Asia-Pacific
Economic Cooperation

Advancing Free Trade
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Passports, Tickets and Face Masks

COVID-19 and Cross-Border Mobility in the APEC Region

Final Report

APEC Policy Support Unit

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KEY MESSAGES

- In early 2020, APEC economies implemented restrictions at the border such as blanket entry bans, banning arrivals from selected locations, and pre-arrival permits, as well as public health measures like COVID-19 testing and quarantine requirements. These measures were implemented in order to prevent imported cases of COVID-19 from affecting local populations

- In May 2020, Korea initiated the "Proposal to review measures facilitating Essential Movement of People across borders" to share information on cross-border policies, identify common elements and lessons, and discuss future steps as necessary. A survey on "Voluntary Exchange of Information on Measures Being Explored/Implemented by APEC Economies to Facilitate Essential Movement of People across Borders" was conducted in September 2020. As of February 2021, 18 APEC economies have responded to the survey. The policy measures based on the survey that are listed in this report may have been modified, repealed, or extended by the time of this report's publication.

- The survey shows many similarities in the types of measures implemented at borders, but also highlights many variations and differences in the details of how these measures are implemented. There was no policy coordination on testing and quarantine requirements, criteria and protocols for border closures, nor criteria and protocols for the reopening of borders among APEC economies in the early stages of the pandemic.

- Cross-border movement of people is essential for trade and economic activity. Apart from the obvious linkages in terms of tourism and transportation, cross-border movements of people also contribute to economic growth by enabling logistics and supply chains, investments, employment, education, and capacity building. There are strong and synergistic linkages between cross-border movement and bilateral trade and economic growth. Conservatively, every 10% increase in non-resident arrivals is associated with a 0.34% increase in trade and 0.31% increase in GDP.

- On the other hand, the effectiveness of border restrictions in preventing imported cases from seeding waves of the pandemic is mixed. The effectiveness of these border policies hinges on timing—i.e., before the virus has reached domestic populations—and the effectiveness of behind-the-border pandemic response.

- The border restrictions had immediate and substantial impacts on cross-border movements and economic activity, as well as society and various vulnerable groups. Estimated direct trade losses due to the fall in cross-border movement range from USD 488 billion to USD 786 billion. GDP losses for the region from lost cross-border movement and unrealised economic activity is estimated at USD 1.2 trillion.

- Previous attempts at safe reopening have been tentative and uncertain due to the changing COVID-19 situation around the region. Several attempts at bilateral travel

bubbles have been postponed, cancelled, or reversed due to changing risk profiles in other economies.

- Recommendations from various international organisations on safely resuming travel suggest the need for economies to lift travel restrictions with a risk-based approach, cooperate with other economies, provide traveller confidence, and consider standardisation and digitisation of global health credentials. Tools to realise these strategies are already on the table. Examples include online one-stop platforms that allow sharing of travel restriction information as well as various digital health certificate apps such as IATA's Travel Pass.

- There are three key recommendations to enable safe reopening of borders:

    - **Contain COVID-19 everywhere.** Experience over the past year has shown that the virus remains a threat everywhere so long as it continues to ravage anywhere. The SARS-CoV-2 virus is highly capable of mutation, which can potentially slow or reverse gains from vaccination and other pandemic control measures. The only way to reopen borders safely and avoid the stop-start uncertainty of previous attempts is to quickly put an end to the pandemic for all people and all economies. Policy cooperation in areas of trade in medical products, ramping up production of vaccines and therapeutics, and ensuring equitable access to them will be crucial in this regard.

    - **Reduce uncertainty at the borders.** The lack of at-the-border policy coordination has led to significant uncertainty for travellers and even the logistics personnel who make trade possible. Stop-start attempts at travel bubbles and uncoordinated green lanes add to, rather than reduce, this uncertainty. Policy coordination in mutual recognition, harmonising standards, sharing data, as well as establishing clear criteria for closing or reopening borders will eliminate confusion and reduce uncertainty at the border.

    - **A role for APEC.** APEC is in a unique position to contribute to the first two. Behind-the-border issues require policy cooperation, while at-the-border issues require policy coordination. APEC has various subfora on trade, standards, intellectual property, digital economy, health, life sciences, business mobility, human resources, tourism, transportation, and others. APEC also has close working relationships with other international organisations at the forefront of addressing the COVID-19 pandemic and safely reopening borders. All these can be brought to bear on this issue.

- Beyond COVID-19, APEC can be the forum where information sharing, objective risk analysis, and regional cooperation happen to prepare for future "black sky events" affecting the region. APEC already has the multisectoral structures that will enable cooperation wherever the black sky events may originate. APEC's culture of informality, non-binding agreements, and drive towards consensus can enable it to be more nimble and responsive to new regional threats as they emerge, something that more formal and binding institutions may find difficult to do. This is an opportunity for

APEC to emerge from the COVID-19 pandemic as a more highly relevant, innovative and forward-looking international organisation.

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1. INTRODUCTION

"We will… explore ways to facilitate essential movement of people across borders, without undermining the efforts to prevent the spread of the virus."

– APEC Ministers Responsible for Trade, July 2020

The COVID-19 pandemic is an unprecedented humanitarian and public health crisis that resulted in border policies that were once unthinkable. In order to prevent imported cases of COVID-19 from affecting local populations, all APEC economies implemented restrictions at the border. These measures include, but are not limited to, total or partial entry bans, pre-travel clearance, and other public health measures like COVID-19 testing and quarantine requirements. Nevertheless, APEC economies also allocated certain exemptions to allow essential travel and movement of essential people, and established alternative arrangements such as special lanes or treatment for travellers from lower-risk areas.

In May 2020, Korea initiated the "Proposal to review measures facilitating Essential Movement of People across borders" to (1) share information on facilitating cross-border movement of people, (2) identify common elements and lessons, and (3) discuss future steps as necessary. The proposal was endorsed in July 2020, and a survey on "Voluntary Exchange of Information on Measures Being Explored/Implemented by APEC Economies to Facilitate Essential Movement of People across Borders" was conducted in September 2020.[1] As of February 2021, 18 APEC economies have responded to the survey. Complete survey responses are included in the Annex.

This report was initiated by Korea to build on the results of the survey conducted in late 2020. It discusses commonalities and differences in economies' COVID-19 border policies based on survey responses in the next section. This is followed by a discussion of the economics of cross-border mobility, covering various types of cross-border movement and their contributions to trade and economic growth. A review of the effectiveness and impacts of cross-border closures follows. This report finally looks at ongoing regional and multilateral initiatives to facilitate cross-border movement and safe reopening, and provides discussion and recommendations to address the current crisis, as well as to prepare for future events that necessitate regional cross-border responses.

