

Research Outcomes 2022

Summary of Research Projects



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Trade and Investment

Economic Integration

Lessons from the COVID-19 Pandemic: A Renewed Agenda for the Free Trade Area of the Asia-Pacific

Link: <https://www.apec.org/publications/2022/05/lessons-from-the-covid-19-pandemic-a-renewed-agenda-for-the-free-trade-area-of-the-asia-pacific>

This Policy Brief explores some of the most pressing challenges affecting trade since the start of the COVID-19 pandemic and provides policy recommendations to overcome them. It suggests new topics that APEC economies should consider during the discussions of the Free Trade Area of the Asia-Pacific (FTAAP) work programme, including those that have risen in relevance in recent years in light of the pandemic.

Findings & Recommendations

The COVID-19 pandemic is accelerating structural changes in the global economy. The magnitude of the trade disruptions has been unprecedented, and governments need to improve resilience and get ready to face similar situations in the future.

Actions need to be taken at the domestic level. However, this is not enough, and international collaboration is needed as well. Any regional integration process involving free trade agreements and customs unions, among others, would be critical in the pursuit of solutions to the various challenges arising from the changes. APEC has the opportunity to tackle these issues and influence the global trade agenda.

The six critical challenges affecting trade are: (1) disruption in accessing essential goods; (2) disruption of trade in services; (3) difficulties in supply chain logistics; (4) digital transformation; (5) transparency; and (6) regulatory bottlenecks affecting trade in essential goods.

As an incubator of ideas, APEC could refresh the FTAAP work programme in the context of the COVID-19 pandemic, with initiatives to address these challenges. Specifically, APEC could incorporate new topics into the FTAAP work programme as discussed below.

- Trade in goods. Discussions on the definition of 'essential goods', and commitments to ensure the availability of commercial purchases of essential goods, are needed. Initiatives could include commitments to avoid the implementation of export restrictions and prohibitions affecting essential goods, as well as exempting these goods from import tariffs on a permanent basis. As a

reference, one initiative that has taken into account many of these recommendations is the Declaration on Trade in Essential Goods for Combating the COVID-19 Pandemic adopted by New Zealand and Singapore on 15 April 2020. A particular feature of this declaration is that both parties commit to ensuring unhindered trade flow and transit of a comprehensive list of essential goods.

- Trade in services. Discussions to establish international commitments to keep airports, ports, customs, and border facilities operational should be initiated. In addition, it is imperative to create schemes to facilitate cross-border movement of business people and those working in essential activities. The harmonisation of criteria to allow travel (for example, recognition of vaccine certificates, PCR tests, and health passes) is critical to facilitating the flow of people across borders.
- Trade facilitation and border management. To tackle supply chain logistics, it is important to discuss initiatives to facilitate cross-border movement of maritime seafarers so that companies could get their crew to their vessels. Accelerating the implementation of the WTO Trade Facilitation Agreement (TFA) to expedite shipments and the release of goods should also be discussed. Governments should be encouraged to go beyond what is established in the TFA and to reflect that in any trade agreement. The use of technology and paperless procedures should also be advanced. Border cooperation and technical assistance have to be enhanced for the implementation of all these measures.
- Digital issues. To facilitate the digital transformation and allow the expansion of the digital economy, it is important to agree on modern trade rules to foster the digital economy. Rules on data privacy, data localisation, cross-border data flows, and electronic commerce (consumer protection, electronic payments, and electronic signatures, among others) need to be discussed at international fora like APEC and other regional economic integration arrangements.
- Transparency. The role of international organisations and regional economic integration schemes is very important in addressing transparency problems. There should be discussions on adding more teeth to transparency provisions, in particular, to address emergency situations like those related to the pandemic. For instance, binding arrangements should consider the possibility of implementing appropriate sanctions against governments for not duly reporting new regulations or changes to existing regulations.
- Standards and conformance. More work on risk assessment is needed to ensure that the proportionality of a measure matches the risk involved. Discussions on addressing harmonisation, mutual

recognition, and equivalence issues are needed to facilitate regulatory approvals for essential goods. The discussions should also focus on measures to increase the production of medical goods, including expediting inspections and approving factories, and facilitating partnerships and technology transfer.

- **Intellectual property.** It is advisable for governments to support multilateral discussions on a temporary waiver of certain obligations in the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) in response to COVID-19, with the intention of accessing vaccines and medicines in a timely and affordable manner and to scale up production of essential medical products.

While revising the FTAAP work programme, APEC economies should also consider the possibility of establishing other work streams as the global economy is undergoing structural changes and new trends are emerging. Some of these areas could be identified by comparing the differences between the chapter structure of recent mega-FTAs and the areas covered in the APEC Capacity-Building Needs Initiative.

While there are some discussion gaps in traditional areas (such as rules of origin and sanitary and phytosanitary measures), most of the gaps are in areas that have gained prominence in the last decade, such as the sectoral services sectors (for example, the financial and telecommunications sectors), movement of natural persons/business people, government procurement, state-owned enterprises, labour, environment, and regulatory coherence.

Work streams could be added to address areas where there is rising interest, but limited or absent rules at the multilateral level. For example, the APEC Committee on Trade and Investment has organised trade policy dialogues on specific topics as a first step to gaining a better understanding of those topics. The topics have spanned inclusion (such as gender), SMEs, indigenous cooperation, development, and economic cooperation.

Trade Liberalisation and Facilitation

Study on Tariffs – Analysis of the RCEP Tariff Liberalisation Schedules

Link: <https://www.apec.org/publications/2022/05/study-on-tariffs-analysis-of-the-rcep-tariff-liberalization-schedules>

This report is an extension to an earlier study on tariffs released by the APEC PSU in 2019, which among other things, examined market access commitments within one of the possible FTAAP pathways, the

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). The signing of the Regional Comprehensive Economic Partnership (RCEP) in 2020, another possible pathway, motivated this study, which analyses the tariff liberalisation schedules of RCEP and compares the extent of tariff liberalisation within the RCEP and CPTPP.

Findings

Both the CPTPP and RCEP are important pathways for FTAAP because they strengthen economic links among their members (e.g., increased market access and greater economic integration across the region) and represent important instruments to build up trust among economies. The findings in this report show that from the tariff liberalisation perspective, RCEP is an important step forward to realising the creation of the much larger FTAAP.

The FTAAP envisions integrating trade in APEC and, thus far, RCEP will strengthen links among 12 member economies, while the CPTPP is linking 11 member economies. Australia; Brunei Darussalam; Japan; Malaysia; New Zealand; Singapore; and Viet Nam would most likely benefit more compared to other APEC member economies since they are parties to both the CPTPP and RCEP. Meanwhile, Hong Kong, China; Papua New Guinea; Russia; Chinese Taipei; and the United States remain outside of both the CPTPP and RCEP.

Market Access Commitments within the RCEP. Signed on 15 November 2020, RCEP is the largest regional FTA in the world. RCEP's potential is huge as its 15 members account for about 2.2 billion people (30.0% of global population), a regional GDP of about USD 38,813 billion (30.0% of global GDP), and nearly 28.8% of global trade.

RCEP brings increased market access to a large and regionally significant market. In fact, it increases the number of duty-free tariff lines from 22.9% (at the beginning of the RCEP negotiation) to 63.4% after entering into force in full for all RCEP members. Moreover, it is worth noting that 89.7% of total tariff lines would become duty-free upon RCEP's Year-21 – a meaningful liberalisation of goods in the region considering the difficulties that RCEP economies had to face, such as the different levels of ambition by RCEP parties and the problems to reach consensus among some of the parties. In addition, RCEP is groundbreaking for agreeing on preferential tariff treatment to important bilateral trade flows that had not been subject to market access benefits of any prior FTA in force. For example, trade flows between China; and Japan as well as Japan; and Korea.

In other words, RCEP contributes to improved market access through deepening tariff liberalisation commitments from those in existing FTAs among RCEP parties, and starting a preferential tariff treatment among RCEP parties with no prior FTA. The effort to reduce or eliminate tariffs has been significant. Looking at the differences between the base and

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preferential tariffs in RCEP members provides a glimpse of the extent of the liberalisation achieved through RCEP.

Considering that reaching any agreement tends to be more difficult as the number of parties involved is higher, it is not surprising that considerable challenges appeared during the RCEP negotiation process. Furthermore, the differentiated development levels among these parties were another factor that added an extra level of complexity to the process.

The final agreement involved a deal including multiple tariff liberalisation schedules for several parties, offering a differentiated preferential tariff rate depending on the RCEP party where the goods are originating, as well as a significant number of products under long liberalisation periods (26.0% of total tariff lines) or partial liberalisation (3.1% of total tariff lines). RCEP negotiations also led to very sensitive products being excluded from the liberalisation process (7.2% of total tariff lines). In this sense, RCEP's liberalisation process is remarkable but relatively slower compared to other FTAs because 26.0% of its total tariff lines are scheduled for full liberalisation only after 10 years or more, which is relatively more compared to, for instance, the CPTPP (5.7%).

At the sectoral level, raw materials or intermediate products, such as: ores, slag, and ash (HS 26); fertilisers (HS 31); cork and articles of cork (HS 45); pulp of wood and recovered paper or paperboard (HS 47); silk (HS 50); and nickel and other base metals and articles thereof (HS 75), would benefit the most since these product groups are among the most fully liberalised upon RCEP's entry into force.

However, the analysis of tariff liberalisation schedules only provides part of the story regarding tariff liberalisation. In practice, their effectiveness will also depend on other factors such as the product-specific rules of origin. While an analysis of rules of origin is out of the scope of this study, it is possible that more restrictive rules of origin in RCEP in comparison to other FTAs involving RCEP partners, could undermine preferential tariff rates agreed in RCEP, as it will be harder to meet the requirements to qualify for preferential treatment.

Meanwhile, labour-intensive manufactures, agricultural products, and intermediate products are the topmost products to be liberalised over a period of 10 years or more. Across all RCEP members, the most frequently cited HS Chapters are: preparations of cereals, flour, starch, or milk (HS 19); preparations of vegetables, fruits, and nuts (HS 20); soap (HS 34); articles of leather (HS 42); cotton (HS 52); carpets (HS 57); special woven fabrics (HS 58); apparel and clothing, knitted or crocheted (HS 61); apparel and clothing, not knitted and crocheted (HS 62); footwear (HS 64); headgear and parts (HS 65); and feathers and articles thereof (HS 67).

Partial liberalisation has been implemented by RCEP members following different approaches, such as: (1) reducing the ad valorem duty from

base rate to a certain point and remaining at that level; (2) reducing the ad valorem part of the duty while the non-ad valorem component remains unchanged; and (3) reducing both the ad valorem and the non-ad valorem parts of the duty. Most of these goods are non-agricultural products. In fact, the ratio between non-agricultural and agricultural is quite high at 5.4:1. Examples of non-agricultural products with the highest average ratio of tariff lines subject to partial liberalisation include: cotton (HS 52); man-made staple fibres (HS 55); ceramic products (HS 69); and vehicles other than railway or tramway rolling-stock (HS 87).

Products excluded from the RCEP liberalisation process include agricultural products (e.g., dairy produce, eggs, and honey (HS 04); and beverages, spirits, and vinegar (HS 22)), labour-intensive manufactures (e.g., footwear (HS 64)), products in strategic sectors (e.g., vehicles other than railway or tramway rolling-stock (HS 87)), and products with negative externalities (e.g., tobacco and manufactured tobacco substitutes (HS 24)).

Comparing the Extent of Tariff Liberalisation within the CPTPP and RCEP

Both the CPTPP and RCEP are important mega-FTAs showing progress in trade liberalisation in the Asia-Pacific region, in comparison to a scenario with none of them being in force. While CPTPP was driven by individual economies seeking to achieve an FTA with high standards and comprehensive market access, the RCEP negotiations were institutionally driven by ASEAN in order to facilitate the participation of larger partner economies.

The differences in the nature of CPTPP and RCEP have influenced the depth of their tariff liberalisation schedules. For instance, at the date of entry into force, RCEP parties agreed to fully liberalise 63.4% of total tariff lines, compared to CPTPP parties which agreed to the full liberalisation of 86.1% of the tariff lines. In addition, the starting points for both negotiation processes were different. While 54.1% tariff lines in CPTPP already had a base tariff equal to 0%, only 22.9% of the tariff lines in RCEP had duty-free base tariffs.

Another key difference between the CPTPP and RCEP is that the latter has no explicit staging categories and it does not fully liberalise any single HS Chapter upon entry into force — unlike the CPTPP that immediately liberalised 10 HS Chapters across all of its members. Moreover, the maximum period granted to reduce preferential tariff rates to duty-free level is longer in RCEP than in the CPTPP.

In addition, RCEP members included a larger percentage of their tariff lines subject to liberalisation periods of 10 years or more (26.0%), as compared with the CPTPP's 5.7%. In fact, 30 out of 39 RCEP liberalisation schedules had more than 19.6% of its total tariff lines under longer liberalisation periods. Incidentally, the CPTPP's highest percentage was from Mexico's schedule at 19.6%. RCEP also has considerably more goods under partial liberalisation and exclusion compared to the CPTPP.

Finally, economies in the CPTPP and in RCEP differ on which product group they consider as more sensitive. This is closely related to the productive structures of their economies. In the CPTPP, most of the exclusions and products under partial liberalisation concerned agricultural products, whereas RCEP concerned more non-agricultural products.

Despite these differences between CPTPP and RCEP, both agreements are remarkable as they will fully liberalise a significant percentage of tariff lines. In the long term, 98.9% of the tariff lines will eventually be fully liberalised under CPTPP, while 89.7% of the RCEP tariff lines will enjoy full liberalisation after 21 years.

Resiliency in a Post-Pandemic APEC: Approaches to Driving Growth in Digital Services

Link: <https://www.apec.org/publications/2022/08/resiliency-in-a-post-pandemic-apec-approaches-to-driving-growth-in-digital-services>

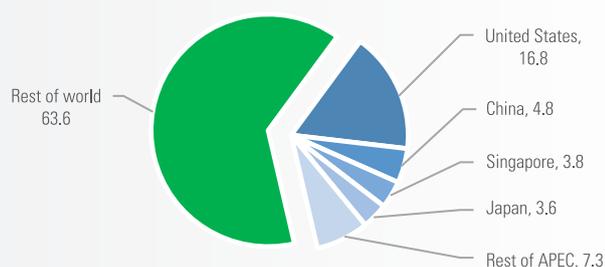
This Policy Brief explores the convergence between digitalisation and services, and how that intersection can make an economy more resilient to shocks. It analyses some of the available services statistics, highlights the role of digitalisation in services access and provision, and offers policymakers a set of recommendations to drive growth in digital services.

Findings

Services is arguably the hardest-hit sector during the COVID-19 pandemic. This is particularly true for services that traditionally have required in-person contact. Changing consumer preferences and government containment measures made operations challenging for such businesses. The difficulties prompted people and businesses to turn to digital services.

One way of estimating digital services is by categorising certain existing services categories (e.g., telecommunications, financial, professional and management consulting services) as digitally deliverable services (DDS). Collectively, APEC contributes more than one-third of global DDS exports in 2020.

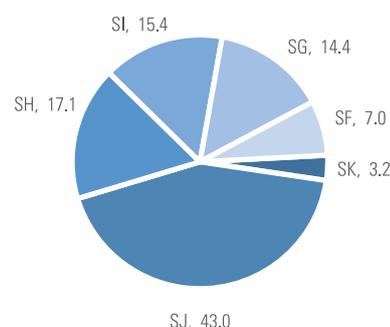
Share of global DDS exports, 2020 (%)



Source: APEC PSU calculations based on UNCTADStat data.

Disaggregating APEC trade in DDS by services categories, other business services took the lion's share in 2020 (43.0%). This is followed by: charges for the use of intellectual property, not identified elsewhere (17.1%); telecommunications, computer and information services (15.4%); and financial services (14.4%).

Share of DDS trade in APEC by category, 2020 (%)



Categories shown are: SF=insurance and pensions services; SG=financial services; SI=telecommunications, computer and information services; SH=charges for the use of intellectual property, not identified elsewhere; SJ=other business services; SK=personal, cultural and recreational services.
Source: APEC PSU calculations based on UNCTADStat data.

Services trade data show that digitalisation has been one of the ways used to strengthen resiliency during the pandemic. Pre-pandemic, growth in DDS trade had already outpaced non-DDS trade. The pandemic accelerated this trend. DDS trade in the APEC region grew by 1.2% between 2019 and 2020, while non-DDS trade contracted sharply, by 43.6%, over the same period.

The following table shows in more detail the growth of DDS and non-DDS trade in APEC. All non-DDS services categories showed negative growth between 2019 and 2020. Travel services was the hardest-hit category, declining by 63.8%. This is followed by maintenance and repair services, not identified elsewhere; manufacturing services on physical inputs owned by others; and transport services. In comparison, most DDS services categories registered reported positive growth rates, including: insurance and pension services (7.2%); telecommunications, computer and information services (5.3%); and financial services (5.2%).

Growth of DDS and non-DDS trade in APEC (%)

| Services categories | 2010–2019 | 2019–2020 |
|---|------------|------------|
| All DDS | 6.6 | 1.2 |
| SF: Insurance and pension services | 0.5 | 7.2 |
| SG: Financial services | 6.5 | 5.2 |
| SH: Charges for the use of intellectual property, n.i.e. | 4.1 | 0.4 |
| SI: Telecommunications, computer and information services | 10.9 | 5.3 |
| SJ: Other business services | 7.9 | (1.7) |
| SK: Personal, cultural and recreational services | 7.4 | (0.6) |

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| All non-DDS | 4.3 | (43.6) |
|---|------|--------|
| SA: Manufacturing services on physical inputs owned by others | 0.9 | (37.8) |
| SB: Maintenance and repair services, n.i.e. | 10.4 | (46.3) |
| SC: Transport | 2.1 | (20.5) |
| SD: Travel | 6.6 | (63.8) |
| SE: Construction | 2.2 | (15.4) |
| SL: Government goods and services, n.i.e. | 0.3 | (3.0) |

n.i.e. = not identified elsewhere.
Source: APEC PSU calculations based on UNCTADStat data.

There are at least three ways for digitalisation to improve services trade resilience amid the pandemic:



Minimise reliance on physical proximity

(e.g., virtual tours, remote services, mobile wallets)



Improve efficiency and productivity

(e.g., digital project management, bundling, robo-advisors)



Reimagine services delivery to create new opportunities

(e.g., hybrid classrooms, telehealth)

The transition to providing services digitally, however, is not an easy one to make. Many factors have to come together. The ability to access and make use of relevant technologies is critical to participate in and benefit from the digital economy. A supportive regulatory environment is also important in accelerating the move toward the digital economy.

Recommendations

Appropriate policies have a strong role to play in growing digital services. Some policy recommendations that policymakers can consider are discussed below:

- **Enhance digital literacy and digital skills.** Economies need to ensure that their education curriculum evolves with the requirements of the digital economy, with particular attention being placed on early childhood education as some skills may be best acquired in the early years. They should also look at having strong worker retraining programmes, preferably as part of a broader set of active labour market policies to ensure that the unemployed have the necessary digital skills to find jobs more quickly. Often, such policies would need to be complemented with social safety nets capable of supporting workers during the transition. Additionally, economies would need to provide avenues for lifelong learning to ensure that workers, including those who are currently employed, could acquire new skills and remain relevant.

