of total labor forces were negatively impacted during the social distancing. The average income of laborers has been reduced about 5%. While 86% of enterprises have been negatively impacted by the Covid-19, the hardest hit sectors are those who work in the service sector (72%), industry and construction (67.8%) and agriculture, forestry and fishery industries (25.1%). In addition, the country witnessed a rising unemployment of 2.73% in the second quarter, the highest in the last 10 years, increasing vulnerabilities of enterprises, especially small and medium enterprises. Some sectors such as tourism and aviation sector may recover only after 3-4 years. It is expected that the tourism will lose about 20 million of international tourists in 2020²⁴⁶.

A new normal

A new normal has been being shaped by co-existence with the Covid-19. A new normal is characterized by domestic and international uncertainty. The life style has adjusted toward less travelling, less gathering, more virtual meetings and conference, and online education and working as people are changing their ways of interaction, living, working and communication. While the some of main drivers in the old normal for Vietnam's economy were foreign direct investment (FDI) and exports, now the country is and will be in severe difficulty with reduction of exports and FDI. This set a requirement for the government to look for new drivers.

Challenges

Striving for sustainable development faces many difficulties caused by both external and internal factors. Externally, the major power competition, protectionism and unilateralism together have increased global uncertainty, which in turns would reduce investors' confidence and consumers spending attitude. Internally, Vietnam's economy is characterized by internal shortcomings and weaknesses of a developing economy with low-middle income trap. Its growth depends on capital, cheap labor and foreign investment areas which are negatively impacted by the Covid-19.

²⁴⁶ General Statistics Office, "Thong cao bao chi Tinh hinh Lao dong viec lam Quy II va 6 thang dau nam 2020" (Press release about the situation of labour in quarter II and the first six months of 2020), 7/2020, <https://www.gso.gov.vn/default.aspx?tabid=382&idmid=2&ItemID=19674>

In the short term, the most concern is that Vietnam's domestic economic power is weaker this year than last year, which may delay the speed of recovery. This context has caused concerns of a prospect of a long period of slow global economic recovery that would inhibit Vietnam's efforts to build a sustainable economic growth and development. Former domestic drivers for traditional growth which are external demands and private consumption may not be as effective as they used to be, due to reduction of demands in the region and the world. Other concerns would be:

Reduction of input materials for production: Due to high export growth rate, Vietnam has to import input materials for production because of weak supporting industries and limited capacity to exploit raw materials. As Vietnam's main import markets are fighting the Covid-19 (China, South Korea, Japan...), about 54% of enterprises (especially textiles, footwear, automobile and electronic production sectors) are facing shortages of input materials for production.

MSMEs: The MSMEs face the more difficulties than other enterprises especially during the Covid-19. About 94%-97% of MSMEs working mainly in the tourism, education and training, commerce sectors are hardest-hit enterprises²⁴⁷. The main reasons, among others, are reduced revenue to cover incurring cost, temporary termination of operations, limited liquidity, capital, finance access, shortage of input materials, small market, low technology and limited capacity to meet the bank loan requirements, according to a survey carried out by the National Economic University²⁴⁸. Hence, with extended social distancing, the MSMEs would easily go bankruptcy.

Reduction of FDI inflows: Foreign Direct Investment (FDI) plays an important role as one of key drivers for Vietnam's economic development, as it accounts for about 70% of Vietnam's export. However, due to the economic recession in the world, the FDI

²⁴⁷ General Statistics Office, "Bao cao ket qua khao sat danh gia tac dong cua dich Covid-19 den hoat dong san xuat, kinh doanh cua doanh nghiep", "Report on Survey on impact assessment of Covid-19 on enterprises' production and business activities", 5/2020, <https://www.gso.gov.vn/default.aspx?tabid=382&idmid=2&ItemID=19623>

²⁴⁸ Do, Van Huan, "Anh huong cua Covid-19 den cac doanh nghiep – Ket qua tu dieu tra khao sat doanh nghiep" (Impact of Covid-19 on enterprises – Results of enterprises survey), National Workshop on "Policy to overcome impact of Covid-19 for economic recovery and development", Publisher of National Economic University 2020.

inflows reduced about 19%²⁴⁹ compared with the same period last year. It's urgently that the country has to look for new ways to attract FDI and new drivers for the economy to maintain sustainable economic development.