[1] Korea, "Voluntary Exchange of Information on Measures Being Explored/Implemented by APEC Economies to Facilitate Essential Movement of People Across Borders," 2020, http://mddb.apec.org/Documents/2020/CTI/CTI2/20_cti2_004.pdf.

2. CROSS-BORDER MEASURES UNDER COVID-19

To contain the spread of COVID-19, APEC economies introduced travel restrictions such as border closures and quarantine orders. Recognising that travel restrictions could have negative impacts on economic activities, APEC economies have taken calculated measures to recalibrate their travel restrictions and reopen their borders. This section summarises the various travel restrictions implemented by APEC economies as reported by economies in the survey conducted in September 2020. It also discusses the various measures that APEC economies have taken to reinstate and facilitate essential travel.

The policy measures contained in this chapter reflect economies' survey responses as of the 4th quarter of 2020. The policy measures contained here may have been modified, repealed, or extended by the time of this report's publication. As of this writing, COVID-19 is an ongoing and evolving humanitarian, health, economic, and cross-border challenge. This chapter captures the initial border responses to the COVID-19 pandemic; it is not meant as an up-to-date reference for changing border policies.

TRAVEL RESTRICTIONS

All APEC economies have imposed some form of travel restrictions in response to COVID-19, but the coverage and extent of these restrictions vary from economy to economy. A number of economies banned the entry and/or transit of all non-residents into their jurisdictions. Short-term visas and visa-free access such as those issued for tourism and social visits were suspended in most economies. Some economies have also limited their citizens from traveling overseas and curtailed the number of international flights to minimise non-essential travel. Finally, in cases where international travel is allowed, various requirements such as health certificates, COVID-19 tests, and mandatory quarantine have been imposed.

Increased border restrictions

Two main border closure approaches are present in APEC: a "positive list" approach and a "negative list" approach. The goal of both approaches is what is called in public health as protective sequestration: measures to protect a healthy population from an infection by eliminating or minimising its chances of infecting the population. Most APEC economies used border restrictions using the more restrictive "positive list" approach, opting for a blanket entry ban that restricts most inbound travel for non-citizens and non-residents. To enable some travel, economies that used the "positive list" approach have slowly reopened their borders to inbound travel from selected areas, identifying other economies with low or acceptable COVID-19 risk and establishing fast track lanes and travel bubbles with these areas.

On the other hand, the "negative list" approach was taken by only three economies: Korea; Mexico; and the United States. Under this approach, international travel is still broadly allowed, albeit with additional public requirements such as tests or quarantines. Economies using the "negative list" approach identified areas that pose a high risk of COVID-19 and its variants, and restricted or banned inbound travel from those locations.

Fifteen economies that responded to the survey used a "positive list" approach, while only three used a "negative list" approach. Both approaches have had mixed success in containing the pandemic. Some economies that have imposed strict border restrictions still encountered periodic outbreaks. On the other hand, economies that allowed international travel to buoy their economy were later forced to implement more stringent measures to control outbreaks such as lockdowns or movement controls. A summary of the varied border control measures undertaken by APEC economies can be found in Table 2.1.

Table 2.1: Border Restrictions in APEC Economies

Economy	Border Restrictions
Australia	Since February 1, 2020, Australia has progressively restricted travel to curb the introduction and spread of COVID-19 in Australia. In March 20, 2020, travel into Australia of all non-citizens was prohibited, with a limited number of exemptions. Moreover, from March 25, 2020, Australia has also implemented travel restrictions prohibiting its citizens and permanent residents from leaving Australia. Citizens and permanent residents who need to travel for essential reasons can apply for exit authorization.
Brunei Darussalam	On March 16, 2020, Brunei Darussalam imposed a travel ban, restricting non-essential travels to Brunei Darussalam to contain the spread of COVID-19. Citizens and residents of Brunei Darussalam were also banned from traveling out of Brunei, except for a number of urgent circumstances. All travel to and from Brunei Darussalam were subject to government approval.
Canada	Canada has restricted inbound to travel to Canada, only permitting travel for non-discretionary and non-optional purposes. Travel into Canada for tourism, recreation, and entertainment purposes are not allowed.
Chile	At the time of the survey, only Chileans and foreigners residing regularly in the economy's territory could enter Chile. Entry to Chile was subject to adherence to protocols and other instructions established by health authorities. Chile also suspended entry of APEC Business Travel Card (ABTC) holders and reduced the issuance of ABTC, since in the economy's view, ABTC holders have the quality of tourists.
China	On March 26, 2020, China has temporarily suspended the entry into China of foreigners holding visas, residence permits, and APEC Business Travel Cards. Special visas such as port visas, transit visas, cruise visas, and tourism visas were also suspended. All visas issued before March 26, 2020 were invalidated. These restrictions do not affect entry of those who hold diplomatic, service, courtesy, or C visas. China continues its visa services to aliens who need to travel to China for economic, trade, scientific, technological, humanitarian, or emergency activities. Those who are issued visas after this period can enter China.
Hong Kong, China	As of questionnaire response time, all non-residents coming from overseas economies and regions by plane will be denied entry to Hong Kong, China. Certain exemptions are given on exceptional grounds to allow certain personnel essential to the continued operation of the