- **Overcome digital access issues.** Economies need to work with telecommunications providers to widen their network coverage and to ensure affordability of subscriptions while, at the same time, making sure that services quality is not compromised. They could also consider focusing on developing the mobile broadband market since this can be more affordable compared to fixed broadband services, not to mention that mobile networks can better reach those residing in underserved areas. Economies should also look into how grants, subsidies and other incentives could be provided to support purchase of devices and to upgrade legacy systems, among others.

- **Employ a holistic approach to domestic regulation.** Economies need to acknowledge that services policy does not work in silos and a holistic approach to services regulation is imperative to ensure seamless provision across modes of supply. Economies would have to build on existing mechanisms as well as explore new ones to better coordinate policies between ministries and agencies, including those responsible for the digital space. Recognising that the private sector is the beneficiary, provider and user of services, economies should enhance engagement with them and consider how their perspectives could be incorporated into the policymaking process. Economies could also consider implementing regulatory sandboxes to allow for trials of new technology and offerings, particularly in highly regulated sectors where compliance with existing regulatory approaches might be challenging.

- **Tackle regulatory heterogeneity and leverage regional cooperation.** Economies could work together to identify and agree on some common principles behind regulations affecting services. The APEC Non-Binding Principles of Domestic Regulation of the Services Sector, the recently concluded WTO Joint Initiative on Services Domestic Regulation and the ongoing WTO Joint Initiative on E-commerce are some examples. Economies could also strengthen cooperation on various aspects of the digital economy by mutually recognising professional qualifications, exploring interoperability between regulations and initiatives, carving in frameworks supportive of the digital economy in existing agreements, and negotiating new agreements specific to the digital economy. Additionally, economies could leverage the capacity-building activities organised under the ambit of ongoing APEC initiatives related to services and the digital economy to learn best practices and to improve their regulations.

- **Improve availability of reliable statistics.** Data and indicators serve a range of useful purposes: they can stimulate discussions both within and between economies; they allow economies to undertake reforms and make informed policy adjustments; and they enable economies to determine if a situation has improved, remained the

same, or backtracked over time, which allows policymakers and regulators to respond accordingly. Nevertheless, existing indicators are not without gaps and challenges. It is important to expand their coverage to more economies, to ensure their comparability across economies and (where relevant) to disaggregate statistics by gender and geographical location for more targeted policy interventions. Indicators may also need to be refined to ensure their continued relevance in the digital economy. Finally, recognising that there is a limit to improving existing indicators, economies should complement them with new indicators, including reaching consensus on definitions.

Trade Networks amid Disruption: Promoting Resilience through Digital Trade Facilitation

Link: <https://www.apec.org/publications/2022/12/trade-networks-amid-disruption-promoting-resilience-through-digital-trade-facilitation>

This Policy Brief explores the role of digital trade facilitation (DTF), or the application of digital tools to facilitate trade, in the wake of the COVID-19 pandemic. It highlights the possible ways that DTF could help promote stronger and more resilient value chains, and identifies the key elements as well as policy approaches that policymakers could consider to successfully implement such digital solutions.

Findings

DTF can enhance supply chains in at least three ways:



Improve operational resiliency

(e.g., AI-enabled tools, digitisation of customs documents)



Strengthen cross-border connections

(e.g., regional single windows, blockchain technology)



Contribute to enhanced data ecosystems

(e.g., DTF as a 'cog in the wheel' of data ecosystems)

- Improve operational resiliency. DTF could ensure that various disruptions affecting port operations would have less impact. For example, DTF avoids the need for paper documents and allows for easy replication and reproduction of documents, which means resilience against an adverse event. DTF could also prevent corruption and manipulation/sabotage by enabling multiple copies that could be cross-checked against each other in real-time (e.g., through blockchain). Having servers in many locations or in the

cloud can also build resilience to infrastructure damage and ensure business continuity. Specifically, in the context of the COVID-19 pandemic where widespread infections could lead to staffing shortages, tools such as AI-guided cranes, aquadrones and sensors could be employed to automate repetitive tasks, thereby reducing the need for manual labour. Digitalising customs documents could also reduce (if not eliminate) the need for physical proximity, which is particularly useful in minimising infection risk during a pandemic.

- Strengthen cross-border connections. DTF solutions could be employed to consolidate customs-related documents and information (thereby increasing transparency) as well as to seamlessly connect authorities and traders in different economies. For example, the Pan Asian e-Commerce Alliance, a partnership involving trade and customs service providers across several economies that includes 11 APEC members, utilises blockchain technology that is interoperable with various platforms already in use by economies. Through this initiative, traders are able to submit documents online and have them remotely processed by customs officials, reducing customs clearance times from half a day to just 15 minutes. Another way of connecting economies is to create a common anchor point such as single windows and expanding it in multiple stages to the point of enhancing cross-border connections. One example of a regional initiative is the ASEAN Single Window, which connects and integrates single windows across ASEAN members, thereby expediting cargo clearance and facilitating faster and better trade facilitation.
- Contribute to enhanced data ecosystems. Formulating credible and well-informed strategies requires economies to have access to a range of data and tools. For example, if the objective is to ensure minimal disruptions in accessing a specific product, economies would need to have a good understanding of the trade networks for that product, to identify potential bottlenecks and to devise ways to minimise the possible disruptions that could arise under various situations. At the implementation stage, data would be needed to determine if the strategies have led to the desired objectives (or at least some progress toward them) or whether they need to be revised accordingly. As an illustration, artificial neural networks have been used by UNCTAD to predict the impact of trade policies on trade flows.

Having comprehensive data ecosystems capable of generating, collecting, merging and analysing quality data is key to the above endeavour. DTF could be 'a cog in the wheel' of those data ecosystems, given the volume of data and level of detail that could be collected by DTF tools — the importance of data privacy and security notwithstanding.

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Recommendations

Policymakers could consider these policy approaches to support DTF:



Enhance digital and physical infrastructure

Entry-level mobile broadband services are generally affordable in APEC, but actual access can vary across locations and demographics



Improve digital skills

(e.g., access to quality education, capacity building for ports)



Ensure a supportive policy environment

(e.g., whole-of-government approach)



Leverage regional and international cooperation

Less than 5% of APEC economies have fully implemented the electronic exchange of documents

- Enhance digital and physical infrastructure. Having the right infrastructure, both digital and physical, is essential in supporting DTF. According to the 2021 United Nations Global Survey on Digital and Sustainable Trade Facilitation, APEC is making good strides in some areas (e.g., 15 economies already have internet connectivity for their customs authorities and other related agencies; 13 economies have implemented their own domestic single windows). However, the survey also shows that APEC still has room for improvement (e.g., several economies have only partially implemented the electronic submission of air cargo manifests and electronic application for customs refunds).

Transforming ports by introducing digital-ready systems is thus critical, but that is not in itself sufficient. The value of such digitalisation will be limited if the larger domestic ecosystem does not catch up and users are unable to benefit from such tools. It is thus important to monitor the state of digital infrastructure in the economies more broadly. In the APEC region, access to fixed broadband has improved to nearly 30 subscriptions per 100 inhabitants in 2021 while access to mobile broadband has increased to 114 subscriptions per 100 inhabitants in 2021. Further, entry-level mobile broadband services are generally affordable across most APEC economies. Notwithstanding, actual access and affordability can vary across and within economies. In some economies, accessibility differs by gender.

Policies that encourage competition and investment in high-speed networks, and those that are open to innovative approaches to services provision, could boost the interest of service providers in widening their network coverage and ensuring that the quality of their services is maintained. One approach is to encourage more flexible public-private partnerships, which would be beneficial to the government as well as the private sector. Economies would also need to upgrade legacy systems to support and employ digital tools such as blockchain-enabled platforms and the internet of things (IoT). This could be done through grants, subsidies and other incentives.

- Improve digital skills. Digital skills are important in implementing DTF. Although relevant indicators for the APEC region show a population with digital skills, or that the situation has improved over time, those same indicators paint a different picture when analysed at the level of the individual economy. For example, 82% of APEC's population aged 15 and above had actively engaged in digital payment transactions in 2021, but within that, there is a wide gulf between individual economies, from a low of 37.2% to a high of 98.9%.

Furthermore, optimally benefitting from specific smart machinery and digital technologies would require workers who know how to utilise or operate them. As much as 80% of the world's 4,900 ports lack digital capabilities, and the long-standing skills imbalance and talent mismatch in many economies including APEC could be one of the factors constraining the number of qualified workers available. The situation may have been further exacerbated by maritime logistics not being the first choice of digital talents and by ports having to compete with other industries in attracting high-skilled workers. This means that, for a start, economies would have to ensure that their customs officials have the requisite skills to use the digital tools needed to fulfil their day-to-day responsibilities. In other words, as digital tools such as single windows are being rolled out to cover more documents and agencies, economies would need to expand training.

Also, new jobs such as data analysts and scientists, AI developers and IoT specialists would be needed since DTF involves programming machines and modelling AI solutions, among others. While different APEC economies have recognised the importance of digital skills and have provided upskilling and reskilling opportunities, more needs to be done to boost talents in such critical skills. This could include encouraging more females to consider career paths in data science and data analytics (females accounted for only 28% and 40% of tertiary graduates in engineering and computer sciences, respectively, in 2018), thereby enlarging the existing digital talent pool (only 22% of AI professionals in 2018 are female).

At a broader level, economies would have to ensure that the users of such tools (e.g., traders) have the capability and willingness to utilise them to their benefit. This could involve workshops and other forms of engagement. In addition, economies could also generate increased interest in relevant sectors via awareness campaigns focusing, for example, on the talents needed to operate modern ports and the available career paths for potential hires.

- **Ensure a supportive policy environment.** The transition to DTF, even with the right digital infrastructure and skills, will be challenging if policies are fragmented or inadequate. For example, if an economy does not recognise or treat an electronic signature as functionally equivalent to a non-electronic one, then traders would find themselves dealing with the inconvenience of having to submit physical forms despite already submitting them online. Mapping policies across APEC, a 2020 APEC PSU report reveals that most economies already have laws and regulations related to electronic or digital signatures. Yet, relatively fewer economies have ongoing initiatives in areas such as e-invoicing, which is relatively more efficient as compared to traditional, paper-based invoicing methods.

Considering that multiple agencies are usually involved in facilitating trade, economies would also have to improve coordination between agencies, including having a whole-of-government approach, strategy, or action plan to increase digitalisation. The same report shows that a majority of economies have already formulated a domestic digital or e-commerce strategy. Economies need to build on these strategies to push for the public sector to be a trailblazer in digitalisation efforts as well as for better coordination across agencies.

Economies also need to take into account the reality that technologies evolve with time. Even as they encourage the adoption of the latest DTF solutions, they would need to be forward-looking and recognise that there could be better solutions. As such, it is critical that economies encourage innovation and are open to implementing trials of nascent technologies as they become viable through mechanisms such as regulatory sandboxes. At the same time, economies should recognise that new technologies carry potential risks and that it is important to build trust. They should proactively manage the risks associated with their adoption, which would involve balancing hard law and more flexible approaches to regulation.

- **Leverage regional and international cooperation.** International cooperation and coordination are essential for effective trade facilitation. Of primary importance in cross-border transactions is interoperability, that is, how domestic systems developed by various economies could work with one another, which usually involves

multiple layers (e.g., laws and regulations, systems, communication protocols, data security). One indication of the challenges of achieving interoperability can be seen in the implementation of cross-border paperless trade measures. Despite a significant share of economies having put in place the legal basis for cross-border paperless trade systems (i.e., laws or regulations for electronic transactions and/or a recognised certification authority), full implementation of electronic exchange of documents (customs declarations, certificates of origin, sanitary and phytosanitary certificates) have a noticeably lower breadth of implementation.

Internationally, the United Nations Commission on International Trade Law (UNCITRAL) has developed three model laws relevant to DTF which are helpful for minimising regulatory heterogeneity between economies. These model laws are formulated with the intent to encourage economies to enact or revise their relevant laws, although each economy also has the flexibility to depart from these model laws.

International cooperation and coordination can also include capacity building, information sharing and joint initiatives. International and regional fora such as APEC provide the avenue for economies to deliberate, to share experiences and to advance work on DTF. For example, a (non-exhaustive) set of best-practice guidelines is being developed to assist traders with updating their electronic customs procedures to align with the systems and legislative frameworks implemented by APEC economies and their customs authorities.

Connectivity, Supply Chain and Value Chain

Enhancing Implementation of APEC Connectivity Blueprint in the Digital Era: Digital Connectivity for Stronger Recovery

Link: <https://www.apec.org/publications/2022/03/enhancing-implementation-of-apec-connectivity-blueprint-in-the-digital-era-digital-connectivity-for-stronger-recovery>

This report addresses how APEC members can take advantage of the innovative and productive opportunities offered by greater digital connectivity.

Findings

In 2014, APEC members agreed to the APEC Connectivity Blueprint, which identified the following key challenges to connectivity: (1) disparity in access to and quality of physical and information and communications technology (ICT) infrastructure; (2) existing regulatory

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constraints or lack of capacity; and (3) existing barriers to interaction and mobility of people. The Blueprint also stated the need to connect growth poles in the region and bring the region closer together as a community. Fast forward to 2021 and the global landscape has changed as many economies grapple with economic recovery and adapting to a new post COVID-19 reality.

The digital economy has grown exponentially in recent years and digitalisation processes are underway in all APEC economies. Collectively, APEC economies are more connected in the digital realm than ever before. The COVID-19 pandemic has further solidified our reliance on digital connections and has greatly accelerated recent trends in digital connectivity as people are increasingly working, learning, and communicating through digital technology. As economies begin to recover and develop policies for the post-COVID-19 era, facilitating greater digital connectivity can help APEC members to ensure a more sustainable economic recovery following the disruptions brought about by the pandemic. The COVID-19 pandemic has revealed opportunities to accelerate and expand the trends of digital transformation during the recovery process since the current technology supports interoperability among businesses, service providers, and governments.

This report discusses recent trends in the digital economy and presents a number of best practices to promote greater digital connectivity in the region. Developments in the digital world from the perspectives of physical, institutional, and people-to-people connectivity emphasize that, while none exist independent of each other, they each require a different sort of policy response. Efforts to improve physical infrastructure range from ensuring access to a stable Internet connection to incorporating advanced technologies into screenings by customs agencies. In order to enhance cross-border trade in the digital era, APEC economies must also achieve a certain level of institutional connectedness. At the same time, uneven access to the digital economy risks widening existing divides, while increased digitalisation and transfer of personal information creates potential risks to data security and privacy.

Eight case studies submitted by four APEC members for this report describe initiatives to advance physical, institutional, and people-to-people connectivity in the region. The approaches taken in these case studies can be grouped into three major themes: (1) building a reliable data ecosystem; (2) developing interoperable data systems to facilitate digital transformation; and (3) improving digital education to better equip the workforce for the digital economy.

Indeed, APEC members have made significant progress in advancing the objectives of the APEC Connectivity Blueprint, especially in responding to the COVID-19 pandemic and supporting economic

recovery. Over the past year, many members have retooled approaches and integrated emerging technologies, while some have experimented with new and innovative policy solutions. However, key challenges remain in order to achieve greater digital connectivity throughout the region. Many of these obstacles are already acknowledged and will require governments as well as the private sector to experiment with innovative solutions.

This report discusses four main challenges in digital connectivity currently facing the region: (1) reducing the digital divide; (2) improving interoperability of digital systems and ensuring data security; (3) fostering greater regulatory cooperation to support the digital economy; and (4) maximising digital dividends and spillover benefits. Strengthening efforts in the implementation of the APEC Connectivity Blueprint in these areas will allow economies to reap the greatest potential benefits that are provided by the digital economy. Managing and recovering from the COVID-19 pandemic has brought new urgency to these challenges and requires effective responses to ensure that growth, particularly in the digital economy, is both inclusive and sustainable.

Recommendations

In order to promote greater digital connectivity in the region and progress toward the achievement of the goals of the APEC Connectivity Blueprint, APEC members are encouraged to consider the following policy recommendations.

| Main Challenges | Policy Recommendations |
|--|---|
| Reducing the digital divide | <p>Build the physical infrastructure needed to extend high-speed Internet access across the entire economy, including to populations in rural and remote areas.</p> <p>Ensure that all students in the economy, especially those in socioeconomically disadvantaged schools, are equipped with the necessary physical devices to access the Internet.</p> <p>Promote the development of digital skills in the general population through training courses so that all individuals are able to use the digital tools required to access the digital economy.</p> <p>Incorporate digital education, including coursework to develop specific skills, into school curricula to better prepare the future workforce for the digital economy.</p> <p>Engage in capacity building to reduce the digital divide between members and improve digital connectivity in the region so that all APEC members can take advantage of the benefits of the digital economy.</p> |
| Improving cross-border interoperability of digital systems | <p>Continue efforts to digitalise trade processes to further increase trade efficiency as well as enable greater engagement of SMEs, thereby helping to make trade more inclusive and supportive of sustainable development.</p> |

Implement the technical frameworks needed to establish cross-border paperless systems to progress towards greater integration of single window systems to further improve trade facilitation in the region.

Examine how domestic digital applications for COVID-19 health certifications can be developed and/or integrated into existing regional systems to ensure interoperability and help facilitate cross-border travel.

Ensure that digital infrastructure and digital processes are resilient by developing and implementing strong data security frameworks to protect increasingly interconnected digital systems against cyberattacks.

Fostering greater regulatory cooperation

Renew efforts to reduce regulatory barriers, such as those concerning electronic transactions, in order to facilitate greater cross-border trade and also promote the digital economy.

Participate in multilateral collaborative efforts to develop frameworks that align rules and standards relevant to trade in the digital era, such as by fostering interoperability of systems, thereby helping to support economic recovery and sustainable and inclusive growth.

Develop innovative regulatory solutions to address the compliance issues relating to tax and labour laws that arise due to cross-border remote work, thereby supporting flexible working arrangements and enabling firms to become more competitive.

Maximising digital dividends and spillover benefits

Promote digital entrepreneurship through the use of incentives to reduce risks associated with the application of new technologies.

Adopt certain digital safeguards, such as data privacy policies and social protection, to address informalisation and job displacement.

A Decade of Supply Chain Initiatives: Opportunities and Challenges in Post-COVID-19 Recovery

Link: <https://www.apec.org/publications/2022/01/a-decade-of-supply-chain-initiatives-opportunities-and-challenges-in-post-covid-19-recovery>

This Policy Brief recaps the earlier implementations of the APEC Supply-Chain Connectivity Framework Action Plan (SCFAP) and suggests chokepoints that are essential to strengthening supply-chain connectivity and regional economic integration in the Asia-Pacific region after considering key trends in global value chain (GVC) development and new challenges and opportunities found in the digital economy.

Findings

APEC's SCFAP began with the conclusion of two consecutive Trade Facilitation Action Plans, in 2002 and 2006, respectively. The plans had aimed to reduce transaction costs by 5%, primarily by addressing customs and other trade procedures that hinder, delay or raise the cost of moving goods across borders. The intention of the SCFAP was to move beyond reducing transaction costs and extend the scope to include improving trade logistics as part of the trade facilitation agenda.

SCFAP I and Lessons Learned. SCFAP I (2010–2015) had a target of 10% reduction in time, cost and uncertainty by 2015 through addressing the eight chokepoints in transparency, infrastructure, logistics capacity, clearance, documentation, multimodal connectivity, regulations and standards, and transit.

The final review of SCFAP I notes progress and outcomes: a slight improvement in overall logistics performance; faster time to complete trade transactions; lower cost to import and export in real terms (inflation adjusted); and a marked improvement in the border clearance environment. It also acknowledges that high logistics costs were still an issue and suggests policy objectives that should be kept in mind when identifying the chokepoints for SCFAP II.