In the long term, more uncertainty would be in many different fields, for instance the energy security, the water security. There are some warnings and predictions relating to non-traditional security issues, for instance possible wars on water resources, which now together with the traditional security issues have gradually emerged to become more severe and intense for Vietnam.

Opportunities

Vietnam, however, has been taking certain advantages of the changes of certain trends for its development. Most remarkably, many countries are readjusting the globalization toward more human-centric with the attention to the issues of reducing the inequality, and financial inclusion and development partnership, and supply chain resilience. Vietnam can cooperate with APEC members for promotion of healthcare partnership, vaccine development.

With the advantages of geopolitical position, improved business environment, potentials for development in the medium term, it is expected that Vietnam have more opportunities to attract foreign investment as a result of the new trend of relocation of manufacturers due to global supply chain disruption. Many foreign direct investment enterprises from the United States, European Union, Japan, and South Korea have been looking for new investment destination for moving their production and manufacture. According to a recent Japan External trade Organization's survey on supply chain source diversification with 30 Japanese enterprises operating abroad, half of them want to expand and diversify their production in Vietnam²⁵⁰. One of the main reasons is that Vietnam is among fastest developing markets in the Southeast Asia and

²⁴⁹ <https://congthuong.vn/da-nang-thu-hut-dau-tu-tao-dot-pha-trong-trang-thai-binh-thuong-moi-bai-1-nhan-dien-nhung-kho-khan-co-hoi-145339.html>

²⁵⁰ Congthuong.vn, "Doanh nghiệp tuoc lan song dich chuyen chuoi cung ung: Khong thay doi, kho tiep can" (Facing the shift wave of supply chain: Enterprises must change to access), 14/10/2020, <https://congthuong.vn/doanh-nghiep-truoc-lan-song-dich-chuyen-chuoi-cung-ung-khong-thay-doi-kho-tiep-can-145389.html>

maintains a dynamic growth on global market share in the manufacture areas. In addition, Vietnam has maintained positive Gross Domestic Product economic growth, and successfully controlled the Covid-19. Domestic supporting industries may cooperate with FDI enterprises to enhance their position and capacity in participation in the global value chain and supply chain. However, the domestic enterprises need to overcome certain constraints such as shortage of human resources in the supporting industry while the government will need to develop high quality infrastructure.

In addition, Vietnam has great opportunities to access to European Union market, advanced technology, and investment with the recently ratified European Union-Vietnam Free Trade Agreement and European Union-Vietnam Investment Protection Agreement since 1/8/2020. The FTA is expected to enhance Vietnam's key exports such as footwear and textiles to the EU, creating more competitive advantages over Chinese competitors in these areas. Hence, Vietnam is expected to be able to restructure its international trade to less depend on few markets.

Similarly, as Covid-19 accelerates the enterprises' digital transformation, for instance, online education, sharing digital data, meeting rising good quality service demands of middle-income classes. Small enterprises have demonstrated their flexibility and resilience by application of e-commerce to reduce cost and optimize resources while doubling their revenue and productivity and improving sustainable growth in the long-term. It is expected that digital transformation for SMEs in Vietnam may contribute from US\$24 to US\$30 billion to Vietnam's GDP in 2024, accelerating the economic recovery in the post pandemic²⁵¹. The Covid-19 then has forced the enterprises to transform their mindset to make remarkable digital changes to catch up with global digitalization trends.

²⁵¹ Congthuong.vn, "Chuyen doi so cua cac DN VVN co the dong gop 30 ty USD vao GDP Vietnam" (Digital transformation of SMEs may contribute to US\$30 billion to Vietnam's GDP), 10/9/2020, <https://congthuong.vn/chuyen-doi-so-cua-cac-dnvv-n-co-the-dong-gop-30-ty-usd-vao-gdp-viet-nam-143585.html>

Policy Response:

Given these challenges and opportunities in the context of a possible prolonged Covid-19, it is forecast that it would take at least 2 to 3 years for Vietnam's recovery in the post-Covid-19, and so the country should prepare short, medium and long-term measures. The general strategy is to effectively respond to the Covid-19, while at the

same time start the process of economic recovery and strengthen the economic resilience to deal with the situation of uncertainty and complexity.