	society or functioning of the economy, subject to stringent conditions on testing, self-isolation and movement based on risk assessment.
Indonesia	Indonesia has imposed travel restrictions, limiting entry to Indonesia for Indonesian citizens and a limited number of individuals. Most foreigners were not allowed to travel to Indonesia.
Japan	Japan restricted inbound travel of foreigners to Japan who have been to certain economies in the last 14 days. Japan used a positive list approach, banning entry to foreigners except for residency or business travel from specific economies, etc.
Korea	Korea did not impose a blanket travel ban, and adopted a negative list travel ban, enumerating economies from which a travel ban applies. ABTC holders were permitted to enter Korea.
Malaysia	Malaysia imposed a Movement Control Order (MCO), which restricted entry to and exit out of Malaysia for both its citizens and expatriates. Malaysia later introduced the Recovery Movement Control Order (RMCO), which provided some exemptions for travel, such as for expatriates, dependents, and maids.
Mexico	Mexico has kept its borders open, and has only applied a border closure with the United States through a joint initiative with the US to restrict non-essential travel along the land border.
New Zealand	New Zealand has closed its border to almost all travellers from March 19, 2020. Only New Zealand citizens and residents, as well as a number of exempted travellers, will be allowed to enter New Zealand.
Peru	Peru has restricted international flights traveling into and out of Peru to control travel. This effectively reduced the number of inbound travellers to Peru. However, Peru has since reactivated visa issuance to allow the entry of foreign citizens entering Peru to comply with business, contractual, and other specialised technical assistance or other similar activities.
Russia	Russia established several temporary measures to limit the entry into the Russian Federation of foreign citizens and stateless people; as well as to restrict travel through land border crossings. Russia has also temporarily halted the registration and issuance of visas.
Singapore	Singapore has implemented comprehensive border closures, barring most inbound travel and transit, except for its citizens and residents. However, it has slowly lifted some restrictions to facilitate short-term travel for essential business and official purposes.
Chinese Taipei	Chinese Taipei has imposed a comprehensive travel ban, banning in-bound travel for all foreigners. But, from June 29, 2020, people from other economies wishing to travel for reasons other than tourism and social visits may apply for a special entry permit.
Thailand	While Thailand has imposed travel restrictions to curb COVID-19 transmission, the Thai government has slowly eased restrictions to encourage the essential movement of people and to facilitate essential business and official travels.
United States	On January 31, 2020, the US President issued "Proclamation on Suspension of Entry as Immigrants and Nonimmigrants of Persons who Pose a Risk of Transmitting 2019 Novel Coronavirus." The travel ban restricted entry from Brazil; China; Iran; the Schengen Area; the United Kingdom; and Ireland. Additional Presidential Proclamations were also

	issued to suspend the entry of immigrants and nonimmigrants who would present a risk to the US labour market during economic recovery. Land border arrivals to and from Canada and/or Mexico are restricted to "essential travel" only. Routine visa services remain suspended in response to the pandemic, but people who have visa-free privileges to enter the US, except those in the restricted list, can enter the US.

Exemptions for essential travel

Noting that some services like healthcare and freight are essential for the economy, all APEC economies have applied considerations for essential travel. While APEC economies do not have a unified standard into what constitutes essential travel, they do share some general ideas and considerations on this area. This section summarises APEC economies' approach to essential travel, showing similarities and differences in three main areas: geographical considerations, labour and business needs, and residency and family matters.

Geographical considerations

APEC economies account for 46% of the world's land area,[2] and feature a wide range of landscapes. As such, APEC economies have widely varied border situations. Some archipelagic economies do not have land borders, whereas other economies feature exclaves that rely on border crossings to receive goods and other essentials. Seaports and airports located in another jurisdiction likewise could be vital links for certain communities. For example, as of end-2019, Papua New Guinea has regular international flights to only four other APEC economies — Australia; Hong Kong, China; the Philippines; and Singapore — so any entry or transit restrictions in these economies will have an impact on travel to and from Papua New Guinea.

Economies need to be cognizant of the impact that border and facility restrictions might have, and try to keep them open to freight and other transit travellers. Economies with discontiguous territories like the United States and Chile have worked with their neighbours to establish exemptions for land-based travellers who need to enter another economy's territory to complete land-based travel. The US and Canada have an ongoing agreement to allow American citizens and residents to drive through Canada for travels between Alaska and the other 48 US states provided that they adhere to strict protocols. Chile likewise emphasised that its airport facilities are open to transit passengers who are passing through Chile to reach another economy, and has established a travel ban exemption with Argentina for travellers who need to enter to reach areas in the discontiguous Patagonia. Malaysia restricted its entry points to only a handful of airports, but included its two land border crossings into Singapore as part of its list of permitted entry points. This could provide a vital land link between Singapore and Malaysia, given that Singapore shares its only land borders with Malaysia. New Zealand has also allowed citizens of Samoa, Tonga, and other Pacific Islands to enter New Zealand for essential reasons such as using New Zealand as a transit point or to acquire essential goods. In these cases, economies have worked to develop exemptions and protocols to ensure that remote and cross-border communities will not be adversely hit by travel restrictions.

[2] China, "Assessment of Progress Towards the APEC 2020 Forest Cover Goal" (27th APEC Ministerial Meeting, Manila, Philippines, 2015), http://mddb.apec.org/Documents/2015/MM/AMM/15_amm_002.pdf.

A summary of travel exemptions and restrictions considering geographical requirements can be seen in Table 2.2. While geographical considerations can expand the list of travellers exempted from the travel ban, economies have also used geographical considerations such as restricting transit options and filtering all arriving flights to certain ports of entry to restrict travel. While these measures are helpful in reducing the risk of spreading COVID-19, they could also make traveling more onerous and inconvenient for inbound travellers.

Table 2.2: Travel Exemptions and Restrictions Based on Geographical Considerations

Economy	Geographical Considerations for Travel Exemptions and Requirements
Brunei Darussalam	Travellers en route to Brunei Darussalam are only permitted to transit through an economy with an equivalent or lower COVID-19 risk category as assessed by the Ministry of Health.
Canada	Canada has special provisions available for travellers coming from the US who need to travel to Canada to reach the mainland United States or Alaska. Travellers allowed to pass by Canada are expected to adhere to strict travel protocol such as minimising contact with Canadians.
Chile	Travel restrictions will not affect the entry or exit of people who enter Chile with the sole purpose of transiting to a foreign economy. Air transit passengers must remain in the transit area. Chile has a reciprocity arrangement with Argentina that allows the transit of Chileans and Argentinians through land border crossings in the discontiguous Patagonia and Tierra del Fuego.
China	China suspended special visa categories for visitors to certain areas such as Hainan. Visa exemptions for tourist visitors from Southeast Asia to these special regions are suspended until further notice.
Hong Kong, China	At the time of the survey, while inbound travellers from China; Macao; or Chinese Taipei are allowed to enter Hong Kong, China, non-residents coming from China; Macao; or Chinese Taipei who have been overseas in the past 14 days will be denied entry to Hong Kong, China.
Indonesia	Inbound travellers to Indonesia must arrive at designated ports of entry.
Japan	Some flights from China and Korea can only arrive in designated airports (Narita International Airport and Kansai International Airport).
Malaysia	Malaysia restricted entry to the economy through a handful of airports, as well as through its two land borders with Singapore.
Mexico	Mexico has kept its air and sea ports of entry open. However, Mexico currently has travel restrictions in place for travellers using the land border with the United States. This is to limit land-based travel to and from the United States to essential purposes.
New Zealand	New Zealand allows citizens of Samoa and Tonga to enter New Zealand to transit through the economy, or for other essential purposes.