SCFAP II and Lessons Learned. SCFAP II addressed five major chokepoints in supply chains: (1) Lack of coordinated border management, and underdeveloped border clearance and procedures; (2) Inadequate quality of, and lack of access to, transportation infrastructure and services; (3) Unreliable logistics services and high logistical costs; (4) Limited regulatory cooperation and best practices; and (5) Underdeveloped policy and regulatory infrastructure for e-commerce.

The final review shows that as of 2019, APEC economies had generally performed well for chokepoints 1, 2 and 4, while performance for chokepoints 3 and 5 remained mixed. It suggests APEC economies to consider targeting their efforts on these issues: improving resilience to ensure greater certainty; keeping trade costs low; improving interoperability and cooperation; improving investment in digital technologies; advancing supply chain visibility; and maintaining environmental sustainability.

Trends in GVC Development. Several new trends are emerging in the development of GVCs. First, services and intangibles are gaining in importance. Value added in GVCs is increasingly generated beyond manufacturing as advanced methods of production that involve services and intangible assets are applied. The rising number of services jobs created for manufacturing is driving the growth of services-in-trade shares, in addition to supporting higher GVC participation in certain economies. Intangible assets, such as brands, designs, patented

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technologies and know-how, serve to distinguish the leading firms in GVC networks from their suppliers.

Second, innovation and knowledge spill-overs are becoming an important element of modern GVCs. GVC networks are crucial channels of knowledge transfer and productivity-enhancing innovation. Local firms and suppliers may benefit from GVC participation and interactions by improving their learning capacity to absorb the new technology or know-how. This may increase domestic innovative capabilities and technological (or economic) upgrading in domestic manufacturing firms.

COVID-19 has further put the spotlight on new risks and the transformation of old risks affecting, and caused by, GVC trade and policy responses surrounding the post-pandemic recovery. GVCs characterised by complex, lengthier and concentrated production or distribution are most vulnerable. As a result of a highly integrated global economy, economies are becoming vulnerable to supply chain risks, which may negate the benefits of offshoring production based on cost-related factors.

GVCs may be cushioned from future shocks by moving toward sustainable practices, such as adopting reusable packaging. Sustainable GVCs may also contribute in distributing the gains from globalisation more evenly.

New Challenges and Opportunities in the Digital Economy. With the experience from implementing SCFAP I and II, APEC economies have developed knowledge on adapting to new challenges and opportunities. In terms of the digital economy, overcoming the digital divide in APEC economies and achieving balanced and inclusive economic growth is a major challenge for the region.

Prior to the pandemic, ICT infrastructure was already identified as one of the major factors in enhancing participation in the global supply chain. COVID-19 has further put ICT infrastructure and supply chain visibility at the heart of economic recovery. Digital technologies played a crucial role in keeping society functioning during the pandemic, whether by enabling remote working, automating processes or facilitating contactless transactions. Therefore, creating high-functioning ICT infrastructure and robust digital connections across economies is a top priority, so as to improve digital connectivity in the APEC region. However, the availability of financing for infrastructure investments remains constrained, delaying or preventing the development of these projects. To overcome the digital divide, economies should consider sharing the burden of financing ICT infrastructure and making the investment climate more attractive. The public-private partnership (PPP) approach could be more widely introduced to finance ICT infrastructure projects.

The digital economy also brings opportunities for inclusive growth. The rise of digital platforms provides more opportunities for SMEs and women entrepreneurs from developing economies to participate in GVCs. The ability to explore the potential of digital platforms is, however, constrained by limited digital capacity and poor infrastructure. Digital platforms also allow GVCs to become more resilient as shown by the increased use of such platforms after the initial shock of the pandemic. Investing more in digitalisation and automation may also improve the visibility and flexibility of GVCs.

Recommendations

APEC has been taking the lead in addressing supply chain chokepoints with the objective of facilitating a regulatory environment for businesses that supports efficiency, connectivity and certainty. In the midst of evolving supply-chain reconfiguration (or rebalancing) and COVID-19 recovery, businesses are pursuing a range of supply chain strategies, including automation, digitalisation, multiple sourcing, redundancy, nearshoring and suppliers mapping. The multidimensional character of the COVID-19 crisis has resulted in a plurality of approaches for recovery. The following potential chokepoints need to be addressed with the goal of improving the efficiency and reliability of supply chains.

- Lack of transparency, cooperation and consistency in trade, transportation and border-related policies. Earlier SCFAPs have identified the lack of transparency and consistency as a challenge in improving the region's supply-chain connectivity. Efforts such as promoting single window interoperability and expansion of authorised economic operator mutual recognition agreements ensure greater predictability and reduce trade costs. This is important because policy uncertainty may have significantly contributed to the decline in world trade growth, with possible long-term impact on investment.
- Lack of resiliency and sustainability in the global supply chain network. Resiliency can be achieved through several means such as by promoting flexibility and visibility. Supply chain flexibility helps firms respond more quickly to fluctuations and withstand disruptions. Better visibility and mapping would support the prevention and mitigation of supply chain disruptions. Closer international collaboration, reciprocity and transparency on the preventive measures would allow better handling of GVC-related risks. While longer supply chains may be more susceptible to risks, inward-focused resiliency strategies may be costly and not economically sustainable. Sustainable supply chain management practices may also contribute to increased resiliency. It goes the other way as well: a resilient (as opposed to fragile) supply chain might be more likely to 'go green'. An eco-friendly supply chain

could enhance business competitiveness through better brand recognition as well as in meeting tighter regulations.

- High costs and uncertainty in logistics and supply-chain related services. Supply chain disruptions and congestion are costly and may entail costly solutions. With the recovery process evolving in an uneven manner, firms would need to adjust to the uncertainties and governments would need to facilitate that process of finding an efficient solution. High logistics cost may also be an obstacle to the development of domestic value chains.
- Lack of collaboration and cooperation among supply chain stakeholders. Collaboration and cooperation among border agencies would allow smoother exchange of information and faster trade processing. Collaboration across firms, customers and logistics operators would also allow for reliable and seamless delivery. The focus should be on the drivers of collaboration, which may include trust, commitment and information sharing.
- Digital divide in transportation and connectivity infrastructure facilities. To narrow the digital divide, APEC economies should enhance the PPP environment to increase investment in digital infrastructure and technologies. Governments also need to facilitate the wide adoption of innovative supply chain practices to improve broad-based productivity. Tackling digital divide issues may facilitate more inclusive and sustainable supply chains (for example, through increasing the utilisation of digital platforms).
- Lack of regulatory reforms and cooperation to support the digital economy and digital solutions. Supply chain networks are evolving to adapt and contribute to the growing digital economy. APEC economies should implement regulatory reforms, introduce policies to promote data security and privacy, and streamline data flows.

The FDI Network, Global Value Chain Participation and Economic Upgrading

Link: <https://www.apec.org/publications/2022/05/the-fdi-network-global-value-chain-participation-and-economic-upgrading>

Foreign direct investment (FDI) represents an important internationalisation pathway to GVC participation. This Policy Brief contributes to the discussion regarding the extent and desirability of developing economies attracting FDI and participating in GVCs. It examines bilateral FDI networks, as well as China; Indonesia; and Viet Nam's economic structures and their GVC participation and positioning in the textile, electronics, and automobile sectors.

Findings

APEC and East and Southeast Asia as FDI Destinations. The APEC economies as a group have dominated as FDI recipients. The accumulated FDI stock in the APEC region grew at an annual average of 10.4% between 1990 and 2020. As of 2020, APEC economies accounted for nearly 52% of the global inward FDI stock. The East and Southeast Asia region, home to more than half of the APEC members, is also becoming an increasingly attractive destination for foreign investment. The East and Southeast Asia region's share of world total inward FDI stock has grown from 13.7% in 1990 to 17.3% in 2020.

From the perspective of FDI inflows, APEC economies hosted nearly 68% of the world's total FDI inflows in 2020. The East and Southeast Asia region is also one of the biggest recipients of investment in 2020, making up nearly 43% of global FDI inflows.

Analysis of FDI Network. A (social) network analysis approach to identify the hubs in the FDI network shows that China; India; Italy; Korea; the Netherlands; Singapore; Spain; Thailand; the UK; and the US consistently scored high on centrality in the global FDI network, indicating that they hold central or hub positions in the FDI network. In fact, six of the 20 most central economies are APEC economies: China; Korea; Russia; Singapore; Thailand; and the US.

GVC Trades in APEC. GVC participation in APEC has reached 50%, compared to the global level of around 56%. At the sectoral level, the five largest GVC trades (excluding petroleum and mining) occur in: textiles and wearing apparel; metal products; electrical and machinery; transport equipment; and financial intermediation and business activities. Among these sectors, metal products; electrical and machinery; and transport equipment demonstrate higher GVC participation rates (GVC share) than the rest. These sectors, with the exception of textiles, are considered to be mid- to high-tech sectors.

To explore the link between the FDI network and the trade network, the correlation between FDI centrality and trade centrality was calculated. The two centrality measures (FDI and trade) show high correlation coefficients, ranging from 0.69 to 0.8. This could mean that economies that hold a central position in the FDI network will have a tendency to also be hubs in the global trade network. GVC participation does seem to attract investment in many emerging economies, but the relationship is by no means clear-cut since investment is highly dependent on broader regulatory and institutional frameworks.

GVC Participation. The case studies on China; Indonesia; and Viet Nam suggest that self-sufficiency levels in various economic sectors may influence GVC participation. For example, China's manufacturing

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and services sectors tend to be highly self-sufficient, that is, less dependent on international suppliers for materials or component parts. In contrast, Indonesia and Viet Nam lack self-sufficiency in advanced manufacturing industries and thus tend to be more integrated into GVCs in these sectors. The nature of their participation and position in GVCs are also different, which influence their development trajectory.

GVC Upgrading in Textile, Electronics and Automobile Sectors. According to UNCTAD, GVCs can be an important avenue for developing economies to build productive capacity, including through technology dissemination and skill building, thus opening up opportunities for longer-term industrial upgrading. GVCs tend to add more value upstream, in activities such as product design, R&D and the production of advanced parts and components, as well as downstream, through activities such as marketing and branding. In other words, having a GVC position nearer to the beginning of the production process may have the advantage of securing higher value-added shares as well as improving technological sophistication.

Developing economies in East Asia have been particularly enthusiastic about the upgrading prospects of integrating into GVCs. Most of these economies started with specialising in labour-intensive manufacturing assembly operations, before gradually moving up the value chain (such as material and parts procurement, R&D) to achieve industrial upgrading.

To measure upgrading within the GVCs of China; Indonesia; and Viet Nam, the GVC positioning index was used. The higher the value of the index, the relatively more upstream is the economic sector. Analysing changes in the index over time provides insights into the evolution of each economy's role and position along a particular production chain:

- Textile sector: The GVC position indexes of all three economies are relatively low compared to other sectors, indicating that their positions remain relatively downstream.
- Electronics sector: The GVC position index of China increased mildly from 0.85 to 0.90, indicating some upstream movement. Indonesia's index figures remain largely unchanged at around 0.84, indicating limited progress in GVC upgrading. Viet Nam's pattern is more dynamic, with its GVC position index decreasing from 1.07 to 0.86.
- Automobile sector: There has been a significant fall in the GVC positioning indexes of all three economies in the past two decades, indicating that all three economies have moved downstream. The automobile sector is more difficult to develop because its international competitiveness is heavily influenced by technological capability.

Overall, the evolving GVC positions of China; Indonesia; and Viet Nam demonstrate their varying performance in economic upgrading.

Sectoral patterns also show substantial differences. The textile and electronics sectors saw more dynamic changes, while the automobile sector was more technology-intensive and therefore more path-dependent. The experiences of these three APEC economies have important implications for other APEC developing economies.

Bearing on Firms' Performance. There are some evidence suggesting that firms that are more export-oriented and involved in the FDI network will have better performance in terms of sales, employment and productivity. Using data from the World Bank Enterprise Survey, firms in Indonesia with 10% or more foreign ownership performed strongly in terms of annual sales and productivity growth. Further, export-oriented firms have significantly higher employment growth compared to non-exporter and domestic firms. In Viet Nam, firms that are more involved in exports and have 10% or more foreign ownership performed strongly in sales and employment. Similar results are observed in China. FDI- and export-oriented firms performed relatively better in employment and sales growth compared to their domestic and non-exporter counterparts (albeit with weaker impact). Moreover, FDI plays an important role since such investment brings together the capital, skills, know-how and innovation needed to win the competition in the global market.

Digital Technology and Global Integration: Opportunities for Innovative Growth

Link: <https://www.apec.org/publications/2022/09/digital-technology-and-global-integration-opportunities-for-innovative-growth>

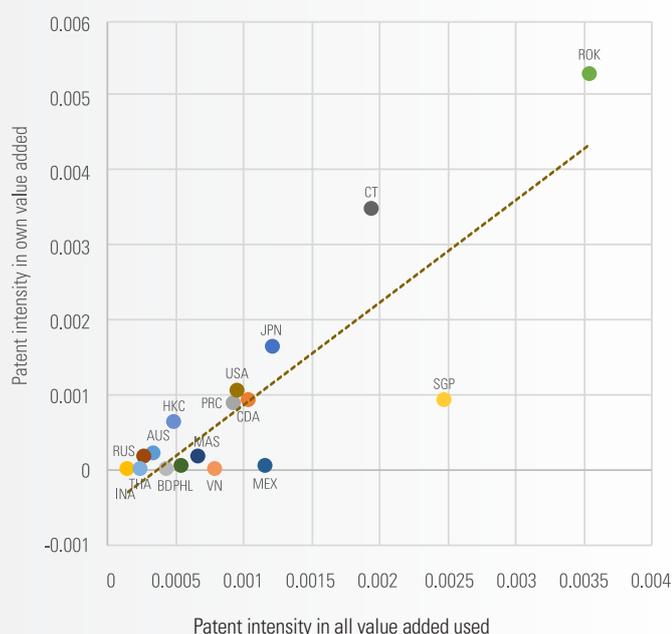
This Policy Brief discusses the intersection between technology and GVC participation and upgrading in APEC economies. It looks at the Fourth Industrial Revolution (4IR) technologies and the innovation landscape in the APEC region and provides insights into the GVC participation of APEC economies, that is, their backward and forward integration, before probing into the role of technology in facilitating productive GVC participation and upgrading.

Findings

4IR in APEC Economies. The APEC region is an innovation hub. APEC economies contributed 71% of the world's total cumulative patent families in all technologies between 2010 and 2019. APEC's share in 4IR patent families during the same period is even higher, at 82%. Nonetheless, the share of 4IR in all patent families in APEC (and globally) remained modest at less than 3%, implying significant room for future innovation.

4IR in GVCs. The adoption and application of 4IR technologies can have transformative impacts on GVC structure and development. Patents for trade products may support knowledge transfer and minimise contractual frictions. The following figure plots the patent intensity of APEC economies' own value-added content, defined as the number of patent families per USD 1 million value added by the economy itself to the total output of the value chain, against the patent intensity of all value-added content used for the respective value chain.

4IR patent intensity in value-added content of APEC economies, 2019



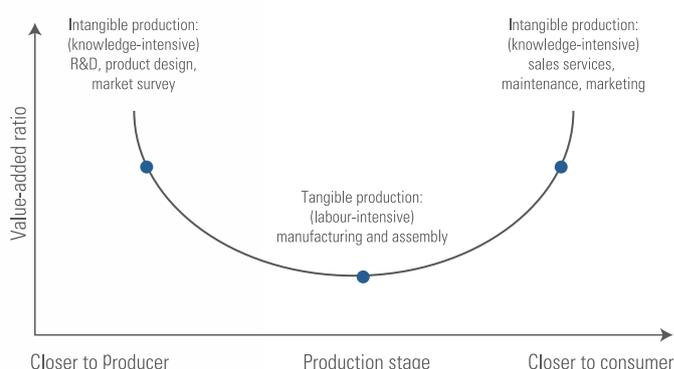
AUS=Australia; BD=Brunei Darussalam; CDA=Canada; PRC=China; HKC=Hong Kong, China; INA=Indonesia; JPN=Japan; ROK=Korea; MAS=Malaysia; MEX=Mexico; PHL=the Philippines; RUS=Russia; SGP=Singapore; CT=Chinese Taipei; THA=Thailand; USA=United States; VN=Viet Nam
 Note: Data for Chile; New Zealand; Papua New Guinea; and Peru are not available.
 Source: ADB-ADBI Innovation and Structural Transformation Database, accessed 20 July 2022.

The findings suggest that economies with patent-intensive production (shown by higher patent content in own value added) also use more patent-intensive inputs in their value chains (shown by higher patent content in all value-added content used). Economies that are most active in patenting, namely, Canada; China; Japan; Korea; Chinese Taipei; and the US, also show high patent content embedded in their value chains.

4IR in Trade. Trade involves both the transfer and delivery of tangible and intangible products. One measure to reveal the transfer and flows of 4IR technologies and innovation is through the trade values of 4IR products. Six subfields of 4IR products were included in the analysis: CAD/CAM, robots, automated welding, 3D printing, regulating instruments, and ICT. As a region, APEC contributed around 80% (USD 699 billion) of global exports of 4IR products and 63% (USD 533 billion) in global 4IR imports in 2019.

GVC Participation and Upgrading in APEC Economies. Participating in GVCs is a common avenue for economies to join the global production and innovation ecosystem. Different GVC positioning, however, can be accompanied by different levels of value added in production as suggested by the smiling curve. Although upgrading GVCs by moving into higher value-added stages in the smiling curve can help economies to boost their gains from GVC participation, this is a knowledge-intensive process that requires significant investments in human capital and technology.

The smiling curve



Source: Adapted from ADB et al., Global Value Chain Development Report 2021: Beyond Production (ADB, 2021).

Economies can follow a non-linear path in upgrading, and leapfrog to higher stages, through strategic investment in R&D and labour force upskilling. A more linear path would involve specialisation, which allows economies to gradually build up their technology and production capabilities as they move up the value chains.

APEC economies are found to be moving in heterogeneous directions in integrating into GVCs. The sectoral analysis echoes the observation of different economies pursuing different GVC upgrading tracks. The differences may reflect the technological advancement levels of specific economies, and may be attributable to their GVC positioning and upgrading strategies at the economy and sectoral levels, such as a focus on labour-intensive production capabilities or policies to attract FDI in prioritised sectors.

Despite the varying upgrading trajectories, most APEC economies have reported positive average annual growth rates in their value-added share of global exports between 2007 and 2019, regardless of GVC participation rate. This is because in some economies, growth has been driven by not just GVC participation, but also domestic scale of production.

4IR Technologies and GVC Structure. Although GVC participation became stagnant following the 2008–2009 global financial crisis, there is evidence that the sectors with higher technology intensity

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registered a larger increase in complex GVC participation rate between 2000 and 2017 than sectors with less technology intensity. This seems to suggest that technology and knowledge can help make GVCs more resilient.

There are observable variations in the degree of patent intensity among APEC economies and between different sectors. In the electrical and optical equipment sector, all economies report relatively high patent content in foreign contributions. Electrical and optical equipment value chains also record the lowest patent intensity in domestic contributions in APEC economies, ranging from 0 to 0.0017 patent families per USD 1 million value added, much lower than in transport equipment and textiles value chains. The high patent intensity in foreign contributions in the electrical and optical equipment sector correlates with an earlier finding that the sector's GVC integration is high. This suggests that the foreign contributions in the electrical and optical equipment sector provided patented technology that is important to value-adding activities. Meanwhile, in the transport equipment and textiles value chains, economies that are most active in patenting show higher patent content in domestic contributions compared to foreign value chains.