A self-reliant, inclusive and sustainable economy: Strengthening an autonomous, self-reliant economy, reducing dependence on external materials and supply chain, paying attention on the market of nearly 100 million people has been further emphasized by Vietnam's Prime Minister Nguyen Xuan Phuc in the Covid-19 context. This requires acceleration of economic restructure that supports the development of potential sectors, deepening the participation in the global value chain. Moreover, the government views that sustainable economic growth will be based on the control of the spread of the Covid-19, Vietnam's macro-economic stability, strengthened public expenditure and reforms. "Leaving no one behind" is the motto that Vietnam government looks forward to, by carrying out timely responsive measures for economic restructure and development and paying attention on the vulnerable groups. Thus, Vietnam is targeting at inclusive and sustainable economic restructure, with emphasis on development issues, building a cycle economy and green economy, infrastructure, upgrading health care and education.

Short-term policy: Effectively respond to the Covid-19

Dealing with the Covid-19, the government of Vietnam has been making great efforts to control the breakout of Covid-19, maintained safe co-existence with the Covid-19 and active restructure of the economy²⁵². Two major waves of Covid-19 outbreaks occurred, one in March and the other in July. While the country applied the full lock down for the whole country in April, it changed to limited lock down for only the

²⁵² Launched in 17/4/2020.

infected places in July, to reduce the large-scale negative economic impact of the Covid-19. While in the initial phase, Vietnam placed the priority for protection of the people, in the later phase, the country changed to follow double targets, i.e. controlling the Covid-19 and maintaining the sustainable economic development at the same time.

The government has taken various types of actions to support the affected people. For instance, the first financial relief package worth US\$2.7 billion to provide financial aid for about 20 million people. The *credit and social assistance package* has targeted small and medium enterprises (SMEs), cooperatives, and households, unemployed labors, who are most hard hit by the Covid-19. The State Bank of Vietnam has cut down the re-discount interest rate and refinancing interest rates to encourage domestic credit growth. The Ministry of Finance has deferred tax payment and land rents. The second package worth US\$800 million for businesses and laborers affected by the Covid-19 is being proposed.

However, only few enterprises and households can access support from the government with about 18% out of the first package being disbursed, missing 80% of enterprises²⁵³. The reasons are enterprises' failure to meet the conditions set by the government and lack of information about the policy²⁵⁴. Moreover, it is not easy for the government to reach out to the vulnerable groups in Vietnam, which are mainly from the informal economy. The informal sector includes 19.5 million of labor by quarter II/2020, accounting for about 56.2% of total labor. This group has limited access to social security policy while their income is only about 2/3 of the formal sector. This causes a requirement for policy adjustment to better meet the demands of the most vulnerable and affected groups.

Supporting private sector development, especially MSMEs: The country focuses on development of the private sector with special attention to support MSMEs, assisting the start-up, unemployed workers. The private sector plays an important role and is

²⁵³ Baochinhphu.vn, “Ho tro Doanh nghiep Covid-19: Kip thoi, dung cho, lan toa rong” (Support for Covid-19: Timely, right target and large spillover effect), 15/10/2020, <http://baochinhphu.vn/Kinh-te/Ho-tro-DN-trong-dich-COVID19-Kip-thoi-dung-cho-lan-toa-rong/410724.vgp>

²⁵⁴ Baochinhphu.vn, “Ho tro Doanh nghiep Covid-19: Kip thoi, dung cho, lan toa rong” (Support for Covid-19: Timely, right target and large spillover effect), 15/10/2020, <http://baochinhphu.vn/Kinh-te/Ho-tro-DN-trong-dich-COVID19-Kip-thoi-dung-cho-lan-toa-rong/410724.vgp>

expected to be a new driver for economic growth as it accounts for nearly 45% of total investment for the economy. Increasingly aware of this fact, the government has targeted to support the private sector, especially MSMEs in terms of tax relief. Other macro programs are being implemented for enterprises such as creation of a favorable business environment, fiscal and monetary instruments, and administrative procedures reforms, to facilitate domestic production and business and enhance competitiveness, making enterprises more resilient.