Labour and business needs

Over the past decades, many APEC economies have welcomed foreign workers as a means to complement their local workforce. Meanwhile, other APEC economies have become net labour exporters, and leveraged on the remittances of these overseas workers as a key contributor to

economic development. The current public health crisis has complicated cross-border labour mobility around the region. In response to the pandemic, some labour-export oriented economies have restricted the emigration of their own professionals to meet domestic needs in critical sectors such as in agriculture and healthcare. Moreover, border restrictions could make it difficult for essential travellers to receive entry approval in their destinations, or to even transit through other intermediary points. While all APEC economies mentioned that travel related to critical labour and business needs will be allowed, each economy has their own definition of what types of travel and occupations are considered essential, further contributing to the uncertain climate faced by workers and businesses.

A summary of provisions that allow travellers to move for business and labour purposes can be found in Table 2.3. The vast majority of economies have defined essential workers as those involved in the provision of basic services such as medical services, telecommunications, supply chain logistics, aged care, agriculture, food production, maritime shipping, transportation maintenance, diplomatic or consular functions, and utility services. However, some economies like Australia; Canada; Hong Kong, China; and New Zealand have gone further than these basic services, including sectors they deem are strategic to their economic recovery. Australia mentioned that they would consider those working in financial technology, media and television production, and large-scale manufacturing as crucial to their economic recovery, hence treating them as essential travellers. Malaysia highlighted that they would allow expatriates, as well as their dependents and domestic workers, to enter Malaysia if they have obtained pass approval application. On the other hand, other economies like the United States issued a suspension to the entry of immigrants and non-immigrants who may pose a risk to their domestic labour market during economic recovery.

Table 2.3: Travel Exemptions to Meet Labour and Business Needs

Economy	Travel Exemptions for Labour and Business Needs
Australia	Australia has travel ban exemptions for those involved in crucial sectors. Among the people exempted from the travel ban include those traveling at the invitation of the Australian Government, those providing critical or specialist medical services, those involved in the supply of essential goods and services (including primary sectors, food production, and logistics), and those involved in sectors critical to Australia's economic recovery (such as financial technology, film, media, and television production, and emerging technology).
Brunei Darussalam	All foreigners planning to enter Brunei Darussalam must apply for an Entry Travel Pass (ETP) before their intended departure to enter Brunei Darussalam. ETP may be issued for essential business travel as well as official government travel. ETP applicants must have a local sponsor, who will be responsible for applying for the traveller’s behalf. The sponsor must also cover costs associated to travel such as post-arrival COVID-19 tests, quarantine arrangements, and transport arrangements.
Canada	Canada exempts the following people from travel restrictions: licensed healthcare professionals with proof of employment; and any other person whose, in the opinion of the Minister of Immigration, Refugees, and Citizenship; Minister of Public Safety and Emergency Preparedness; or Minister of Foreign Affairs; is in Canada' interest. Public Safety Canada maintains a non-exhaustive list of essential

	services and functions, through which travel exemptions might be considered.
Chile	Chile does not apply the travel bans on people involved in ferrying cargo to and from the economy, foreign companion of people with disabilities, foreign aircraft crews, and other personnel sent to Chile for humanitarian, diplomatic, or official missions. Foreigners who, for reasons that cannot be postponed, must enter the economy for business management purposes, can apply for a travel exemption by applying for a letter for safe conduct issued by Chile's various diplomatic and consular missions.
China	China's travel restrictions do not cover diplomatic, service, courtesy, or C visa holders. Those who need to travel to China can apply for visas, which can be used to enter China.
Hong Kong, China	Hong Kong, China exempts the following people from the travel restrictions: (a) those who are exempted from compulsory quarantine due to necessary for the supply of goods or services required for the normal operation of HKC or the daily needs of the people of HKC; necessary for governmental operation; necessary for the protection of the safety or health of the people of HKC or the handling of the public health emergency; (b) those exceptional case that serves the public interest of HKC; and (c) those who are necessary for purposes relating to manufacturing operations, business activities or provision of professional services in the interest of HKC's economic development.
Indonesia	Indonesia has exemptions for foreigners who hold Indonesian Diplomatic or Service Visa or Stay Permits; medical, food, and humanitarian aid support workers; crew of means of transport; and people whose travel is associated with essential work for strategic projects such as infrastructure or construction.
Japan	While most foreigners are barred entry to Japan, foreigners who are issued travel visas will be allowed entry to Japan. Japan has a special "business track" entry system that facilitates the entry of business people who need to enter Japan for crucial work purposes.
Korea	Korea bans the entry of foreigners entering Korea for tourism and other simple visits that cannot be considered to be entry for absolutely necessary reasons. APEC Business Travel Card holders who are granted pre-clearance can enter Korea without the need to apply for a separate visa. Other business people are also eligible for travel exemptions to enter Korea.
Malaysia	Malaysia allows expatriates as well as their dependent/s and maid/s to enter Malaysia. Entry is subject to receiving pass approval. Expatriates within Malaysia who need to travel overseas but have plans to return to Malaysia need to apply for an Approval to Exit and Return to Malaysia from the Immigration Department. As of March 2021, there are six pass categories to which entry can be granted. These cover certain long-term residents, employment pass holders, short-term professional visitors, and foreign maids for expatriates.