Recommendations

The development and adoption of 4IR technologies can help economies upgrade their GVCs by improving production efficiency, creating new and better products and services, and enabling technological upgrading. Investing in technologies, and 4IR specifically, could be a forward-looking strategy to help economies move upward into the higher value-added stages along GVCs. Nonetheless, this might be easier said than done, considering the prerequisite capital, both physical and human, required to enhance technological advancement.

While 4IR may represent a window of opportunity for a leapfrogging strategy, it may also involve significant risks of failure. Success will depend on several factors, such as the level of digital literacy, training and upskilling of the local workforce, domestic market size, and the dynamic involvement of multinational corporations and FDI.

A path that economies could consider to gain access to the necessary technology for GVC upgrading is to develop policies to attract high-quality FDI. That means targeting FDI which goes beyond labour-intensive job creation and holds the promise of extensive technology transfer to the domestic economy (that increases competitiveness at the firm level). Such a path to innovative economic growth may be considered to ensure a more sustainable economic recovery and development.



Innovation and Digitalisation

Digital Economy

Stepping Outside the Shadows: Informality and Digitalisation

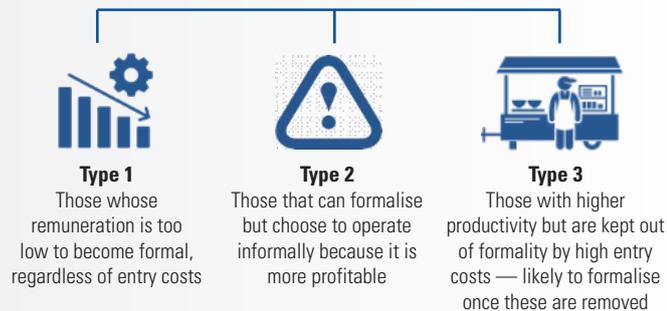
Link: <https://www.apec.org/publications/2022/04/stepping-outside-the-shadows-informality-and-digitalisation>

This Policy Brief explores the intersections between informality and digitalisation. It highlights the potential role of digitalisation in addressing issues related to informality, points out the challenges of digitalisation, and offers a set of policy recommendations as policymakers look to better harness digitalisation to tackle informality.

Findings

Informality exists everywhere, including in the APEC region. It can take many forms: the familiar street vendor near the office, the online seller whose Instagram stories everyone follows, or the popular community baker who, for the longest time, had been intimidated by the bureaucracy accompanying typical business registration.

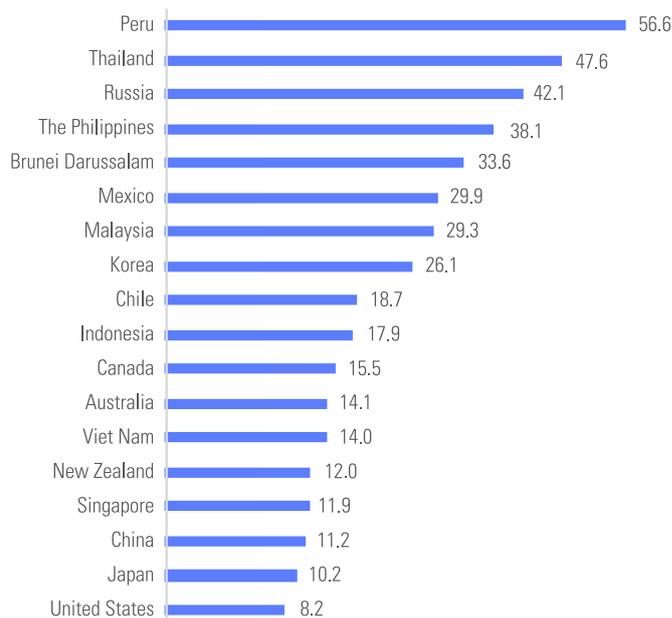
Types of informality



The International Labour Organization (ILO) estimates that about 61.2% of global employment in 2018 comprises informal workers, referring to those 'with remunerative work (i.e., both self-employment and wage employment) that is not registered, regulated or protected by existing legal or regulatory frameworks, as well as non-remunerative work undertaken in an income-producing enterprise. Informal workers also include those that do not have secure employment contracts, workers' benefits, social protection or workers' representation'.

Data from the World Bank's Informal Economy Database reveal that in APEC economies where data are available, the share of total employment that could be categorised as informal ranges between 29.3% (Chile) and 82.4% (Indonesia). In terms of output, the informal sector makes a significant contribution to the economy. For instance, the contribution of the informal sector in APEC economies was between 8.2% (the United States) and 56.6% (Peru) of the economy's official GDP in 2018.

Estimates of informal output (% of official GDP), 2018



Source: World Bank; APEC PSU calculations.

The COVID-19 pandemic has brought to the fore the pressing need to tackle informality and related issues. The pandemic affected the informal sector in at least two ways: (1) informal firms and workers tended to be found in sectors hard hit by COVID-19 mitigation measures, and (2) more businesses and workers were pushed to the informal sector due to pandemic-induced economic challenges.

Informality presents challenges to those in the informal sector and beyond. Informal workers and businesses usually do not have access to conventional financial services, social security or the protection of the judicial system, making them particularly vulnerable. For governments, the informal sector represents an unreached, untapped and unregulated portion of the economy with huge potential if formalised. There is also a gender angle to informality, in that it affects more women than men in a number of economies in APEC and globally.

The advent of digitalisation has expanded the policy options available to governments. In the context of tackling informality and related issues, digital solutions have been particularly helpful in three areas:



Facilitating the formalisation and delivery of public services

(e.g., online business registration and digital identification systems)



Improving access to financial services

(e.g., digital onboarding and digital payments infrastructure)



Expanding market reach

(e.g., e-commerce and social media platforms)

Innovation and Digitalisation

While digitalisation could help to address aspects of informality, it is not devoid of challenges. Issues include those related to the digital divide and infrastructure; cybersecurity, data privacy and exposure to digital fraud; and competition, data portability and platform dominance. Moreover, the anonymity offered by digitalisation could encourage a move toward informality.



Access divide

Internet does not reach 25% of APEC's population (about 770 million people)



Other forms of digital divide

Skills: Ability to use applications and process information
Usage: Limited digital engagement due to demographics
Motivation: Feeling intimidated by the digital economy



Cybersecurity, data privacy, and exposure to digital fraud



Competition, data portability, and platform dominance

Recommendations

Informality and digitalisation are complex and multifaceted, which means that the use of digitalisation to address informality is usually not a straightforward endeavour. Policymakers need to consider a set of interventions that would encourage the informal sector to adopt digital solutions and motivate them to formalise their businesses at the same time. It is also important to contextualise these interventions with respect to an economy's intrinsic characteristics. Some complementary approaches that policymakers could consider are:

- Promote digitalisation of the public sector. Burdensome requirements and the need to physically transact with multiple government agencies are some of the key factors discouraging informal workers and firms from formalising. The adoption of digital solutions could go a long way in streamlining and simplifying these procedures. For instance, establishing electronic tax filing systems and allowing online business registration could encourage informal firms and workers to formalise, both by reducing transaction costs and the perceived costs of becoming formal. Depending on the digital solutions (e.g., digital identification), policymakers could start/improve data collection on the informal sector and use them to deliver more targeted interventions. Furthermore, governments could use digital platforms to promote the benefits of formalisation.
- Overcome different forms of digital divide. Affordable access to hardware such as mobile phones and computers as well as to the

internet is prerequisite to taking advantage of digital solutions. Grants, subsidies and other incentives to increase such access could be tied to formalisation requirements. Existing social programmes to informal workers and firms to support such purchases are another way to overcome this barrier. Policymakers may also wish to work with telecommunications providers to explore ways to lower the cost of data and internet subscriptions. It is also important to enhance digital skills among those in the informal sector because, without the relevant skills, they may not be motivated to use digital solutions/devices, let alone use them to their benefit. In this regard, policymakers could look into introducing programmes aimed at equipping people with the relevant basic and medium-level digital skills. In fact, access to such skills (and others learnt virtually) could potentially lead to jobs in the formal sector, hence providing another avenue to formalisation.

- Increase trust in digital solutions. The adoption of digital solutions brings with it issues pertaining to cybersecurity, data privacy, digital fraud and online misinformation, to name a few. Where the negative impact is significant, affected workers and firms as well as consumers themselves may decide to stop using digital solutions altogether. It is therefore critical for policymakers to explore measures to increase trust in such solutions and, more broadly, the digital ecosystem. These may include raising awareness of risks associated with digital solutions, providing targeted training to new users, addressing issues related to algorithm-based decision-making processes, and enacting laws/regulations related to cybersecurity and cybercrime.
- Address competition concerns. Competition policies play an important role in the success of digitalisation efforts, especially in reaching the wider population, including those in the informal sector. For example, competition in the telecommunications sector could contribute to lower cost of data and internet subscription. Promoting competition in areas such as those pertaining to data (e.g., data sharing and portability) could be beneficial from the perspective of providers and users alike. Data access could facilitate the entry of new market entrants while data portability would make it possible for users to select the providers that best suit their needs.
- Create a supportive regulatory environment to promote innovation. The generation and utilisation of alternative data are but one benefit of digitalisation. Governments, businesses and academics continue to innovate new ways to benefit from digitalisation. It is critical that policymakers foster a regulatory environment that is supportive of innovation, including those aimed at tackling informality. These include introducing regulatory sandboxes to

allow interested parties to try out new ideas, facilitating the use of artificial intelligence to help with decision-making processes, and implementing open banking regulations that would require financial technology institutions to share their data via application programming interfaces. Such innovations could potentially reduce the cost of credit and loans to informal firms.

- **Promote public-private partnerships.** Rapid digitalisation has made it possible for every transaction to be recorded and every click to be registered somewhere. The amount of information collected in the digital age has been unprecedented. However, where necessary, relevant information may not have been shared with governments for valid objectives such as public service delivery and tax collection. Specifically, in the context of enhancing formalisation through digitalisation, policymakers would need to look into how public-private partnerships can promote instead of impede formalisation. These can include engaging with academics and think tanks to enhance understanding of the linkage/relationships between digitalisation and informality.
- **Leverage regional cooperation.** Both informality and digitalisation are complex issues that are multifaceted in nature. Harnessing digitalisation in addressing informality and related challenges requires economies to cooperate with and learn from one another. The APEC Internet and Digital Economy Roadmap has highlighted potential areas of cooperation among fora and economies, including in enhancing universal broadband access, enhancing the inclusiveness of the internet and digital economy, and promoting innovation and adoption of enabling technologies and services. The APEC Roadmap on Digital Financial Inclusion provides a menu of options that economies could draw upon and sequence to advance digital financial inclusion domestically and in the region. These and other initiatives demonstrate that APEC is well-placed to contribute to discussions on these important issues.

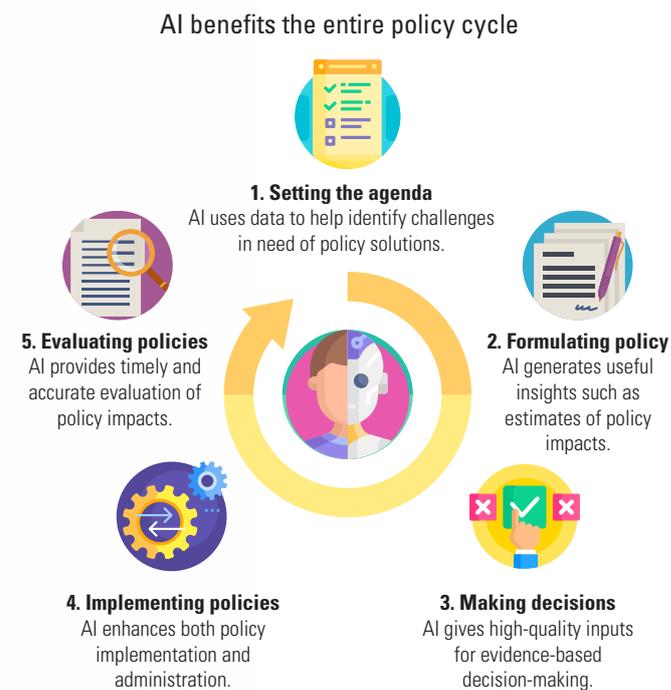
Artificial Intelligence in Economic Policymaking
 Link: <https://www.apec.org/publications/2022/11/artificial-intelligence-in-economic-policymaking>

This Policy Brief analyses the benefits and limitations of the use of artificial Intelligence (AI) in policymaking, and discusses policy options to ensure that the AI-augmented future remains human-centric.

Findings

What is AI. AI is the development of computer systems and models that can perform tasks normally requiring human intelligence, such as understanding communication, perceiving a situation, or making a decision. Whether they are deep learning or neural networks, or done using binary or quantum computing, ultimately AI is a tool created to augment human capabilities and improve social welfare. However, unlike the usual machines that need human intervention to operate or improve, AI holds the capacity for autonomous improvement and learning. While the most advanced supercomputer needs a human programmer to do anything from simple sums to climate change models, AI can teach itself to solve mathematical conjectures or to understand native human speech, with all its nuances and cultural specifics, well enough to win at Jeopardy. With time and increases in computing power, one could foresee AI teaching itself to make policy decisions too.

A Powerful Tool for Good. AI offers many benefits to policymaking and policy implementation through efficiency enhancements, public service quality improvements as well as time savings on administrative tasks. AI can be used as a tool to enable policymakers to formulate more effective policies, make better decisions, and improve communication and engagement with stakeholders. At each stage of the policy cycle, from agenda setting to policy formulation, decision making, implementation, and evaluation, AI could potentially assist policymakers in generating high-value inputs and creating more meaningful impacts for society.



Innovation and Digitalisation

Limitations and Risks. While AI can have immense power in data analysis and logic, policy-relevant concepts such as fairness, justice and equity are inherently human. Hence, the adoption of AI in policymaking faces its own set of challenges since policies have widespread implications that can affect many human lives. It is also worth emphasising that incorporating AI into policymaking requires more thought and consideration compared to commercial applications: while consumers can generally opt out of commercial AI applications, it is harder for stakeholders to avoid the impacts of policy.

One way of framing the challenges related to AI is to group them into three categories: situation, program set-up, and data. Policymakers need to properly evaluate all of these areas when considering the adaptation of AI for policymaking. Further, the interlinked nature of these three categories means that challenges marring any one of them will determine whether an AI-enabled policymaking process can achieve its intended results.

Three questions to ask before applying AI



1. Is AI appropriate to use in this particular situation?



2. Who develops the AI?



3. What data is provided to the AI?

Recommendations

AI is starting to be steadily applied to policymaking work, aiding policymakers in accomplishing specific tasks or analysing large volumes of data. As the nascent technologies improve, the role of AI in policymaking would likely gain wider recognition and adoption. However, as with many technologies, AI is not a silver bullet. This is particularly so in the context of policymaking where a decision could have wide-ranging implications on society and the economy. It is thus imperative that there is a supportive environment to promote its responsible use and ensure that AI remains a tool for improving human and social welfare. Some policy approaches that policymakers can consider are discussed below.

How to support AI solutions



Establish AI governance frameworks

Develop frameworks to provide clarity on its use and ensure that ethical considerations are met, while at the same time encourage innovation.



Enhance digital ecosystems

Tackle the digital divide at different levels, boost AI talents in an inclusive manner, and promote safe and secure data sharing.



Build trust on AI adoption and use

Ensure human-centricity in AI-augmented decision making, build in mechanisms for citizen engagement, and proactively manage risks along with experiences and technological advancements.



Promote partnerships and collaborations

Adopt a whole-of-government approach, tap on the strengths of stakeholders such as academia and the private sector, and set up advisory councils to advise on AI use.



Leverage regional cooperation

Share experiences and best practices on AI use, enhance multi-jurisdictional approach to AI adoption, and deliberate and contribute to global discussions on long-term consequences of AI.

- **Establish AI governance frameworks.** Economies could develop AI governance frameworks to provide clarity on its use and ensure that regulatory imperatives are met, while at the same time encourage innovation. Ideally, the frameworks should cover the entire life cycle of an AI system. A good starting point would be the global agreement on the ethics of AI adopted by all 193 member economies of UNESCO. Other references include the OECD Principles on Artificial Intelligence, Singapore's Model Artificial Intelligence Governance Framework and the European Commission's Ethics Guidelines for Trustworthy AI.

As operationalising these principles and frameworks could be challenging, economies could consider translating them into practical measures by which users could showcase and deploy their adherence to the principles. Where possible, economies could also provide case studies and examples of how specific users have operationalised the principles in practice. Additionally, governments could encourage the private sector to develop their own self-regulatory mechanisms in the form of, for example, codes of conduct, voluntary standards and best practices.

- **Enhance digital ecosystems.** Good quality data is fundamental to AI adoption and use. Data serve as critical inputs for AI-based analysis.

Consequently, an enabling digital ecosystem must be in place for data to be collected and analysed. Economies would therefore need to tackle the digital divide at different levels. One would be to ensure universal and affordable material access (such as to smartphones and computers) and access to the internet. Doing so would require economies to, among others, provide incentives such as grants and subsidies to support first-time purchases, work with providers to widen their network coverage, and explore innovative approaches to provide access in underserved areas.

A related aspect is to boost AI talents in the population by providing courses aimed at imparting data science and AI skills in an inclusive manner. More generally, economies would need to ensure that the population has the skills to use digital tools because they serve as the primary touchpoints for relevant data to be collected, analysed and utilised for various objectives including policymaking. Along with quality data and infrastructure, good data management and modelling skills are critical to successful AI adoption.

The importance of data privacy and security notwithstanding, the value of data collected by one party could be optimised when they can be analysed collectively as part of a bigger pool of data for reasons such as representativeness and correlations. Therefore, economies would also need to ensure that the data collected could be shared in a safe and secure manner between relevant parties, including among government agencies. At the same time, it should be recognised that training and optimising AI systems incentivise more data collection, and there is a need for open discussions on how this could be reconciled with principles such as data minimisation and consent. More broadly, digital ecosystems should consider the willingness of people to participate and live in a sensor-enhanced environment since that may limit the potentials of AI adoption.

- Build trust on AI adoption and use. A primary obstacle to AI adoption and use in policymaking is the level of trust that people have in AI-based decisions. For example, AI is perceived to be less sympathetic to ‘soft’ factors such as compassion or empathy than humans. It is therefore imperative that policymakers ensure that AI use remains human-centric.

Policymakers need to carefully deliberate the appropriateness of various approaches of AI-augmented decision making (i.e., human-out-of-the-loop, human-over-the-loop, and human-in-the-loop), and the circumstances under which each approach would be applied. Risk assessments should be conducted and where a decision has a significant impact on people — or whenever the harm caused by a wrong decision could be severe — there should generally be more

safeguards and human involvement. Policymakers should also be transparent on various aspects of AI use such as the basis behind AI’s decision-making process, the extent of AI involvement and the reversibility of AI decisions. Even in circumstances where human-out-of-the-loop is arguably the preferred approach, economies could implement it gradually. For example, policymakers could begin with a pilot where decisions would be made independently by both officers and AI in parallel, and have the decisions compared and the model adjusted accordingly.