Optimizing public investment: The government focuses on more effective disbursement of public investment for fiscal stimulus, increasing the total supply in the long term and total demand in the short term, compensating for the reduction of private investment. It is estimated by the World Bank that in Vietnam, if public investment increases 10%, the GDP growth rate also increases 0.6%²⁵⁵. Prioritized projects are those that may have largest spilling over effects while avoiding technical and financial losses and enhancing the competitiveness of the economy.

Medium and long-term policy: Structural reforms:

A more active FDI promotion policy: Due to the reduced FDI inflows, the country focuses more on effective utilization and management of existing FDI, while at the same time reduced barriers to FDI flows and prepares land pools and human resources development. Some priority areas for attraction of FDI include industrial, energy sectors. In addition, in June/2020, the government has established a working group tasked with foreign direct investment promotion to attract high quality FDI. High-ranking officials have organized various meetings with leaders of multinational corporations to attract innovative, large-scale, high technology projects.

Active integration to the global supply chain: The global value chain and supply chain restructure toward diversification is expected to further escalate in the coming time. Vietnam would take advantages of this global trend by participating in the global supply chain. This requires the restructure of industrial production, human resource

²⁵⁵ World Bank, “Vietnam: Potential policies responses to the Covid-10 epidemic”, 3/2020, <http://documents1.worldbank.org/curated/en/525351589879488061/pdf/Vietnam-Potential-Policies-Responses-to-the-COVID-19-Epidemic.pdf>

development, support for innovation, creation of more favorable regulatory and legislative frameworks to facilitate the development of services more intensively and extensively in the coming period.

Digital transformation: Given the social distancing, the digital development at both national and enterprises levels have been leveled up, contributing to enhancing the national resilience. During the Covid-19 pandemic, in June 2020, the government issued the National Digital Transformation program by 2015, orientation by 2030 with the aim to develop digital government, digital economy, digital society and establish global digital technology enterprises. Promotion of the use of digital technology for digital economy, which is one of the best choices for the economy and the enterprises given the context that the pandemic has changed the social and working habits of people. Key areas to be prioritized are online working, education, e-commerce, virtual events, showrooms, and automated vehicles. This strategy is supported by the policy of human resource development that targets at development of skilled labor.

Strengthening regional linkages: Vietnam has chosen to maintain its support for trade liberalization, opposing protectionism as a way to fight Covid-19 for economic resilience. In practice, Vietnam continues to facilitate trade and investment through implementing its networks of FTAs, for instance ASEAN-led Free Trade Agreements (FTAs), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), Economic Partnership Agreement with Japan, Free Trade Agreement with South Korea, and the recently signed Vietnam-EU Free Trade Agreement (FTA), and looking forward to the Free Trade Area of the Asia Pacific (FTAAP). The ASEAN-China Free Trade Agreement will subject to review and is expected to facilitate fast and strong bilateral economic development. These FTAs are expected great opportunities for Vietnam to exploit its competitive advantages of cheap labor cost to enhance the level of governance and connectivity and take part in the process of shaping new rules and regional trade architecture.

As the Covid-19 pandemic is yet over and may extend further in 2-3 years until vaccine is available, it is necessary for each country to closely monitor the development and possible impacts of the pandemic. Vietnam has been trying to do its

best to timely respond with uncertainty by recovery policy that focuses on domestic reforms and international integration, enhancing the resilience of the economy. Many key areas can be further promoted for cooperation with other APEC members as they are in line with APEC's key objectives and areas such as trade and investment facilitation, digital economy, and support for MSMEs, which have only limited resources and capacity to absorb the shock. Vietnam's individual efforts for sustainable economic development would be hence multiplied upon the synergy with APEC priorities.