Mexico	Mexico did not have an inbound travel ban for people arriving via airports and seaports. For people entering Mexico through the US-Mexico border, Mexico allow foreigners to enter their territory provided that the purpose of their visit is essential (i.e. not tourist or recreational in nature). Inbound travellers are expected to furnish evidence of the essential nature of their visit and resident status in Mexico, if applicable.
New Zealand	New Zealand permits the entry of diplomats who hold a post in New Zealand as well as other travellers entering New Zealand for a critical purpose. Some people considered to travel for critical reasons include critical health and disability workers, ship crew, and certain types of work visa holders (high-skilled, mid-skilled, etc.).
Peru	Peru has resumed the issuance of visas to accommodate visitors traveling to Peru for business purposes. Furthermore, Peru also allows the entry of people who hold APEC Business Travel Cards, and has resumed issuance of the card.
Russia	Russia has enumerated a list of people whose movement are not subject to the temporary general restrictions on movement across borders. These include: those accredited or appointed to work in diplomatic missions, consular offices, and international organizations in the Russian Federation; drivers and crew members of air, sea, river, road freight, and locomotive transport; employees of intergovernmental courier communications; people involved in the commissioning and maintenance of foreign-made equipment; people employed as highly qualified specialists; people who participate in sports events; among others.
Singapore	Singapore allows the entry of individuals entering Singapore for essential purposes, such as for work in critical sectors. In most cases, inbound travellers must receive pre-approval from immigration authorities before traveling to Singapore. For employed workers in Singapore, their employers must receive entry approval before they can travel to Singapore.
Chinese Taipei	Chinese Taipei permits entry to visitors who are travelling to conduct diplomatic or official business, fulfil commercial and contractual obligations, visit and join family, undergo internships and training, attend international conferences or trade fairs, conduct international exchanges, fulfil volunteer obligations, do religious proselytisation, utilise working holidays, participate in youth exchange, and engage in employment.
Thailand	Thailand exempts the following people from its travel ban: persons on official diplomatic or consular missions and their immediate family, persons involved in the carriages of goods; and vehicle operators and crew members of vehicles (such as trucks, ships, and airplanes).
United States	Those carrying US diplomatic visas and select immigrant classifications are exempt from the travel restriction. Furthermore, the US also has waivers for individuals considered mission critical and those that are found to be in the economy's interest. These waivers allow travel to the US from areas restricted by Presidential Proclamations. The only entities currently issuing these waivers are the Department of Homeland Security/Customs and Border Protection

	(CBP) and the Department of State (DOS). DOS processes requests for all travellers outside the United States, while CBP processes requests for approved professional athletic leagues, entertainment industry and for exigent circumstances.

Residency and familial matters

The last broad consideration that APEC economies have on essential travel are those pertaining to residency and familial matters. APEC travel exemptions linked to residency status and familial reasons are summarized in Table 2.4. The main difference on how economies implement these considerations is the requirement for entry permits. In some economies, no other documents are needed for residents to enter the territory. However, other economies require prior travel clearance before they are allowed to enter. Most APEC economies generally allow their permanent residents to return home, although some economies have temporarily restricted the entry of permanent residents. Other economies also temporarily ban the entry of people granted permanent residency in the destination economy but have not yet entered the economy. In addition to permanent residents, APEC economies also allow the entry of students enrolled in educational institutions within their jurisdictions. While permanent residents and other residency permit holders are allowed to travel, they may be subject to more limitations and costs associated with travel. For example, while some economies like Singapore subsidise or fully cover the costs of testing and quarantine for returning citizens, foreigners residing in the host economies may be required to shoulder the costs of testing and quarantine.

On top of considerations on residency status, some economies like Australia and New Zealand have extended travel exemptions to include immediate family members of citizens and permanent residents. However, not all economies are liberal with their approach on handling travel requests by family members of permanent residents: some economies automatically allow family members to enter the economy without prior clearance, while other economies require permanent residents to apply for entry permits of behalf of their family members. One of the more liberal provisions are granted by Canada: they automatically allow both immediate and extended family members of Canadian citizens and permanent residents to enter Canada. Likewise, Russia automatically grants entry permission for family members traveling to Russia in connection with the death of a close relative or the need to care for other close relatives. Thailand also allows parents of students enrolled in Thai educational institutions to enter the economy. In other economies, family members of residency permit holders are not automatically granted entry permit, and would need to apply for travel exemptions.

Table 2.4. Travel Exemptions for Residency and Familial Matters

Economy	Travel Exemptions for Residency and Familial Matters
Australia	Permanent residents and citizens can return to Australia. Travel exemptions for compassionate reasons, such as attending a funeral of a loved one or seeking medical treatment, are also granted on a case-to-case basis
Brunei Darussalam	Entry Travel Pass (ETP) may be issued to students studying in Brunei Darussalam or individuals who are undergoing medical treatment in Brunei Darussalam. On a case-to-case basis, Brunei Darussalam also issues ETP for compassionate and other special circumstances for

	people with parents, spouses, or other immediate family members that are citizens or residents of Brunei Darussalam.
Canada	Immediate and extended family members of Canadian citizens and permanent residents; foreign citizens with study and work permits (subject to various conditions); and foreign citizens entering Canada for compassionate reasons are allowed to enter Canada.
Chile	Chile allows family members of Chilean citizens and residents regularly residing in Chile to enter the economy. These include children of Chilean citizens and residents, spouses of or people with Civil Union Agreement with a person residing in Chile. In general, most of these travellers do not need an entry permit to enter Chile. However, for cases not covered by these general regulations, people can apply for a letter of safe conduct at a Chilean diplomatic or consular mission.
China	China has temporarily suspended the entry of foreigners holding resident permits and visas. However, travellers who need to enter China for special circumstances can apply to for visas. Those who acquire new visas after March 26, 2020 will be allowed to enter China.
Hong Kong, China	Hong Kong, China residents and their spouses and minor children can enter the economy.
Indonesia	Foreigners who hold Indonesian Temporary Stay Permits or Permanent Stay Permits are allowed to enter Indonesia. Foreigners can also be granted exception to enter Indonesian territory, pending compliance with certain requirements such as mandatory quarantine or COVID-19 tests.
Japan	On September 25, 2020, the government of Japan has allowed various categories of residents such as "student," "dependent," and others to enter Japan from October 1, 2020, under the condition that such permitted individuals will observe quarantine measures. However, the number of people permitted to enter Japan will be restricted by a quota.
Korea	Korea has travel exemptions for urgent family visits.
Malaysia	Malaysia can grant entry approval for dependents and long-term social visitors of expatriates in Malaysia.
Mexico	Residents of Mexico are allowed entry to Mexico. Family members of Mexican citizens and residents are likewise allowed entry to Mexico.
New Zealand	Partners and family members of New Zealand citizens and residents are allowed to enter New Zealand. New Zealand extends these considerations to partners and dependent children of work or student visa holders. Finally, New Zealand also allows the entry of people for other humanitarian reasons, subject to approval.
Peru	People who hold valid visas can enter Peru.
Russia	People traveling to Russia for familial or compassionate reasons are also exempted from the travel ban. People can enter Russia in connection with medical treatment or to live with close relatives (spouses, parents, children, adopted parents, adopted children). Guardians and carers are also eligible for travel.
Singapore	Singapore permanent residents are allowed to enter Singapore. Singapore has also established a Periodic Commuting Arrangement (PCA) with Malaysia that allows citizens and permanent residents of Malaysia with a valid work pass to enter Singapore for business and work purposes. Malaysian citizens who are permanent residents

	working in Singapore are also eligible for the PCA. Under this scheme, employers can apply for the PCA on behalf of their employees. PCA travellers can return to Malaysia for short-term leave after working for at least 90 days in Singapore.
Chinese Taipei	Chinese Taipei allows foreign people who possesses an Alien Residency Certificate to enter.
Thailand	Thailand allows several people to travel to Thailand, including immediate relatives (spouses, parents, children) of Thai citizens, persons with residency status in Thailand, students in Thai educational institutions, persons seeking medical treatment in Thailand (except for COVID-19), and other persons granted permissions to enter into Thailand under special arrangements with other economies. In most cases, Thailand also allows immediate relatives and guardians of people exempted from the travel ban to accompany them to Thailand.
United States	The US has travel ban exemptions for US citizens, lawful permanent residents, and select visa and immigrant classifications.