Despite the significant improvements and wider applications over the last few years, AI is a nascent technology. Although good AI governance frameworks could mitigate the potential risks, there remains opportunities for misuse and abuse, intentional or not. For example, the risks of discriminatory decisions from an AI model would increase if it is trained on biased, non-inclusive or non-representative data. While this should not inhibit adoption, it is important for users to recognise and proactively manage risks along with experiences and advancements in the technology. As an illustration, approaches to overcome discrimination include raising awareness and applying technical solutions to detect and correct algorithmic bias.

- Promote partnerships and collaborations. Governments could be a trailblazer in the adoption of AI for policymaking and serve as an avenue to testbed, deploy and scale up AI solutions. A whole-of-government approach, including establishing an inter-agency taskforce, could go a long way in advancing AI use in policymaking, as it is possible for different agencies to be collecting data that are specific only to their area of responsibilities.

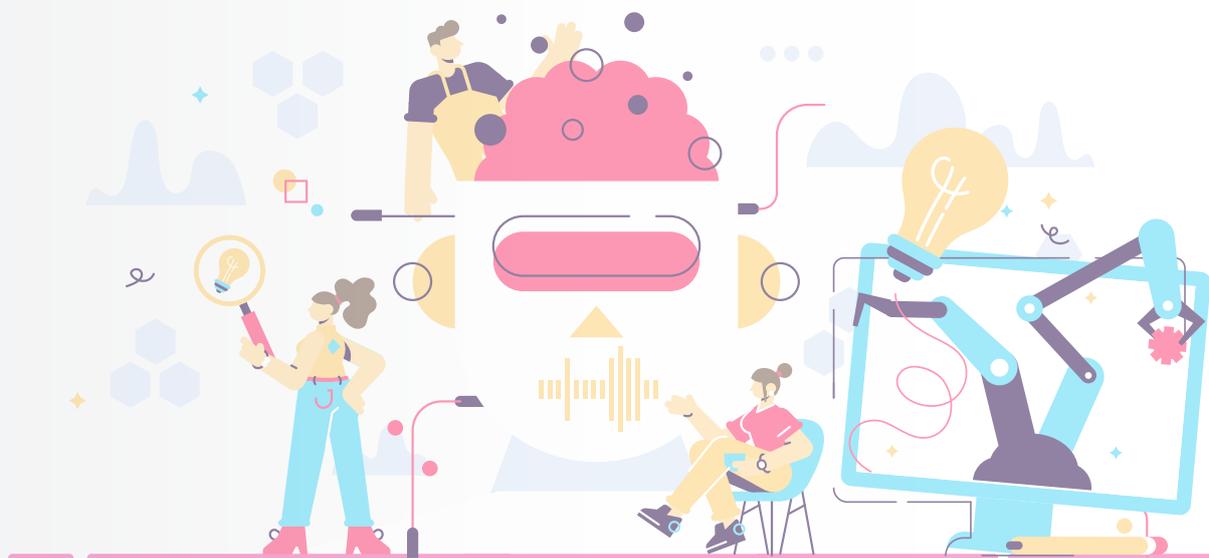
At the same time, it should be recognised that there are aspects of AI technology where the public sector could leverage the strengths of various other stakeholders, including academia and the private sector, and foster partnerships and collaborations with them. For example, economies could invest in AI research and development by providing grants/incentives to institutes of higher learning to establish research programmes on AI governance and to launch technology centres/facilities focusing on data analytics.

- Leverage regional cooperation. The adoption of AI varies across APEC economies, and the diversity provides the basis for economies to come together to share experiences and best practices on AI use. It is important to have a multi-jurisdictional approach to AI adoption. For example, the need for improved access to AI-related goods and services would require economies to tackle tariffs and other barriers; the high volume of data needed to train AI would require better cross-border data flows; and the specialised skills

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needed to operationalise AI systems would require attention to labour mobility. It should be noted that APEC is perhaps one of the most vibrant regions globally on the digital front: some of its members are among the first in the world to sign digital economy agreements. Indeed, the Digital Economy Partnership Agreement between Chile; New Zealand; and Singapore, as well as the Digital Economy Agreement between Australia and Singapore acknowledge the value of developing governance frameworks for AI technologies.

At the fundamental level, there is an increased recognition that AI could have long-term social consequences. Some of them have started to play out, such as replacing human labour in certain tasks, and it is critical for economies to look into policies aimed at supporting the transitions, such as active labour market policies and lifelong learning programmes. Yet, there are others still in the realm of science fiction, such as the development of artificial general intelligence, whose decision-making process would be too complex to be explainable. But, as with time, technology marches on and the policy discourse needs to catch up. It is high time to have global discussions on AI, and APEC as an 'incubator of ideas' should step up and contribute to the discussions.



Strong, Balanced, Secure, Sustainable and Inclusive Growth

Women's Empowerment

Unpaid Care and Domestic Work: Counting the Costs

Link: <https://www.apec.org/publications/2022/03/unpaid-care-and-domestic-work-counting-the-costs>

This Policy Brief provides a better understanding of the state of unpaid care and domestic work, focusing on its costs to women in particular, and the economy in general. It discusses a number of policy suggestions and other recommendations to reduce the gender gap in this area.

Findings

Unpaid Work in the APEC Region. The time spent on unpaid care work varies across gender and geography. A common theme, however, is that women spend more time doing unpaid care and domestic work than men. Data gathered from five economies in the Asia-Pacific reveal that 187 million hours are spent on unpaid activities daily, 60% of which are by women.

Defining unpaid care and domestic work



- Non-remunerated work carried out to sustain the well-being, health and maintenance of other individuals in a household or the community, and it includes both direct and indirect care (ILO, 2018)



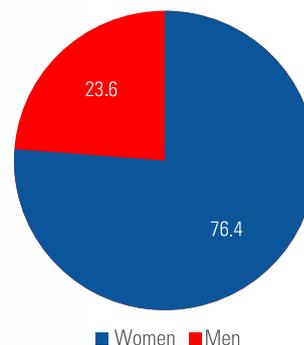
- Home or nonmarket activities encompassing all forms of work not compensated by wage (C. Alfonso et al., 2019)



- Unpaid services that women and men carry out on a daily basis (J. Woodroffe and K. Donald, 2014)

Across the world, women devote an average of 4 hours and 32 minutes per day on unpaid care and domestic work, 3.2 times more than men at 1 hour and 24 minutes per day. This translates to women doing more than three-fourths of the total amount of unpaid work, which is a significant gender imbalance.

Time spent on unpaid work (% of total)



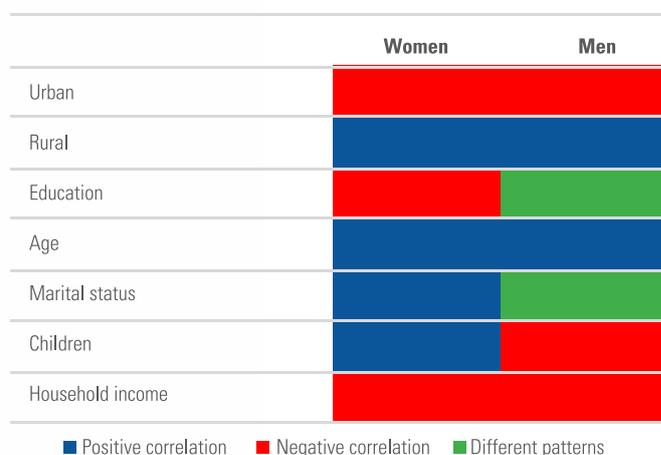
Source: ILO.

In line with the global trend, women in the APEC region also shoulder a disproportionate burden of unpaid care and domestic work. Available data from 15 member economies reveal that women allot at least 2.6 hours and as much as 5.5 hours daily doing unpaid work, almost three times the time spent by men.

Using time-use surveys from 67 economies for the age group 15 years and above, the ILO estimates that, on average, almost 82% of unpaid care and domestic work consists of household work. This is also true for the APEC region: available data for 10 member economies show that household services make up the bulk of unpaid work for both women and men, although as with global trends, women shoulder the greater share overall.

Extent of Unpaid Work. The magnitude and impact of unpaid work differ for women and men. Studies show that socioeconomic conditions such as household income, education level, marital status and having children play a role in such differences.

Unpaid work trend by socioeconomic conditions and sex



Source: Oxfam; ILO; and OECD.

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- Women living in emerging economies spend 4 hours and 36 minutes on unpaid work, 16 minutes more than women in developed economies.
- Women doing unpaid work are more prevalent in rural areas than in urban areas.
- The time that women spend on unpaid work generally goes down as their education level goes up. The same negative correlation arises in the relationship of unpaid care work to female labour force participation.
- Women's burden of unpaid work generally doubles once they get married.
- Women generally reduce the time they allocate for paid work when they have young children to take care of.
- The time spent by women on gainful employment generally increases with the household income level.

Recognising Unpaid Work as a Gender Inequality Problem. The journey to addressing the unequal share of unpaid work that women carry begins with the recognition that it exists and that it harms women's potential and productivity. Major conventions and resolutions have been adopted by governments and multilateral organisations through the years to recognise and place a monetary value on the unpaid care and domestic work carried out by women and men on a daily basis, wherever they are and whatever conditions they face.



Counting the Costs. Based on estimates by the ILO, the value of unpaid care and domestic work accounts for as much as 9% of global GDP (USD 11 trillion). Of that, women's unpaid work comes in at around 6.6% of GDP, and men's at 2.4% of GDP. In APEC, there is a marked disparity in the value of unpaid work across economies, from as low as 5.5% of GDP to as high as 41.3% of GDP.

Along with assessing the monetary value of unpaid work, it is equally

important to count the costs in terms of the wider and longer impact on women and girls. Doing unpaid care and domestic work could have lifelong negative consequences. By perpetuating gender inequality and economic disempowerment, unpaid care and domestic work affect women's health, their education and employment opportunities while also increasing their vulnerability to violence.

COVID-19 measures, such as lockdowns at the onset of the pandemic and whenever there is a surge in infections, have increased women's share of unpaid work within the household. Working from home combined with online learning for children have made it more challenging for women to maintain their productivity and some have had to opt out of the labour force.

Moreover, women are likely to be employed in sectors that require face-to-face interaction, such as tourism and travel, which collapsed amid movement restrictions and border closures. McKinsey estimates that women's jobs are almost twice as vulnerable as men's jobs to the pandemic. In fact, women, who accounted for 38.9% of global employment in 2019, made up 47.6% of employment losses in 2020.

Recommendations

Several studies on unpaid work have brought forward various recommendations to make visible unpaid work and its negative impact. These recommendations generally revolve around the recognise–reduce–redistribute framework. Specifically, it focuses on: (1) recognising and valuing unpaid work using time-use surveys to put a monetary equivalent on the time that women spend doing unpaid activities; (2) reducing the time allocated to unpaid work through good practices as well as investment in public infrastructure and social services; and (3) redistributing unpaid work, particularly encouraging men to share in family responsibilities. Achieving gender parity in unpaid work, therefore, requires a holistic approach in policy interventions and supportive measures, from the individual economy level to the broader international community.

- Recognising and valuing unpaid work using time-use surveys. On the macroeconomic front, governments need to work with professionals, especially statisticians, census takers and researchers, the community and other stakeholders to recognise and value unpaid work. This requires allocating resources to conduct time-use surveys to determine time spent on the various categories of unpaid work prevailing in households (e.g., housework, caregiving and voluntary services) and, at the same time, calculate their monetary equivalent. These time-use surveys should be designed to provide sex-disaggregated data, which could be used to inform policy. However, one of the main problems in generating sex-disaggregated statistics is the funding gap.

- Reducing women's unpaid work through good practices and investments in infrastructure and social services. Labour market policies need to recognise that some workers have family responsibilities, and they need support to enable them to attend to these obligations while doing paid work. Article 4 of the ILO Maternity Protection Convention No. 183 (C183), which was adopted in 2000 and came into force in February 2002, specifically provides that all employed women be entitled to 14 weeks of maternity leave, including six weeks of compulsory leave after childbirth.

It is desirable for maternity leave to be complemented with paternity and/or parental leave to redistribute child-rearing and household responsibilities. These additional leave benefits, particularly shared parental leave, help women to balance career and family responsibilities, motivating them to stay in the labour force, thereby also reducing incidences of retreating from the workforce to do unpaid work arising from increased family responsibilities.

To accompany these supportive paid paternity and parental leave, the workplace should put in place non-discriminatory policies and practices to inspire women to enter and stay in the labour force. For example, mandating non-discrimination in hiring (whether on the basis of sex, marital status or family characteristics) could pave the way for women to apply for jobs without fear of outright bias or rejection due to their gender or because they are raising or about to raise children. Employers could also look into adopting flexible working arrangements to encourage wider participation in the labour force, particularly by workers with family duties.

Furthermore, since socioeconomic factors influence the amount of unpaid work, it is high time that governments invest in infrastructure and social services. Clean water and electricity need to reach rural/remote areas to reduce the heavy domestic workload that women disproportionately endure, such as fetching water and firewood. Governments also need to augment their budgets to ensure wider access to social services such as health and nutrition as well as education and skills programmes. Investing in childcare and long-term care services and facilities, especially for the elderly, could significantly reduce unpaid care work.

- Redistributing unpaid work by advancing gender equality. Initiating public awareness campaigns, with the support of the private sector, media organisations and the community as a whole, should also form part of the agenda toward recognising, reducing and redistributing unpaid work.

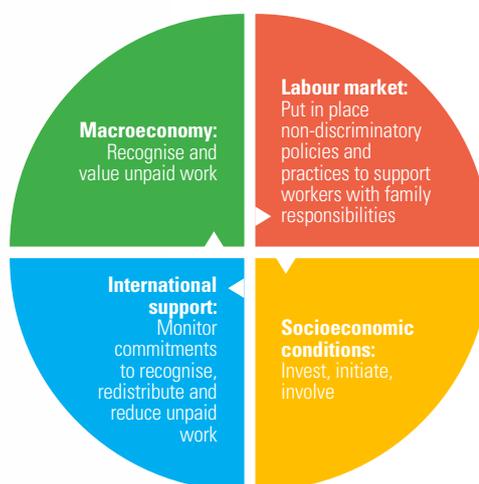
Informing and reforming perspectives, policies and practices to achieve equality in both paid and unpaid work need to involve

everyone. The various stakeholders need to work together with the government to monitor the state of infrastructure and the delivery of social services as well as raise awareness on gender equality. Aside from targeting policymakers, these campaigns should also consciously reach out to men and boys to promote gender equality and change mindsets within households and among policymakers.

Consistent and intensified efforts to counter gender stereotypes could help reduce the unequal share of unpaid work between girls and boys, women and men. Economies could look into integrating gender equality into all levels of education, beginning with the primary level, to counter gender biases emanating from the assignment of gendered functions and skills to boys and girls. In addition, an information campaign targeted at certain groups or sectors (e.g., police authorities, the judiciary, teachers, school-age children, corporate executives and staff) could be conducted to help eliminate gender stereotyping and other forms of gender-based discrimination.

The international community could also help bring the world's attention to the harmful impacts of unpaid work on women, in their employment, education, health and vulnerability to violence. Tracking economies' commitments to relevant international conventions, along with encouraging ratifications to ensure the implementation of appropriate domestic policies that serve to reduce and redistribute unpaid work could go a long way in increasing labour force participation, particularly of women. Progress reports on the actions taken by economies to honour these commitments could also prompt initiatives that are sustainable, carried out from one government administration to the next. Finally, the international community could influence economies to help address unpaid work, scaling up initiatives, policies and regulations to generate a positive impact, from households to the workplace, from one economy to an entire region and then, the world.

Holistic approach to addressing unpaid work



Strong, Balanced, Secure, Sustainable and Inclusive Growth

Cross-Border Mobility

COVID-19 and Cross-Border Mobility in the APEC Region: Addressing Uncertainties at the Border

Link: <https://www.apec.org/publications/2022/11/covid-19-and-cross-border-mobility-in-the-apec-region-addressing-uncertainties-at-the-border>

This report presents an overview of COVID-19 border policies in the region as of mid-late-2022, analyses travel trends to the region, and estimates the impacts of border policies on visitor arrivals. It also provides recommendations in revitalising cross-border travel and tourism in the region.

Findings

The APEC region has had some of the most stringent cross-border travel restrictions in the world including complete border closures and non-issuance of entry permits during the nascent stage of the COVID-19 pandemic. Over the course of the pandemic, some economies have started to reopen borders to reinvigorate travel and tourism. However, to mitigate public health risks, economies also introduced vaccination, testing, quarantine, and other requirements.

The impacts of these cross-border COVID-19 measures have been massive and protracted. An APEC PSU study estimates the economic costs of the resulting loss in cross-border mobility at USD 1.2 trillion in 2020. While international travel has started to recover since 2020, as of April 2022 international visitor arrivals in APEC was only one-third of the levels seen in January 2020.

As of this writing, seven APEC members mandate that all short-term travellers to the economy be fully vaccinated, while visitors to four member economies must be fully vaccinated in order to be exempt from testing and/or quarantine requirements. Nearly all APEC members have approved at least one vaccine for use that would allow a traveller from another APEC economy to meet the vaccine recognition requirements, if any, for travel to that economy. While there are varying digital standards of COVID-19 vaccination certificates among APEC members, most economies are flexible in accepting the vaccination certificates presented by travellers within set parameters.

In the region, 13 members have some form of a COVID-19 testing requirement, including an economy that randomly selects travellers for testing on arrival and five economies that require testing only of visitors who are not fully vaccinated or have not received a vaccine booster

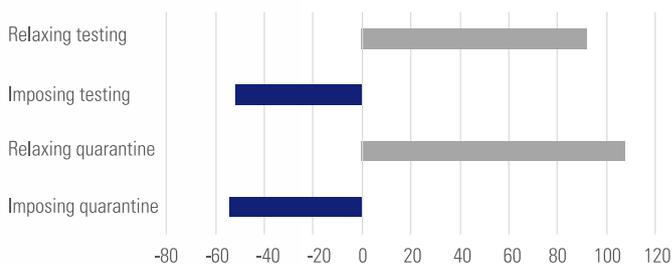
dose. Pre-departure COVID-19 tests can pose a number of challenges for travellers including the mandated type of test, varying testing window timeframes, and the different validity periods of a negative COVID-19 test. Recovery from a previous COVID-19 infection can also result in false-positive results in COVID-19 tests, but only eight economies recognise recovery certificates for entry purposes.

Quarantine requirements are another policy area in which there is variation among APEC members. Of the four APEC members that have a requirement to quarantine, which is often subject to other considerations such as vaccination status, most require that entrants first stay in a designated facility before spending a period in home isolation or self-monitoring. Among these economies, the overall time required to quarantine ranges from three to 10 days.

APEC members also have a number of other entry requirements of visitors travelling for the purpose of tourism or business such as the need to submit documentation relating to COVID-19 border requirements in advance, digital apps that must be downloaded for use within the economy, and travel insurance mandates. These measures could be a source of uncertainty if they are not communicated clearly, and they can add to costs and confusion at the border.

COVID-19 border policies such as quarantine and testing requirements have helped delay the peak of the pandemic, buying precious time for public health authorities to prepare their response. However, they have also impacted visitor arrivals to the region. Empirical data analysis conducted by the APEC PSU show that, on average, imposing quarantine requirements alone results in a 54% contraction in visitor arrivals compared to the situation when quarantine was not imposed, while imposing testing requirements results in a 52% contraction. Conversely, the data shows that removing quarantine requirements is associated with a doubling (107%) of monthly visitor arrivals relative to the period when quarantine was imposed. Likewise, removing testing requirements is associated with a near-doubling (92%) of monthly arrivals, even after controlling for other factors affecting arrivals growth.

Impact of testing and quarantine on visitor arrivals in APEC (in %)



Source: Economy sources and APEC PSU calculations.

Recommendations

Key measures that can help ease existing cross-border travel barriers and support greater short-term travel in the region include the following:

- Ensure widespread and equitable access to COVID-19 vaccines. While it is not a border policy per se, widespread and equitable access to safe, effective and affordable COVID-19 vaccines is a necessary condition to a safe reopening of borders and the resumption of travel and tourism in the region. Indeed, it is the region's high vaccination rates among their residents that have enabled many economies to start loosening their COVID-19 border restrictions.
- Implement COVID-19 border requirements that are risk- and evidence-based. It is important to recognise that COVID-19 is foremost a public health issue and, as such, member economies' domestic policies and border measures will differ given each economy's underlying health systems, circumstances, and risk tolerance. Policies and decisions relating to the pandemic need to be premised on saving lives, preventing illness, and protecting the public health system. However, they should also not be unnecessarily burdensome to economic activity and people-to-people connectivity. Border measures need to be considered in terms of balancing their ability to control the pandemic and their impacts on cross-border travel and the broader economy.
- Support the development of interoperable digital vaccination certificates. There are a myriad of various paper and digital vaccination certificates issued and recognised by economies. While an inclusive and flexible approach to accepting paper and digital certificates should continue, a lack of standardisation comes with time and efficiency losses, and the time and cost spent on search, matching, and review of vaccination certificates in different formats can add up for both travellers and authorities. Any approach to digital certificate interoperability—whether through ground-up development or adaptation of existing ones—needs to ensure compatibility with existing international digital standards in order to maximise the travel and tourism market for the APEC region.
- Facilitate the dissemination of information on entry requirements relating to COVID-19. Provide a one-stop source of vaccination and other border requirements in an official government website that is up-to-date. Latest information should immediately be uploaded and be in plain language and easy to follow for an ordinary traveller.
- Propose APEC initiatives that address regional risks and continue APEC coordination work, including through relevant sub-fora, to continue cross-sectoral work on regional mobility. Given APEC's

informal, voluntary, and non-binding structure, it would be well-placed to propose APEC initiatives that address emerging risks to cross-border mobility as they occur, as well as to discuss best practices on how to increase the region's resilience to such risks in the long-term. The successful work of the Safe Passage Taskforce has also shown the benefits of a cross-sectoral APEC mechanism that coordinates discussions on regional mobility issues. APEC should continue initiatives that could enable more timely regional cooperation and coordination in the face of future risks to cross-border mobility.

Sustainability and Inclusion

APEC Economic Policy Report 2022: Structural Reform and a Green Recovery from Economic Shocks

Link: <https://www.apec.org/publications/2022/11/2022-apec-economic-policy-report>

A flagship product of the APEC Economic Committee (EC), the 2022 APEC Economic Policy Report discusses how structural reform policies, which aim at improving the conditions for growth, could also be an effective response to environmental threats and provide for the greening of our economies.

Findings

APEC members face two key challenges. The first is to repair the economic damage caused by the COVID-19 pandemic, particularly in terms of slower growth and higher economic inequality. With fiscal and monetary policy responses potentially reaching safe limits, governments should seek to implement policies aimed at structural reform to achieve these objectives. The second challenge is to respond to climate change and other environmental threats.

The report begins a discussion among APEC members about how structural reform policies, which are aimed at improving the conditions for growth, could also be used as an effective response to environmental threats and provide for the greening of our economies. These policies should continue to be useful in the longer term as APEC members seek to formulate responses to future economic shocks.

Economic shocks have many causes (e.g., financial crises, pandemics and natural disasters), and can broadly be categorised as supply shocks, which make production more costly, and demand shocks, which suddenly reduce consumer spending and business investment. The economic shock caused by COVID-19 is unusual in that it is simultaneously a supply shock and a demand shock.

Strong, Balanced, Secure, Sustainable and Inclusive Growth

The Asia-Pacific region faces a long list of environmental challenges, including climate change, waste and pollution (air, water and soil), deforestation, public health issues, natural resource depletion and uncertain energy security. In the vital area of climate change, the region as a whole is responsible for massive emissions, even as many APEC members, particularly developing members, are among the most exposed to the effects of climate change.

As APEC economies seek to recover from economic shocks such as those emanating from the effects of COVID-19, the opportunity to embark on green structural reforms has never been more timely and critical. However, APEC members, both developed and developing, are only just beginning to carry these out. This is because the area involves significant complexity and uncertainty; and sound analytical frameworks as well as reliable data are only now starting to be developed. While green structural reforms will need to be tailored to the specific circumstances and priorities of individual economies, there are many areas where APEC economies can learn from each other as they seek to meet the challenges involved.

In the area of public sector governance, a major challenge is creating a favourable political environment for reform in the face of vested interests, public opposition and the fact that many of the benefits of reform would only be realised over the longer term. The discrepancy between the long-term benefits of green structural reforms and the short-term adjustment costs and investments suggests that delivering on the reform would require strong political commitment and significant institutional and capability development within governments.

In terms of structural reforms, governments increasingly seek to improve the functioning of markets to support greater environmental sustainability. In particular, governments aim to address externalities and public good issues in markets involving natural resources through legislation, fiscal incentives and programmes. In addition, governments need to provide the necessary conditions to encourage capital and infrastructure investments moving forward in terms of innovative, circular and net-zero solutions to help advance green economic recovery and climate action.

Each policy area covered by the EC can make significant contributions to such reforms. Competition policy and law, by focusing on efficiency and innovation, could seek to improve competition in markets so that resources are consumed more efficiently and barriers facing competing new, green technologies are removed. Competition agencies could, in particular, deal with arrangements between firms interested in cooperating to improve environmental outcomes. And, consumer protection law could ensure that consumers make an informed choice on the sustainability attributes of the products they consume.

Regulatory reforms and regulatory stewardship have a central role to play in improving the functioning of markets. Markets should provide price signals that better reflect the true costs of environmental externalities and public goods. A range of instruments could be employed toward this goal, including but not limited to green taxes, reduction of environmentally harmful subsidies (particularly fossil fuel subsidies) and improvements to property rights, particularly in such areas as emissions trading, land access, water management and the rights to fisheries resources. Price signals could also be complemented by non-price measures such as pollution or resource use limits and performance standards. Regulatory systems and well-designed regulations create spaces for innovation and the emergence of novel industries aligning better with environmental objectives.

Corporate law and governance could contribute by ensuring that governments, businesses and consumers work together to reward the greening of the economy through increased demand for sustainable products and services and more favourable finance. Strengthening the economic and legal infrastructure could greatly improve the efficiency of economic processes and catalyse new green supply chains and enterprises in which businesses and consumers are involved, thereby reducing pressure on resource use.

For structural reforms to succeed, there is a need for the different parts of government to work more coherently and cohesively. Government officials in charge of structural reforms will need to work together and coherently with those in charge of government policies in specific fields, including innovation and public procurement; investment and access to financing; information provision; and skills development. Many of these reforms could also support the emerging area of green industrial policy, which seeks to transform the economy by supporting domestic industries that produce green or greener goods and use greener production methods. There will also be a need to employ 'just transition' policies to support those members of society that are disadvantaged by the reforms, particularly over the shorter term.

Over the longer term, however, the benefits of this mix of policies will be immense. It has been argued that there are tensions and trade-offs between growth and environmental sustainability. This report supports the contrasting view that structural reforms to promote sustainable outcomes can also promote higher rates of growth. This makes meeting the shorter term policy challenges all the more important.

Recommendations

Implementing green structural reforms requires the utilisation of multiple instruments, covering several areas under the responsibility of different government institutions. The complexity of the process in

the context of climate change makes it essential to have a whole-of-government approach, where policy decisions are properly coordinated inter-institutionally to ensure a higher rate of success.

Green structural reform



A solution to both challenges is structural reform aimed at:

- Improving conditions for economic growth
- Responding to environmental threats and setting the foundations for the greening of economies
- Formulating responses to future economic shocks

Green structural reforms facilitate the adjustment to economic activities that cause less damage to the environment and create conditions for improved growth in member economies.

Green structural reforms should include a mix of policy instruments, including:

- Market-based instruments, to encourage the efficient use of natural resources
- Regulations to improve the functioning of markets and encourage the production and use of environmentally friendly goods and services
- Complementary enabling policies on innovation, investment, procurement, capacity-building, green industrial policy and international cooperation

Any structural reform process includes trade-offs. The success of structural reforms would rely on suitable management of the political economy to maximise utility, resource utilisation and consultation with affected groups, and to prevent interest groups from stopping, slowing down, or reversing the reforms. Sequencing of policy measures is very important. Governments need to build up a pro-reform constituency and work to maintain the momentum by implementing policies with short-term deliverables that could help achieve medium- and long-term objectives. A solid communication strategy, married with transparent, evidence-based policy, is essential to explain the benefits of reform and the costs of inaction to relevant constituencies.

Starting with structural reforms that could be developed and implemented more readily, and meet with early success, could boost the push for reform. However, governments have to avoid a situation

wherein those benefiting from the initial reforms would not push for further reforms for fear of losing the gains from the first wave of reforms.

Continuous, consistent and predictable policies are needed for effective green structural reforms. The participation of the business community and consumers is important to transform the economy into a greener one. Resolving environmental challenges is a long-term process and policy uncertainty is one of the main barriers to transitioning into a green economy.

Skills are also required, in government as well as the private sector, to effectively implement the green structural reforms that are integral to the transition toward a low-carbon economy. In this sense, capacity building is an essential structural reform component and this is where APEC's comparative advantage resides.

APEC could emphasise core capacity-building and knowledge-sharing activities in areas where more work is needed to transform toward a green economy. Based on the findings of this report, potential capacity-building programmes relate to topics mainly within the purview of the EC and Senior Finance Officials, among others.

The role of APEC



APEC could emphasise key capacity-building and knowledge-sharing activities in areas where more work is needed to transition toward a green economy. Potential examples of capacity-building programmes include:

- Learning how to develop pricing schemes (for instance: carbon pricing)
- Getting a better understanding on the process to develop and implement green regulatory measures, including complementary enabling policies
- Strengthening collaboration with the private sector
- Strengthening inter-institutional collaboration within and across economies
- Reducing information asymmetries among different actors (for instance: government and industries, firms and consumers, and inter-sectoral firms)
- Mobilising finance toward green investments, keeping in mind competitive and well-structured green investment projects

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In addition, APEC provides the stage for economies to exchange information on their experience with implementing measures to transition toward a green economy. Economies could learn from each other in areas such as identifying proven technologies and business models toward which investments should be focused. Capacity-building efforts could encourage regulatory cooperation and labour mobility agreements to help growing sectors that are becoming more relevant in this transition. These include renewable energy, recycling and product stewardship services.

Charting New Pathways for APEC: A Sustainable Future Inspired by the Bio-Circular-Green (BCG) Economy

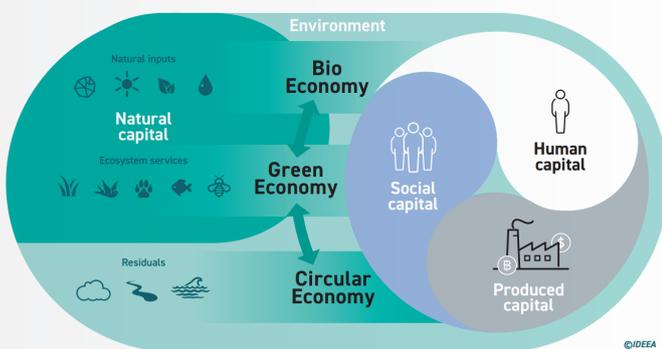
Link: [https://www.apec.org/publications/2022/10/charting-new-pathways-for-apec-a-sustainable-future-inspired-by-the-bio-circular-green-\(bcg\)-economy](https://www.apec.org/publications/2022/10/charting-new-pathways-for-apec-a-sustainable-future-inspired-by-the-bio-circular-green-(bcg)-economy)

This Policy Brief explores how the Bio-Circular-Green (BCG) Economy is a useful guiding framework in developing holistic solutions to the many challenges facing mankind.

Findings

The BCG Economy as a Guiding Framework to Sustainability. The interlinkages between climate change and the regional challenges facing APEC mean that solutions cannot be siloed. Instead, solutions need to be cross-cutting, interconnected, and collaborative. The development of these solutions can benefit from a holistic approach such as those inspired by the BCG Economy.

The BCG Economy and the four capitals



Source: Definitions compiled based on various sources. Framework lifted from Figure 2 of The Asia Foundation and IDEEA, 'Understanding the Bio-Circular-Green (BCG) Economy Model'.

The figure above shows that the BCG Economy sustainably connects the environment (natural capital) and the society (social, human, and produced capitals). A simple illustration of what this framework shows is that society produces harmful residuals as a consequence of economic

activity, but the impact of these residuals on the environment can be mitigated or eliminated through using cleaner inputs (bio-economy), reusing or recycling (circular economy), or incorporating ecosystem services into the production system (green economy). However, better human capital (e.g., skills and education) and social capital (e.g., institutions and values) are necessary to make this scenario possible.

As a guiding framework to sustainability, the BCG Economy can be used to holistically design policies and programmes. There are at least three ways that the BCG Economy can guide policymakers:

- Reframing how development should be approached. Traditional approaches to development focused mostly on increasing production and expanding trade without regard for its impact on the environment and on people, but climate change necessitates economies to reframe this idea. For example, the BCG Economy reframes this as socioeconomic welfare that must go together with environmental sustainability.
- Rethinking how resources should be utilised. The BCG Economy emphasises on resourcefulness, primarily through using new technologies or advancements in science. Two ideas are important for being more resourceful: (1) circularity; and (2) innovation. Both of these ideas can be applied on food waste.
- Reminding economies why inclusive and active participation is important. With its holistic approach, the BCG Economy naturally involves the active participation of large groups of stakeholders, even having cross-border engagements. This means that policymakers need to properly coordinate efforts and ensure accountability among stakeholders in the context of BCG Economy solutions. Otherwise, individual and collective efforts alike could be undermined by weak links (e.g., air and water pollution can cross borders and inadvertently affect neighbouring economies).

Drivers and Challenges of BCG Economy Solutions. The transition towards a sustainable future inspired by the BCG Economy requires not just safeguarding BCG Economy solutions from weak links but also supporting its key drivers. Policymakers can improve the success rate of BCG Economy solutions by strengthening three key elements that drive the BCG Economy:

- BCG Economy solutions rely on a conducive regulatory environment to succeed. Such an environment is defined by two broad factors: (1) policy design; and (2) policy implementation. How economies design policies vary among each other since their intrinsic characteristics (e.g., demographics, culture, and political system) are also different. This has implications on policy implementation. Other factors

such as the quality of coordination across government agencies, institutional capacity, access to information, and civic engagement can affect not just policy design but also policy implementation.

- BCG Economy solutions require technology and innovation, especially access to the right technologies and expertise. Promoting access will involve dissolving a number of barriers to facilitate technological diffusion, especially from developed economies to developing ones. Such barriers can arise because of intellectual property rights (IPR) issues, trade barriers, GVCs constraints, problems in accessing credit, and restrictions to FDI, among others.
- Stakeholder participation is important to BCG Economy solutions since this can help communities gain more awareness that, in turn, changes people's mindset and creates a lasting impact on policy agendas. After all, only when people see the value of sustainability can they fully move towards it. Better community awareness can also lead to changes in consumer behaviour, which then influences key players such as firms. Likewise, communities can also promote sustainable practices through peer influence.

Recommendations

Policy interventions need to be contextualised to an economy's intrinsic characteristics for it to be most effective. A number of policy approaches have been identified for policymakers to consider.

- Strengthen institutions through good governance and sound regulatory instruments. BCG Economy solutions rely on having strong institutions. One way of strengthening institutions is through good governance. This includes continuously upskilling government workers, establishing regular channels for coordination and idea-sharing across agencies, or establishing an economy-wide coordinating strategy.

Expanding the available toolkit of sound regulatory instruments is also important. Structured policy reviews that are ingrained into the policymaking process are useful instruments. For example, mandatory ex-ante regulatory impact assessments for projects of a certain threshold can guide policymakers and safeguard the interests of local stakeholders. Policy reviews can be helpful to set legislative agenda, engage public opinion, identify possible win-win solutions and assist to fine-tune policies, but these policy reviews are best done in the context of a transparent process by institutions with independence and clear mandates.

Another way of strengthening institutions is through regional cooperation. While structural reforms are largely domestic in nature, economies can still benefit from sharing best practices

among each other as institutions can learn from each other's experiences. APEC, for instance, is a considerable platform for this since structural reform has been an important component in APEC's long-standing agenda.

- Provide investment opportunities to expand the renewable energy sector and niche markets. Particular to electric vehicles, governments can facilitate infrastructure investment in charging point stations or provide point-of-sale rebates and value-added tax exemptions that help reduce upfront costs, thereby encouraging consumers to purchase electric vehicles.

Expansion can also be done by supporting startups. Economies can help startups through encouraging investments in strategically-located labs with access to fabrication devices. Establishing innovation grants, improving access to affordable credit lines, and providing access to critical information are other ways to support startups investing in these sectors.

The development of these sectors could be boosted by repurposing the utilisation of public funds (without jeopardising governments' fiscal position) by removing subsidies in sectors not contributing to sustainability and by introducing tax incentives.

- Foster foreign linkages among firms to facilitate technological diffusion. Enacting policies that foster foreign linkages among firms will be useful for BCG Economy solutions, especially for sectors with relatively low environmental technology diffusion rates: transport and mobility; and agriculture, food, and hospitality. Foreign linkages, such as FDI and international trade, have been empirically observed to inspire product and process innovation, horizontal (within industry) and vertical (backward or upstream) technology spillovers, and technology transfers among firms. Foreign linkages also have the ability to provide access to the right technologies, and to promote cooperation and coordination among firms. Relaxing restrictions to FDI can be an important step to fostering these foreign linkages.

Another key policy is to provide the necessary IPR to strike a balance between protecting innovations and facilitating technology transfers. Of course, this should be done together with proper enforcement practices. In addition, compliance to IPR regulations could be costly so regulators should be sensitive to domestic capacity to facilitate and to absorb innovations. Technology diffusion will have little impact when those who need to receive it have insufficient financial and technical capacity to utilise those technologies.

- Promote practice-based participation to gain local community support. Stakeholders' practice-based participation in BCG Economy solutions (e.g., awareness through information dissemination,

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direct involvement in implementation, and inclusion in policymaking processes) is key to gaining local community support. One way of improving awareness is to conduct educational campaigns, especially among consumers and suppliers. Reducing information asymmetries that consumers usually face also requires policies that mandate firms to fully disclose information about their goods and/or services' negative effects, for example, by introducing labelling requirements to include climate-related information, such as carbon footprints.

Promoting inclusive participation in crafting policies is equally important. This not only strengthens stakeholders' voice on matters that ultimately affect them but also gives them a tangible stake to ensure that policies are implemented successfully. There are some challenges to overcome though, including: increased demand on time and resources; regulatory capture; and risk of tokenistic engagement (i.e., superficial efforts that do not lead to anything substantial in the long-term). One way of engaging stakeholders is to have in place transparency practices that could provide opportunities for joint initiatives, for participation of interested parties into the policymaking process, and for enhancing public support and reducing policy conflict.