Other considerations

APEC economies also have pathways to petition other forms of travel exemptions from the aforementioned categories. For cases that are not automatically granted travel exemption, APEC economies have established dedicated portals catering to travellers who need to apply for pre-travel clearance. The Australian Department of Home Affairs' website launched a purpose-built service delivery platform that handles travel exemptions, typically deciding on inward travel requests within seven days, and outward travel requests within 48 hours. China offers visa applications for aliens intending to enter China for necessary economic, trade, scientific, technological, or emergency humanitarian needs in its respective embassies and consulates. Chinese Taipei offers a wider range of allowable travel activities, such as to fulfil volunteer obligations, to do religious proselytisation, to attend international conferences, to undergo internships and training, to and utilise working holidays.

Testing and quarantine measures

Almost all APEC economies require inbound travellers to complete a set of public health requirements, including quarantine orders and COVID-19 tests (typically RT-PCR, or reverse transcription polymerase chain reaction) to enter their jurisdiction. These requirements are summarised in Table 2.5. For people yet to depart for the economy, the standard set of requirements typically includes a negative COVID-19 test result taken prior to departure. Some economies are flexible with test results, allowing negative COVID-19 results from as a far as five days prior to departure. On the other hand, others like Japan require inbound travellers to receive a negative test result at the airport. For those whose travels are not covered in the general exemptions, they must also show travel permission granted by the destination economy. However, some economies included other requirements: Thailand required non-Thai citizens to have insurance guaranteeing coverage of healthcare and COVID-19 related treatment expenses. Moreover, several economies like Canada; Mexico; and Peru explicitly require inbound travellers to wear face masks during their travel.

Table 2.5: Quarantine and Other Health Requirements for Inbound Travellers

Economy	Quarantine and Other Requirements for Inbound Travellers
Australia	All travellers arriving in Australia, including citizens, must quarantine for 14 days at a designated facility, such as a hotel in their port of arrival.
Brunei Darussalam	Foreigners must undergo COVID-19 PCR RT at medical centres recognised by the government of the economy of departure at least 72 hours before departure. They must also undergo another COVID-19 PCR RT Swab Test on Day 1 or Day 5 of arrival, which is to be covered by their sponsors. Travellers must download the BruHealth App before entering Brunei. Finally, travellers are required to do mandatory self-isolation between 2 to 14 days after arriving in Brunei Darussalam. Dates of self-isolation are variable based on the risk assessments of the Ministry of Health on the port of origin.
Canada	All travellers to Canada, except certain refugee claimants, must be asymptomatic to enter Canada. Before travel, foreign citizens traveling by air need to pass a health check conducted by airlines before being allowed to board the flight. They are also required to wear a non-medical mask or face covering during travel. Travellers arriving in Canada are subject to a mandatory 14 day quarantine.
Chile	Travellers authorized to enter Chilean territory have to comply with a mandatory quarantine of 14 days, in a place of their choosing or in a sanitary residence made available by the government. COVID-19 PCR tests can also be used to shorten quarantine period.
China	Aliens and Chinese citizens overseas taking flights to China are required to take COVID nucleic acid tests within 5 days before boarding date. Arriving passengers are required to comply with regulations such as testing, quarantine, medical observation, etc.
Hong Kong, China	At the time of survey, all inbound travellers to Hong Kong, China (unless being exempted by the Government of Hong Kong, China) are subject to compulsory COVID-19 nucleic acid tests and quarantine at home or designated accommodations. Inbound travellers coming by air travel from specified high-risk places 14 days before arrival must also have a negative COVID-19 nucleic test taken within 72 hours before departure and a confirmation of room reservation in a designated quarantine hotel in Hong Kong for a specified period (depending on the places visited and the vaccination history)on the day of arrival.
Indonesia	Before travel, inbound travellers must have a negative COVID-19 PCR valid within 3 days before departure and possess return tickets. Travellers entering Indonesia are expected to follow the health protocol, restrictions on mode of transport, and the mandatory 14 day quarantine in government facilities.
Japan	All inbound travellers from travel-restricted regions are required to undergo COVID-19 PCR tests upon arrival. Furthermore, all inbound travellers to Japan, regardless of travel history, are requested to wait for 14 days at a location designated by the quarantine station chief and to refrain from using public transportation.

Korea	Residents and foreigners entering Korea must undergo a 14-day quarantine period (either self-quarantine or at a government-designated facility) and COVID-19 diagnostic tests.
Malaysia	Travellers entering Malaysia are required to download and install the "MySejahtera" mobile application to facilitate contract tracing, and are subject to a mandatory quarantine. The period of the quarantine varies can be either 7 or 10 days, depending on whether the traveller has completed a PCR COVID-19 test 3 days before leaving for Malaysia. Travellers without a PCR COVID-19 test are subjected to a longer quarantine. The cost of the quarantine shall be borne by the traveller, and travellers who fail to pay monies due to government will have their pass cancelled, will be denied entry, and will be blacklisted in the immigration system.
Mexico	At all ports of entry and exits, travellers are required to wear masks and undergo health checks to verify if they are infected or have symptoms of COVID-19.
New Zealand	Most travellers entering New Zealand, except those from certain economies with low/no COVID-19 incidence and those traveling with certain airlines, are required to take pre-departure testing before being allowed to board. All non-residents except those holding diplomatic permits are required to ask permission from New Zealand before being allowed to travel to the territory. Every person who arrives in New Zealand must enter a government-managed isolation and quarantine facility for a minimum period of 14 days, and are required to take COVID-19 tests
Peru	Passengers entering Peru must fill out an "Electronic Affidavit on Health Condition of Passenger and Commitment to be Confined or Quarantine" within 72 hours from the flight time. They are required to wear a mask and maintain social distancing upon arrival.
Russia	Travellers bound for Russia must take a COVID-19 PCR RT test 3 days prior to departure. Upon arrival in Russia, foreigners can either take another COVID-19 test, or undertake 14-days self-isolation. These requirements are subject to change depending on the current epidemiological situation.
Singapore	Inbound travellers to Singapore are subject to a variety of entry measures. Singapore has tiered entry requirements for travellers from economies with varied risk assessment levels. While Singapore allows travellers from some economies to travel to Singapore without the need for a COVID-19 PCR RT test, Singapore requires all travellers to take a COVID-19 PCR RT test upon arrival in Singapore. Singapore also has stay-home quarantine notice ranging from 7 to 14 days depending on the economy of departure.
Chinese Taipei	Foreigners are required to submit a negative COVID-19 PCR RT test taken within 3 previous working days before departure. Moreover, foreign travellers must also complete the "Quarantine System for Entry" form before boarding, and are required to undergo a 14-day period of quarantine after arrival, either at their homes or in a dedicated facility.
Thailand	Prior to arriving in Thailand, non-Thai citizens must have an insurance policy covering COVID-19 treatment expenses and a coverage of at