Engaging stakeholders can also require having solid legislative basis for their involvement. For instance, good regulatory practices often involve consultations with relevant stakeholders or include environmental impact assessments — both of which may require a clear legal basis to regularly enforce. This also prevents stakeholders from working in isolation that can possibly lead to inefficient time and resource allocation.

- Support the expansion of BCG Economy solutions in APEC. International cooperation and collaboration are integral to enabling BCG Economy solutions, which means that there is reasonable value in creating networks that connect multiple stakeholders across economies. For example, an ASEAN BCG Network was launched in January 2022, and it serves as a coalition of public, private, and non-government organisations that collaborate on key areas such as research, innovation, technology management, and commercialisation, among others. APEC can support this BCG Network for instance by actively incorporating BCG Economy-related discussions into the agenda of relevant working groups and committees. Alternatively, APEC could consider setting up a separate working group to discuss environmental issues more specifically.

Another way that APEC can support the expansion of BCG Economy solutions is through a joint statement on the BCG Economy, similar to how APEC committed to advance women empowerment through the

2011 San Francisco Declaration and to globalise micro, small, and medium enterprises through the 2015 Boracay Action Agenda. These joint statements enabled APEC to chart new pathways together and provided an impetus for advancing individual and collective efforts on these areas.

Access to meaningful data and statistics, however, is essential for advancing and monitoring progress across all of these initiatives. Unfortunately, data on the BCG Economy remain limited, and this can prevent policymakers from making the best choices based on empirical evidence. It is worth noting that some indicators are based on traditional economic approaches that could be incompatible with the BCG Economy (e.g., GDP), thereby requiring some remodelling or creation of new indicators altogether.

Transitioning to a Sustainable Economy while Ensuring Inclusion
Link: <https://www.apec.org/publications/2022/12/transitioning-to-a-sustainable-economy-while-ensuring-inclusion>

Just transition is a framework that aims to maximise the advantages of transitioning to a low-carbon economy while promoting equity and inclusivity. This Policy Brief provides a better understanding of the critical factors that need to be put in place to ensure that APEC's transition to low carbon does not leave anyone behind.

Findings

Human and Economic Costs of Climate Change. Climate change, and its catastrophic impacts, poses significant human and economic costs. The World Bank estimates that the APEC region, which accounts for 38% of the global population, could suffer an additional 350,000 deaths annually by 2100 from changes in the number of extreme hot and cold days compared to the present. The costs to economic progress are just as staggering. The World Bank estimates that, without climate change adaptation measures, APEC could absorb losses amounting to 7.3% of GDP.

Fossil fuels contribute significantly to climate change, accounting for more than 75% of greenhouse gas (GHG) emissions. The APEC region represented about 60% of global GHG emissions in 2019. To combat climate change, reducing GHG emissions is crucial and decarbonisation is necessary.

Digitalisation and Decarbonisation. Digitalisation has the potential to accelerate decarbonisation. Digital technologies could be applied across sectors to improve energy efficiency and reduce GHG emissions,

such as by harnessing renewable energy and improving power grids to better manage large volumes of variable renewable energy, boosting battery storage capacity as well as enabling efficient charging of electric vehicles, and implementing smart heating and cooling systems in buildings.

Across sectors, digitalisation could be a game changer. Since digitalisation necessitates the collection of vast volumes of higher quality data, transforming these data for systems-based approaches could boost efficiency and productivity. However, digitalisation also has its own carbon footprint, estimated to account for around 4% of global GHG emissions. Indeed, accelerated digitalisation has translated into increased power demand and resource consumption. The challenge is to ensure that digital solutions bring about net benefits, including transforming systems into approaches that preserve biodiversity, minimise waste and improve resource efficiency.

Impact on Vulnerable Groups. The climate crisis will disproportionately affect the already vulnerable, and a just transition should support their inclusion and their capacity to access decent work.

- Women. Globally, young women were more than twice as likely to be not engaged in education, training and employment compared to young men in 2019. It is important to ensure that gender inequalities are addressed adequately as part of the just transition. Policies that would enable women to access decent work opportunities include establishing a legal framework (with accountability) that institutionalises women’s rights, gender equality, non-discrimination based on gender in access to education, skills training and employment, and the development and collection of sex-disaggregated data to better inform policymaking.
- Extreme poor. Defined as those who subsist on USD 2.15 per person per day in 2017 purchasing power parity (PPP) terms, they present around 8.9% of the world’s population. A key strategy as economies shift toward low carbon and adopt cleaner energy measures is the provision of social protection and financial incentives that target low-income households.
- People with disabilities. They too are disproportionately affected by climate change as they are not usually included in societal planning and decision making. Inclusive policies must be put in place so that this segment of society is not left behind. This could mean, for example, the implementation of legal standards that promote disability inclusion as well as skills training, and attitudinal transformation that fosters decent work opportunities for persons with disabilities.

- Indigenous Peoples. They are among the first to be directly affected by climate change even though they contribute very little to global carbon emissions themselves. To ensure a just transition, vital strategies could include sustainable enterprise creation and livelihood generation, Indigenous Peoples rights recognition, and coordination and collaboration.

Just Transition Actions in APEC Economies. Initiatives and various forms of a just transition, to ensure that the transition to a low-carbon economy is equitable and inclusive, have already taken place in many APEC economies. These include carrying out of social dialogues in Chile; Indonesia; the Philippines; and the United States; forming institutions in Canada and New Zealand; and entering into high-level partnerships and commitments by a number of APEC economies.

Recommendations

At the economy level, policy responses and support initiatives in the transition period could vary, and would be largely dependent on prevailing economic conditions, available resources and priorities. At the international level, cooperation and an open dialogue are needed to discuss financial, technological and other related issues to boost the global economy’s resilience amid the transition period. Nevertheless, it remains imperative that economies must prepare for the shift to low carbon by nurturing a conducive environment that enables a smooth, steady, and especially inclusive transition. This requires comprehensive, coherent and coordinated policies across economic, environmental, social and labour policies.

Climate change and inclusion: Some policy options



Supportive labour policies



Comprehensive structural reforms



Social dialogue and stakeholder empowerment



Technological and climate change readiness

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- Ensure that labour policies support workers and the vulnerable. Creating opportunities to ensure decent work for all is an important aspect of just transition. The ILO identifies four pillars in its Decent Work Agenda: social dialogue, social protection, rights at work, and employment. Parallel to economies' pursuit of environmentally sustainable growth and progress is safeguarding people's rights to decent work along with contributing to the goals of social inclusion and poverty eradication.

Key labour market policies to ensure that affected groups and communities thrive in a low-carbon future are essentially two-pronged and must be implemented at the same time. On the one hand, labour policies should take into account the provision of financial support and social protection for job losses and worker displacements; and on the other, policies should also open up and/or widen opportunities for education, training, reskilling and upskilling, and career development.

- Implement structural reforms. Structural reforms are vital to the success of a just transition. These reforms require macroeconomic policies that promote sustainable production and consumption, a conducive environment for sustainable enterprises, incentive designs that stimulate enterprise innovation, as well as an appropriate mix of taxes, subsidies and loans to encourage the shift. Where feasible, economies can also consider implementing environmental tax reforms to finance social protection programmes.

Complementing these reforms is the development of financial, agricultural or social welfare infrastructure to counter the risk of people and enterprises being displaced. This necessitates investments to build or upgrade existing infrastructure and to retrain or reskill workers. In parallel, resources need to be allocated to improve social safety nets and implement subsidy or support measures that effectively target sectors and workers (including their families) rendered vulnerable by the transition. At the same time, trade and investment policies could be adjusted to stimulate the growth of green industries, including boosting green jobs and innovation.

- Commit to social dialogue and empower stakeholders, especially the vulnerable. From a larger perspective, paramount to the success of a just transition are respect for basic labour rights, the conduct of effective social dialogue among concerned parties and the empowerment of vulnerable and under-represented groups like women, the poor, workers, people with disabilities and Indigenous Peoples.

Commitment to social dialogue and stakeholder engagement has

turned out to be an important factor to achieve a just transition. Representatives from labour, the private sector, civil society organisations, academe, communities and local governments must be given a platform to come together, discuss and negotiate strategies to carry out a just transition. The inclusion of vulnerable and under-represented groups in social dialogue is crucial to ensure that these groups are not left worse off in the transition to low carbon. In addition, in July 2022, the APEC Human Resources Development Working Group published a report emphasising the importance of social dialogue in addressing the challenges in the labour market.

The guiding principles of a just transition are useful in helping the APEC region achieve both climate action and inclusion. In fact, these principles are already embodied in APEC's Future of Work Agenda. Moreover, the third pillar of the APEC Putrajaya Vision 2040 on Strong, Balanced, Secure, Sustainable and Inclusive Growth emphasises sustainability, climate action, human resources and skills development, and inclusion as its priorities.

- Boost APEC's technological and climate change adaptation readiness. Digitalisation has the potential to significantly hasten the shift to low carbon. However, it is worthwhile to highlight that digitalisation also brings to the fore constraints such as lack of digital skills and inadequate infrastructure; risks relating to cybersecurity and data privacy; as well as legal and regulatory challenges that need to be sufficiently addressed to keep up with the dynamic digital changes and prevent risks from materialising.

Given the crucial role of digitalisation, the level of digital skills and technological readiness of APEC economies play a key role in transitioning toward low carbon. Building information modelling applications, business intelligence and data analytics, technology road mapping, and artificial intelligence applications are some examples of digital skills that support the transition to low carbon. One way to measure the digital skills capacity of economies to achieve sustainable growth is through the use of the Digital Skills Gap Index (DSGI), which is a summary measure of key pillars of digital skills.

Another key factor to consider in the shift toward a low-carbon economy is the level of readiness of APEC economies to adapt to climate change as well as the level of vulnerability to extreme weather events that APEC economies face. The interaction between these two important factors provides insights on the urgency to address climate change and further advance climate change adaptation efforts. The Notre Dame Global Adaptation Initiative (ND-GAIN) Index captures these two factors.

More than half of economies in APEC are already well positioned to respond to climate change. On the other hand, there remain a few APEC economies that need to take urgent action. These economies face the biggest risk exposure to climate change coupled with low level of readiness. The need to invest in climate change adaptation measures and improve an economy's business environment, institutional factors, ICT infrastructure, education, and innovation are essential to enhance the readiness of these APEC economies. One way for APEC economies to improve its climate change adaptation readiness is to invest in digital skills and technologies.

Policy Options for Decarbonising Transportation in APEC

Link: <https://www.apec.org/publications/2022/09/policy-options-for-decarbonising-transportation-in-apec>

This Policy Brief discusses five practical and proven policy options for vehicle electrification, which is the most effective and efficient solution to decarbonise transport and could have quick and measurable impacts on reducing GHG emissions and addressing climate change.

Findings

Over the last three decades, electric vehicles (EVs) have vastly improved in every way: in cost, performance, efficiency, driving range, styling and availability. Every major automaker now offers a variety of EVs for sale, often at attractive prices, and a few are now selling hydrogen fuel cell EVs as well.

Aside from being the most effective strategy toward transport decarbonisation, vehicle electrification is also the most economically efficient path to reduce GHG emissions in transport in the long run. At present, battery EVs are somewhat more expensive to produce than gasoline cars, though shrinking battery costs are likely to translate to purchase cost parity with gasoline and diesel cars before 2030.

In terms of total cost of ownership (TCO), the case for EVs is even more compelling. Gasoline-powered vehicles are three to five times more expensive to operate per kilometre relative to EVs in many regions. The lower operating costs are due to EVs providing fuel cost savings and incurring lower maintenance costs.

These recent research findings on TCO and other benefits of EVs are not widely disseminated across potential buyers and, thus, proactive engagement with consumers through education and outreach is an important policy option to consider. Another policy option is consumer incentives. Although the TCO for an EV is less than that for an internal

combustion engine vehicle (ICEV) in the long run, the large upfront costs with EV purchase cannot be ignored in the short term. Provision of consumer subsidies is necessary to reduce the effective purchase price of EVs.

Indeed, vehicle electrification is the most impactful strategy in terms of dramatically reducing GHG emissions in the transport sector because EVs have lower energy consumption per kilometre and lower carbon emissions compared to ICEVs. Also, through advancements in EV technology, EVs are now financially more attractive relative to ICEVs. Cheaper, more efficient, more energy-dense batteries, and lower TCO due to savings on repair and maintenance, make it feasible to switch from ICEVs to EVs.

Recommendations

The transition to EVs is well underway in many APEC economies. The speed of the transition will differ across regions because of different regulatory processes and different priorities for air pollution and climate, as well as different consumer preferences and affluence. For example, the larger EVs produced in the US will not be suitable for most APEC markets; electric two-wheelers will be more popular in less affluent economies; and economies with strong domestic oil industries will usually resist electrification and EV policies. Policies need to be sensitive to these many different circumstances. A suite of policies is needed, including:

Policy paths from ICEV to EV



- Long-term binding rules requiring or motivating automakers to sell EVs that match local market needs. Automakers are well positioned to scale up EV production; many have already announced plans to end production of gasoline vehicles and all are making massive investments in EVs. With battery costs having dropped dramatically and continuing to drop, automakers can scale up in the markets as soon as policy forces them to, and/or as soon as consumers indicate a willingness to buy.

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- Purchase and use incentives for EV in the near and mid-term. Evidence suggests that incentives will be needed even as sales expand, going well beyond the early adopter market – even after EVs reach parity on TCO. Indeed, the importance of incentives may increase even as sales increase. Norway is maintaining incentives for buyers even with EVs at 80% market share. For this reason, among others, revenue-neutral incentives may be the most appropriate policy for sustainable EV market growth.
- Public investment in charging infrastructure, especially in the early years, for all types of vehicles, especially cars, trucks and buses. Charging infrastructure is vital and policymakers should consider strengthening investments in charging infrastructure to promote EV adoption. Evidence shows that expanding charging networks, especially on freeways, is essential to promote electric mobility.
- Increased outreach, education and engagement. Even in mature EV markets, most car buyers remain disengaged and largely ignorant of the various incentives, availability of charging infrastructure, and cost-effectiveness of EV models available in the market. Policymakers need to consider investing in education and information campaigns to improve consumer awareness of EVs and improve the perception of EVs in the market.
- Local leadership by cities and regions in support of EV policies and initiatives. All the policies related to EV promotion and infrastructure cannot be implemented by one agency. It is important that central or federal agencies as well as local governments coordinate on vehicle regulations, charging investments and oversight, permitting of charging stations, and incentives for vehicle buyers.

mischief. Information disorder comes in different types: disinformation, misinformation, and malinformation, and can be defined in terms of its falseness and intention to cause harm. The following table describes the classification by Wardle and Derakhshan (2017).

Types of information disorder

| Type | Definition | Examples |
|-----------------|--|---|
| Mis-information | false information is shared, but no harm is meant | satire or parody, misinterpretation, misattribution |
| Dis-information | false information is knowingly shared to cause harm | gaslighting, denial of fact, fake news, fabrications, manipulations |
| Mal-information | genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere | doxing, hacking/misuse of personal information |

Source: Definitions from Wardle and Derakhshan (2017); examples from authors.

Measuring the extent of information disorder has proven to be a challenge. One of the few surveys that have attempted to measure it at the international level is the CIGI-Ipsos Global Survey on Internet Security and Trust. This survey was conducted between December 2018 and February 2019 in 25 economies (including 10 APEC economies) and covered 25,229 internet users. The results show that 33% to 56% of APEC respondents based on the economy in which they were being surveyed admitted to initially believing what turned out to be fake news. On average, this represented 43% of respondents surveyed in APEC economies.

The Impact of Information Disorder on Trust. Information disorder affects trust in a number of ways, most insidiously by damaging the credibility of legitimate sources of information. There are forms of disinformation that directly attack legitimate news sources with accusations of bias and incompetence and this, in turn, damages confidence in the mainstream media. Misinformation also contradicts information reported in media outlets, which sequentially triggers confusion, misunderstanding, and mistrust. On the other hand, fake news can mimic the format of legitimate news sources, in turn diminishing the credibility of journalists and legitimacy of the media. Finally, the tainted truth effect of misinformation makes people discredit and question even correct information reported by the press.

According to the CIGI-Ipsos survey, fake news has caused 40% of respondents to trust media less and 22% to have less trust in their governments. In contrast, less than 7% of APEC respondents put more trust in media and governments, as a result of exposure to fake news. While more research will be needed to fully understand fake news and

Putrajaya Vision 2040, COVID-19 and Information Disorder

Link: <https://www.apec.org/publications/2022/10/putrajaya-vision-2040-covid-19-and-information-disorder>

This Policy Brief examines the potential impact of information disorder on trust and policy implementation. Focusing on lessons from COVID-19, it provides empirical data and literature illustrating these linkages, showing that information disorder can slow down or hamper the implementation of inclusive policies such as equitable access to vaccines.

Findings

Information Disorder in APEC Economies. Information disorder is the creation, production, and dissemination of false or harmful information, whether or not done with the intention to do harm or

how it spreads, it is clear that it is a phenomenon that has an effect on and is affected by trust in institutions and gatekeepers of information, such as the media as well as governments.

Trust is Necessary for Quality Growth. Trust is a component of social capital, which is of vital importance with regard to social and economic relations, legal frameworks, and, ultimately, economic development. Trust influences the implementation of inclusive policies in various ways. First, trust makes people feel safe and confident in the information given to them by authorities, and this feeling of safety fosters adherence to advice. For instance, confidence in the effectiveness of vaccines was found to be the strongest predictor of vaccine uptake across 149 economies including 20 APEC members. Also, trust in the efficacy and safety of vaccines was identified as a key behavioural factor in COVID-19 vaccine uptake.

Second, trust in government is a critical factor in policy implementation. When people perceive their governments as trustworthy, this reduces uncertainty and clears clouds of doubt and hesitation, which in turn increases the likelihood of compliance with policies mandated by authorities. Similarly, high trust in government could bring about a conducive environment for people which allows them to voluntarily comply with government programmes.

Furthermore, trust in government fortifies the legitimacy of its institutions and this, in turn, motivates people to follow the decisions of government institutions and support public guidelines and regulations. For instance, higher trust in central/federal and local public health institutions was positively linked with higher compliance with COVID-19 public health measures in a study covering 12 economies (eight of which are APEC members). On the contrary, distrust discourages compliance.

Trust is necessary to achieve economic development and quality growth. The positive link between trust and development is evident across the globe. Global research which examined 104 economies, including 18 APEC members, from 1999 to 2020 demonstrated that trust is significantly and positively associated with economic growth.

Economic Costs of Information Disorder. Information disorder can have real economic costs, and there is mounting evidence showing the direct cost of information disorder in key sectors such as health, communications, and finance. A 2019 study conducted by the University of Baltimore and CHEQ showed that fake news strained a number of sectors including health, finance, and advertising, and that the global economic costs of fake news were estimated to be about USD 78 billion.

In the context of COVID-19, achieving high vaccination rates has been

seen as a way out of movement controls, lockdowns, and quarantines and a return to pre-pandemic social and economic life. Indeed, high rates of COVID-19 vaccination have been associated with an increase in economic activity. Conversely, a slowdown in vaccination uptake can result in delayed economic reopening and higher healthcare costs.

The statistical analysis conducted in this paper show that after controlling for other factors affecting vaccination uptake, a unit increase in COVID-19 vaccine-related misinformation search volume is associated with about 1% decline in new daily vaccinations a week later, 1 to 2% decline 2 weeks after, and 1 to 3% decline 3 weeks after. This exercise, while preliminary, illustrates that information disorder – as measured by interest in misinformation terms – has the potential to undermine trust and hamper the rollout of inclusive policies such as universal access to vaccines.