	least 100,000 USD. They must also show proof of paid quarantine accommodations, and acquire medical certificates and a negative COVID-19 PCR RT test result issued no more than 72 hours before traveling. Upon arriving in Thailand, all non-Thai citizens are required to undergo entry screening for COVID-19 symptoms at point of entry, a quarantine of no less than 14 days at designated places, and two COVID-19 PCR RT tests taken during the period of quarantine.
United States	International travellers arriving in the US are subject to a variety of self-quarantine and other health related measures, as determined by the Center for Disease Control and Prevention (CDC) and/or regional public health officials. Travellers are encouraged to visit the CDC website at www.cdc.gov/COVIDtravel.

Upon arrival, inbound travellers are typically required to serve quarantine notice, provide basic contact information, and/or download mobile contact tracing apps. Quarantine regimes vary across economies: some economies allow inbound travellers to quarantine at their respective homes or other pre-arranged accommodations. On the other hand, other economies like Singapore and New Zealand impose strict quarantine requirements towards all inbound travellers, requiring them to quarantine at government-determined facilities; home quarantine is not allowed. The standard quarantine period is 14 days, although some economies have adjusted the time period depending on the perceived risk. Quarantine periods can last up to 21 days. During quarantine, travellers are also required to take further COVID-19 tests, and must return a negative result before the end of their quarantine period before release. Travellers that test positive during this observation period are referred for COVID-19 treatment and prolonged isolation.

MEASURES TO FACILITATE ESSENTIAL TRAVEL

To facilitate short-term travel for essential business and other official purposes, economies have explored ways to reduce time, costs, and uncertainties related to essential travel. The first main area that economies have worked on to facilitate essential travel is general cost reduction, both in monetary costs and in time spent in insolation. The responses of APEC economies in reducing costs and length of quarantine are outlined in Table 2.6. To reduce the costs associated with essential travel, APEC economies have progressively expanded the list of travellers who are not required to seek travel authorisation before being allowed to enter their economy. By offering a broader range of situations eligible for automatic travel clearance, APEC economies make it easier and cheaper for certain categories of people to travel. APEC economies have attempted to harmonise the approval process for essential travel, offering one-stop-shops to complete requirements such as COVID-19 tests and entry permit applications. Australia and New Zealand established dedicated websites that handle travel exemption requests and decide on them as soon as possible, expediting mobility for essential travellers. In addition, in most APEC economies, pre-departure COVID-19 tests are extended to people going to jurisdictions that require it.

Table 2.6. Measures Taken to Mitigate Costs and Quarantine Time

Economy	Measures Taken to Mitigate Costs and Quarantine Time
Australia	Individuals apply for travel exemptions via a purpose-built service delivery platform available on the Department of Home Affairs'

	website since July 17, 2020. They aim to decide on travel exemption requests within seven days for inward travel requests and within 48 hours for outward travel requests.
Brunei Darussalam	Foreigners traveling to Brunei Darussalam must have a domestic sponsor who will handle Entry Travel Pass applications and other logistics related to travel. Quarantine times are variable, ranging from 2 to 14 days depending on the risk assessment of the Ministry of Health. Brunei Darussalam is considering facilitating the travel of APEC Business Travel Card (ABTC) holders.
Canada	On a case-to-case basis, Canada can remove or shorten the quarantine period for travellers who traveling for emergencies or other short-term visits.
Chile	Since October 20, 2020, Chile exempts people with a negative COVID-19 PCR test from mandatory quarantine provided that the test result is not older than 72 hours from the moment of entry to Chile.
China	Since September, China has progressively allowed visa and residency permit holders to enter China upon compliance with several regulations. Those with expired visas can reapply for new visas, provided that their reason to enter China has remained unchanged.
Hong Kong, China	Hong Kong, China exempts certain categories of people from the compulsory quarantine requirement if they are identified by the government of Hong Kong, China as essential for the operation of society and the economy, and for ensuring an uninterrupted supply of all daily necessities to the public. Hong Kong, China has also been maintaining close communication with the relevant authorities in China and Macao to discuss the resumption of cross-boundary people flow among the three places in a gradual and orderly manner having regard to the latest epidemic situation. Furthermore, since mid-June 2020, Hong Kong, China has been in talks with other economies that have relatively stable epidemic situation and close economic and trade relations with Hong Kong, China to explore the establishment of travel bubbles, with a view to resuming cross-border travel in a gradual and orderly manner while balancing the need to protect public health and avoiding importation of cases.
Indonesia	Indonesia has implemented and activated Travel Corridor Arrangements with other economies like China, Korea, and the United Arab Emirates since August 2020. Indonesia is also exploring a Travel Corridor Arrangement among other ASEAN member economies.
Japan	Japan announced "Phased Measures for Resuming Cross-Border Travel" whereby it established a special quota pertaining to cross-border business travellers and others for entry into and departure from Japan. This has two tracks: business track, which enables limited business activities during the 14-day quarantine period, and the residence track, which requires compliance with a 14-day quarantine period. Foreigners not covered by this measure can apply for an appropriate visas to be allowed entry to Japan. This measure is suspended as of January 14, 2021.
Korea	Korea is exploring bilateral arrangements called the Fast Track Procedure (Special Entry Procedure) with various economies to allow business people to carry out economic activities upon arrival in Korea