Recommendations

As information disorder affects policy reform and implementation, policy needs to catch up to the challenge of information disorder. It is recommended that APEC economies begin a concerted process of examining the challenges of information disorder in order to develop an adequate response strategy. This strategy could include three broad initiatives:

- Understand information disorder: Learn about the extent and impact of information disorder and its implications for APEC economies.
 - Support multi-disciplinary research. Because the topic of information disorder as presently understood is relatively new and complex, research on the topic needs to be cross-fora and multi-dimensional. Currently, however, this research takes place in silos and without inputs from a multi-disciplinary group of substance matter experts. By bringing various fora together to exchange views, APEC could promote higher quality research on information disorder, which would in turn contribute to a more comprehensive understanding of the issue, including a better sense of the overall economic costs of information disorder.
 - Focus on the impacts on vulnerable populations. Information disorder is not only multi-sectoral but also multi-dimensional, having different impacts according to economic status, gender, race, minority status, or location. Vulnerable populations are often the targets of mis- and disinformation as well as malign narratives and, because many of APEC's most marginalised and indigenous peoples have their own languages, mainstream language content moderation often completely overlook these communities. Likewise, gendered disinformation frequently promotes the notion that women are, by their nature, ineffective

Strong, Balanced, Secure, Sustainable and Inclusive Growth

leaders or lack the equivalent qualifications of their male peers. Taking steps to recognise this critical vulnerability will not only strengthen the region's overall response to information disorder in times of crisis, but also address one of the most pernicious aspects of the problem which plays on stereotypes and tropes. By taking action to disrupt these problematic messages online – particularly during periods of crisis – APEC can take important steps toward enhancing economic participation and promoting inclusive growth.

- Engage with digital platforms for better data. APEC as a whole should begin a dialogue with digital platform companies to make it possible for researchers to access the data necessary to conduct meaningful research on the impact of information disorder. Currently, the vast majority of data on the spread and consumption of misinformation is held by a very small number of platform companies. APEC should dialogue with these companies to develop relationships in order to give researchers access to high quality, anonymised data on users and their consumption of mis-, dis-, and malinformation while ensuring the legitimate interests of the private sector. This partnership could particularly shed light on the speed in which information disorder spreads through networks of underserved peoples and on the facilitating dynamics of that spread.
- Build government capacity to address information disorder. Governments must have a plan, policy, and capability to confront information disorder.
 - Address information disorder as a multi-domain governance issue. Addressing information disorder needs to be embedded in policy and practice. There is a need for a degree of organisational change within government that reflects the changing environment of information disorder. Specifically, there is a need for enhanced inter-agency coordination and improved information sharing regarding online threats, rapid response, as well as the need for domain-specific monitoring of the information space during crises. Within APEC, information disorder needs to be discussed in a cross-sectoral manner spanning several committees and fora. This becomes especially urgent when one considers the region's need to regain the social consensus for free trade and globalisation, and a threat to that consensus is information disorder – such as misattribution and false narratives – about the impact of trade on welfare.
 - Leverage trusted partners and outreach mechanisms. Governments do not need to work alone in combatting information disorder as the region is already well served and connected with various trusted international organisations,

academic and research institutions, media firms, and civil society groups. These connections could serve as both sources and conduits for trusted, authentic information when information disorder threatens support for policy interventions that promote quality growth and inclusion. In the context of crisis communications, governments and partners could develop an emergency management plan that factors in information disorder threats and emphasise delivering truthful information through trusted channels.

- Strengthen trust in institutions: Tell the truth, provide the tools to think critically, and do not engage in falsehoods.
 - Support high-quality and unbiased research and communication. The only cure for information disorder is truthful, complete, and reliable information. The information space cannot be yielded to falsehoods and misdirection; it is incumbent on institutions like APEC to fill the space with the facts needed for policy discourse. Economic research can play an important role in building trust if they are perceived as being of high quality and free of significant political manipulation or bias. APEC economies should recommit to a transparent and evidence-based dialogue with stakeholders that aims to build trust and understanding. This also means conducting APEC research and assessments in an objective and truthful manner, in a way that acknowledges achievements while also being honest about gaps and mistakes. Communicating this objective research is just as important. APEC needs to ensure that its many research outputs are adequately disseminated to all stakeholders. Likewise, ensuring that APEC communication is seen as a source of high-quality, unbiased, and objective information will help build credibility for the organisation.
 - Invest in digital literacy. Many new users in the APEC region are unfamiliar with the norms of online behaviour and can either engage in inappropriate practices that include sharing mis-, dis-, and malinformation or fall victim to malign narratives. Programmes that share advice and guidance on how to identify and mitigate problematic behaviour like cyberbullying, and recognise when harmful or false content is being disseminated online, would help address information disorder issues and arrest its corrosive impact on trust in society. APEC can make an impact by supporting activities that share tools, techniques, and local lessons designed to help individuals in underserved communities make informed decisions through critical consumption of content.
 - Avoid engaging in disinformation efforts. People look to their governments as sources of authoritative, reliable, and truthful information. While it should be assumed that governments will

not knowingly spread falsehoods to its own people, mistakes in the form of misinformation disseminated by official sources can and do happen. In these cases, governments should establish clear mechanisms to not only rectify the misinformation, but also to minimise its occurrence by establishing clear frameworks for transparency and accountability. APEC economies should carefully consider the contradictory forces at work within information ecosystems that strengthen or undermine trust in official statements and policies. Because information disorder can generate unpredictable and often chaotic outcomes, a focus on information consistency, stability, and trust is needed to ensure the achievement of quality growth priorities.



APEC Regional Trends Analysis

February 2022 Update: Multiple Headwinds Derail Recovery

Link: <https://www.apec.org/publications/2022/02/apec-regional-trends-analysis-february-2022-update-multiple-headwinds-derail-recovery>

Findings & Recommendations

- APEC GDP grew at a slower pace of 4.2% in Q3 2021 following a strong rebound of 10.1% in Q2 2021, reflecting the impact of the Delta variant that prompted a re-imposition of movement restrictions amid a surge in infections. This translated into disruptions in supply chains and reduced consumption, slowing down economic activity.
- For the whole year 2021, the APEC region is estimated to have expanded by 5.8%, lower than the 6.0% forecast in the November 2021 ARTA. APEC is expected to moderate further to 4.2% in 2022 and 3.8% in 2023 as multiple challenges derail global economic recovery. Growth within APEC will remain uneven due to disparities in pandemic management and vaccine uptake as well as narrowing fiscal space and adjustments in monetary policy support.
- The emergence of the more contagious Omicron variant has exacerbated supply chain disruptions and sustained fears of new mutations. Compounding these concerns is rising inflation as supply shocks combine with strong pent-up demand. Higher inflation has already driven some economies to tighten monetary policy settings, which could have a dampening effect on economic activity. The moderation in China's growth could also adversely affect its economic partners within the APEC region.
- As challenges multiply, priority should remain focused on boosting health systems and ramping up vaccination rates. Widening access to vaccines, tests and treatments must go hand in hand with increasing the capacity of economies to ensure proper storage, efficient distribution, and availability of medical workers and supplies to sustain vaccination programmes. It is also imperative to address vaccine hesitancy through public information campaigns that focus on protection and correcting misinformation.
- Whereas the fiscal policy measures implemented at the onset of the pandemic were comprehensive, a shift toward a calibrated and targeted approach is warranted given the narrowing fiscal space and inflationary pressures. Support packages should thus be directed at vulnerable households and viable businesses. At the same time, monetary policy needs to be communicated clearly to anchor inflation expectations, while remaining agile and able to immediately deploy tools at its disposal to rein in inflation.

- Global and regional cooperation mechanisms continue to play an important role in recovering from the chaos wreaked by the pandemic and rebuilding stronger economies.
- The APEC region's Aotearoa Plan of Action (APA) is the right vehicle that comes at the right time. The APA implements the Putrajaya Vision of 'an open, dynamic, resilient and peaceful Asia-Pacific community by 2040, for the prosperity of all our people and future generations' by setting out individual and collective actions under three economic drivers: trade and investment; innovation and digitalisation; and strong, balanced, secure, sustainable and inclusive growth.

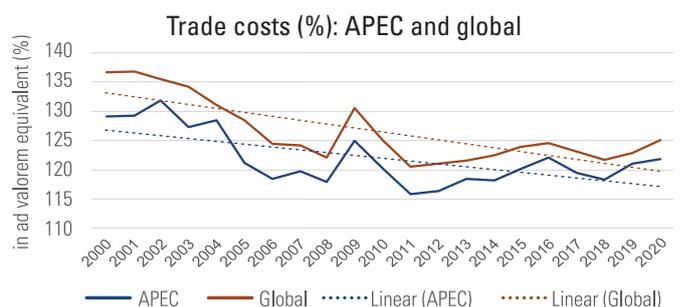
May 2022: Tackling Trade Costs and Facilitating Supply Chain Networks; Sustainable Recovery amid Uncertainty

Link: <https://www.apec.org/publications/2022/05/apec-regional-trends-analysis-may-2022-tackling-trade-costs-and-facilitating-supply-chain-networks-sustainable-recovery-amid-uncertainty>

Findings & Recommendations

Tackling Trade Costs and Facilitating Supply Chain Networks

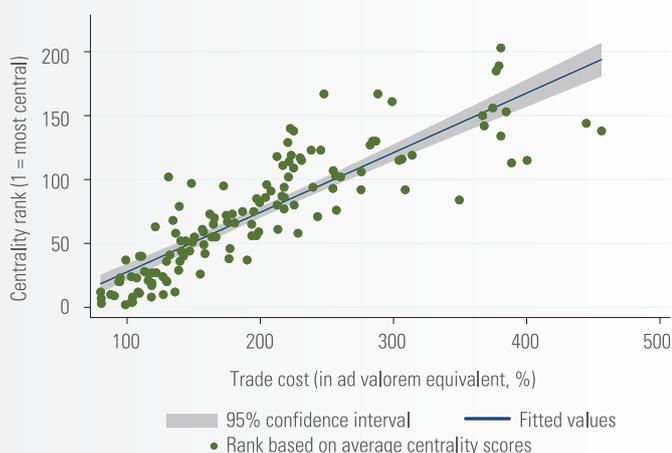
- Between 2000 and 2018, average trade costs for the APEC economies declined by 8.5%, from 129% to 118% in ad valorem tariff equivalent terms. This could be credited in part to APEC's consistent trade facilitation efforts, including the first and second Trade Facilitation Action Plan (TFAP I and II) and the Supply Chain Connectivity Framework Action Plan (SCFAP).
- Trade costs in both the APEC economies and at the global level spiked in eventful years such as during the 2008–2009 global financial crisis and, to a lesser degree, the COVID-19 pandemic. Trade costs at the sectoral level are also expected to increase in 2020, given the supply chain disruptions caused by the COVID-19 pandemic. The APEC region, however, has shown a certain resiliency, with its trade costs increasing at lower rates than the global level during those periods of crisis.



Source: UN Comtrade data; APEC PSU calculations.

- Trade costs for essential goods have fallen substantially over the last decade. Some of the APEC economies with the lowest trade cost levels in 2018 – Canada; China; Japan; Korea; Singapore; and the US – also have the highest centrality measures, suggesting that their relatively lower trade costs might have catalysed their central roles in the global trade networks for selected essential goods.
- The trade networks of a selected range of essential goods – chemicals, medicines, personal protective equipment (PPE) and medical equipment – expanded significantly from 2000 to 2018, facilitated by the emergence of trade hubs acting as key suppliers to a wider group of economies. The number of bilateral trade ties in these networks dropped slightly in 2020 but export performance remained strong for PPE. A fall in trade costs may lead to increased geographical concentration of production, clustering of business activities and fragmentation of the production process, thus enabling the emergence of several production hubs.
- Hub economies play an important role in the trade network because they act as central nodes that facilitate exchange with other economies. There is a strong link between trade costs and the centrality of an economy: economies with low trade costs tend to occupy a hub position.

Trade costs and centrality rank for medical supplies, 2020



Source: UN Comtrade data; CEPII-BACI data; APEC PSU staff calculations.

- The trade networks for certain essential goods display a high level of centralisation. These networks are highly concentrated, which could be efficient, but, at the same time, could also lead to supply chain risk and fragility. Importing a high proportion of those risky products could make an economy vulnerable to spillover effects from supply shocks, particularly from disruptions originating in hub economies.

- Managing inflation is crucial in ensuring a robust economic recovery; and disruptions to supply chain networks could have considerable impacts on inflation. Although such inflationary impacts could be temporary and short-lived, they may also be protracted if they raise production costs significantly.
- Economies need to take steps to reduce trade costs and improve the resiliency of supply chain networks, particularly for essential products that are important for economic recovery and stability. Avenues that APEC economies could pursue include the following:



Invest in trade facilitation reforms and facilities to resolve bottlenecks



Focus efforts in preventing supply chain disruptions to risky and essential products



Strengthen policy coordination and regional cooperation

Sustainable Recovery amid Uncertainty

- APEC GDP growth is expected to slow down to 3.2% in 2022 and 3.4% in 2023, following a 5.9% expansion in 2021.
- Economic recovery, which was already fragile to begin with, faltered toward the second half of 2021 with the emergence of the highly contagious Omicron variant. The resurgence of infections led to shortages of workers and production inputs, disrupting global supply chains and contributing to supply–demand imbalances that resulted in higher food and energy prices.
- APEC inflation averaged 3.0% in 2021, doubling from 1.5% in 2020. Inflation for Q1 2022 averaged higher at 4.5% compared to 1.8% in Q1 2021.
- Rising inflation, particularly of food prices, could push more people into extreme poverty. Higher inflation, interest rates and debt could slow down economic activity. Other risks remain, including ongoing geopolitical tensions, the moderating of China’s economy; climate change, which, if left unmitigated, will continue to affect people’s health and livelihoods; and the ongoing pandemic, where the emergence of highly transmissible variants could send economies back into restart mode.

APEC Regional Trends Analysis

- Merchandise and commercial services trade recorded double-digit growth in 2021 from the contractionary levels in 2020. However, the World Trade Organization and the International Monetary Fund cut their trade forecasts for 2022 and 2023 to take into account the multiple challenges that could negatively impact trade relations and activity.
- Amid heightened uncertainty and rising risks from crisis upon crisis, APEC has remained committed to stay the course of sustainable and inclusive growth by implementing the Putrajaya Vision through the APA. The APA is focused on implementing inclusive policies that equip people with the updated skills necessary to thrive amid rapid technological changes; advance gender equality and women's economic empowerment; support MSMEs' access to finance, global markets and global value chains; and further deepen APEC's work on groups with untapped economic potential, including indigenous groups, people with disabilities and those living in remote and rural communities.
- APEC recognises that growth and prosperity need to be attained through environmentally sustainable approaches. APEC economies are expected to work toward achieving their environmental goals, including doubling renewable energy in the APEC energy mix by 2030, reducing aggregate energy intensity by 45% in 2035 and integrating the Bio-Circular-Green (BCG) model into the region's economic approaches.
- Food security also forms a vital part of APEC's sustainable growth agenda, which is timely amid rising food prices. The APEC Food Security Roadmap Towards 2030 leverages public-private partnership to bring about digital and innovative approaches to increase productivity and efficiency; minimise food loss and waste; mitigate and adapt to climate change; and reduce costs and facilitate food trade.
- Alongside the pursuit of medium- to long-term objectives, APEC is mindful that, in the immediate period, the priority remains focused on ensuring that the region's people are healthy so that economies can recover, reopen and rebuild. Central to this is the crucial role of trade facilitation to ensure the free and rapid flow of vaccines, therapeutics and related medical supplies across borders.
- The resumption of cross-border activity remains paramount, to strengthen the region's connectivity, while at the same time, re-energise travel and tourism to support economic growth.
- For APEC, the challenge remains to translate the Putrajaya 2040 vision of an 'open, dynamic, resilient and peaceful Asia-Pacific' into concrete actions and tangible benefits for all people.

August 2022 Update: Future-Proofing APEC amid Challenges and Uncertainties

Link: <https://www.apec.org/publications/2022/08/apec-regional-trends-analysis-august-2022-update-future-proofing-apec-amid-challenges-and-uncertainties>

Findings & Recommendations

- The APEC region is expected to significantly moderate in the near term, with GDP growth slowing to 2.5% in 2022 and 2.6% in 2023 following a 5.9% rebound in 2021. These projections reflect the sharp downgrades in economic growth for all member economies, particularly China and the US, while Russia is expected to contract in the short-term.
- Already reeling from a pandemic that is marked with virus mutations, the world is also dealing with soaring inflation, ongoing geopolitical tensions and heightened uncertainty. The economic slowdown is already apparent in APEC, which grew at a slower pace of 3.7% in Q1 2022 after expanding by 6.2% in Q1 2021 and 4.3% in Q4 2021. Trade activity in APEC also weakened, with lower growth in the value and volume of merchandise trade.
- Moving in the same upward trajectory as the rest of the world, average APEC inflation increased to 5.4% for the period January-June 2022, more than twice the average in January-June 2021 at 2.4% and higher than the 2021 full year average of 3.0%. In response, the majority of APEC economies tightened their monetary policy settings to rein in inflation.
- The manifold of difficulties that the world is facing underscores the importance of preparedness: preparing for the next pandemic or crisis and preparing for a future that is inevitably highly digitalised and greatly exposed to the harmful effects of climate change.
- In the immediate term, economies must be prepared to manage any crisis and cushion its adverse impact, particularly on the most vulnerable. Ramping up vaccination uptakes remains vital to guard against a resurgence in infections amid virus mutations. Bringing down inflation needs to be prioritised since it translates to higher costs of living and tends to increase poverty. Fiscal policy has to be well-targeted to extend support to the most vulnerable while keeping debt within manageable levels by improving revenue generation and reducing government spending.
- In the medium to long term, APEC economies need to work cohesively and consistently toward a sustainability and inclusivity

agenda that future-proofs economies in the region. This means strengthening the region's connectivity; safeguarding the environment and mitigating the harmful effects of climate change; addressing the digital divide with updated rules as well as upgraded digital infrastructure and skills; and ensuring women's full and equal economic participation and political representation by implementing mutually-reinforcing policies that significantly improve women's access to employment, credit and leadership positions.

- APEC has already taken the initial steps by launching initiatives that fortify the region's resilience against pandemics, crises and uncertainties, cognisant that individual members have different economic conditions and development priorities. The key is to cooperate to translate commitments into actions, and actions into tangible benefits for people in the region.



StatsAPEC is APEC's statistics portal with data dating back to APEC's inception in 1989. It consists of the Key Indicators Database and Bilateral Linkages Database. The Key Indicators Database includes over 120 GDP, trade, financial and socio-economic indicators, allowing for an analysis of trends across a number of topics. The Bilateral Linkages Database facilitates detailed analysis of bilateral trade flows between APEC economies and within APEC. APEC aggregates are available for most indicators in StatsAPEC, making it easy to examine the region as a whole.



Visit <https://statistics.apec.org/> or scan the QR code to access the portal.





**Asia-Pacific
Economic Cooperation**

Policy Support Unit • APEC Secretariat
35 Heng Mui Keng Terrace, Singapore 119616
Telephone Number: (65) 6891 9600 • Facsimile Number: (65) 6891 9419
Website: www.apec.org/About-Us/Policy-Support-Unit
Email: psugroup@apec.org

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