	without the 14-day quarantine. Korea has Quarantine Exemption Certificates available for people holding A-1 (Diplomat), A-2 (Government Official), or A-3 (Agreement) visas and those who have received the Quarantine Exemption Certificate issued by a Korean Embassy prior to arrival in Korea. Quarantine exemption can be issued for those visiting for important and urgent business activities, academic events, matter of public interests, or other humanitarian reasons.
Malaysia	Since December 2020, Malaysia has shortened its mandatory quarantine period from 14 days down to 10 days. This decision was made after considering studies of clinical reports and global best practices. The mandatory quarantine period is further shorted to 7 days for entrants with who have taken a PCR COVID-19 test abroad prior to departure to Malaysia.
Mexico	Mexico generally does not impose restrictions for travel, except for those entering Mexico through land borders. For land travellers entering Mexico for essential purposes, they may be required to furnish evidence of the essential nature of their travel.
New Zealand	New Zealand has provisions for a small number of persons to be exempted from managed isolation and quarantine. Such exemptions could be granted for aircrew and maritime crew and other people with serious medical conditions.
Peru	As of October 5, 2020, has resumed flights to and from certain destinations. These include Bolivia (La Paz and Santa Cruz), Chile (Santiago), Colombia, (Bogota, Cali, and Medellin), Ecuador (Guayaquil and Quito), Panama (Panama City), Paraguay (Asuncion), and Uruguay (Montevideo). The reinstatement of such flights are expected to reduce travel costs by providing a more direct link between cities.
Russia	Russia has allowed a number of essential travellers to enter Russia for work or for humanitarian reasons. For people entering Russia for work, the federal executive authority responsible for the area of occupation compiles a list of relevant people to the Federal Security Service and the Ministry of Internal Affairs to exempt certain people from the ongoing travel ban.
Singapore	Singapore has relaxed travel requirements such as shorter quarantine periods from travellers coming from certain economies. Singapore also has Reciprocal Green/Fast Lanes (RGL) with a number of economies to facilitate short-term essential travel. Under this regime, short-term essential travellers could travel to Singapore without a 14-day quarantine, subject to pre-departure and post-arrival COVID-19 tests and a controlled 14-day itinerary supervised by the host company or government agency. To facilitate outbound travel from Singapore, travellers can take a pre-departure COVID-19 PCR test from designated clinics and testing centres to travel to economies that require such tests.
Chinese Taipei	Chinese Taipei has exempted certain visitors, such as personnel on official or diplomatic business, migrant workers, and students, from acquiring a negative COVID-19 test before departure. Travellers on emergency purposes and crewmembers of vessels are also exempted from COVID-19 tests. Finally, Chinese Taipei has also granted

	automatic 30-day visa extensions for foreigners to account for border control measures and flight bans.
Thailand	Thailand has issued a number of measures to expedite essential travel into Thailand. Firstly, it has issued Certificate of Entry to systematically screen for COVID-19-free and essential travellers to enter Thailand. Secondly, it has arranged flights for non-Thai citizens permitted to enter Thailand. Finally, it has allowed APEC Business Travel Card Holders from selected economies (as of survey date, 10: Australia; China; Hong Kong, China; Japan; Malaysia; New Zealand; Singapore; South Korea; Chinese Taipei; and Viet Nam) to enter Thailand. From July 9 to October 8, 2020, Thailand has allowed 22,361 non-Thai citizens to travel to Thailand.
United States	Travellers can apply for a waiver to enter the United States. US Customs and Border Protection waiver authority is applied at US ports of entry or at preclearance locations. The US also provides emergency and mission-critical visa services as they are able: applicants must follow the guidance of their nearest embassy or consulate to schedule an emergency appointment.

Quarantine requirements are a significant contributor to time and costs for travel, and economies have worked towards reducing quarantine requirements. In Russia, people with negative COVID-19 tests are exempted from quarantine. Travellers entering Malaysia could have their mandatory quarantine period shortened from 10 days to 7 days if they have taken a PCR Covid-19 test 3 days before departing for Malaysia. Some APEC economies have granted quarantine exemptions for certain categories of travellers.

Exemptions from quarantine requirements typically fall into two main categories: travel purpose and travel history. Exemptions pertaining to travel purpose are typically based on economic reasons such as entry of essential workers. Hong Kong, China grants quarantine exemptions for those whose entry are necessary for the supply of daily essential goods and services in the economy. Japan and Korea have limited exemptions for short-term business travellers in essential sectors. In addition to economic reasons, other economies like Canada consider quarantine exemptions on a limited basis for people traveling for humanitarian reasons.

Regarding travel history, some economies have lowered quarantine requirements for travellers from areas with low or minimal COVID-19 risks. Singapore has exempted quarantine requirements from areas with low risk of COVID-19 transmission such as Australia; Brunei Darussalam; New Zealand; and Viet Nam, and is exploring reciprocal fast travel lanes and travel bubbles with these economies. Brunei Darussalam likewise has shorter quarantine requirements and less testing requirements for people arriving from areas with low perceived COVID-19 risks: quarantine time can be as short as 2 days depending on the economy of departure. Malaysia and Singapore have also established a periodic commuting scheme that allow citizens and permanent residents to travel across land checkpoints for work-related and family-oriented purposes, but on a low frequency basis. Korea implemented special entry procedures for businesspeople from China; Indonesia; Japan; Singapore; and the United Arab Emirates traveling for short-term purposes.

Another significant factor impeding the ability of economies to promote essential travel are unclear and ever-changing regulations. As seen in Table 2.7, almost all APEC economies have

made travel information available online. However, many economies lack a portal dedicated to travel enquiries during pandemic times. Only some APEC economies like Australia; Canada; New Zealand; and Singapore have one-stop websites that offer the most up-to-date travel information and handle requests for travel exemptions. By consolidating and disseminating updated travel requirements and restrictions, APEC economies could make traveling easier for people with essential purpose to travel. Furthermore, by consolidating regional information on permissible forms of essential travel, APEC could make it easier for people to apply for certain travel exemptions granted by economies.

Table 2.7 Measures Taken by APEC Economies to Improve Transparency and Information Sharing

Economy	Measures Taken to Improve Transparency and Information Sharing
Australia	Australia has a dedicated COVID-19 website with information for prospective travellers. On September 17, 2020, the Department of Home Affairs published the Australia Border Force Commissioner's Inwards Decision Making Statement and other related documents to increase transparency about how Australia decides on requests for travel exemptions.
Brunei Darussalam	Brunei Darussalam has a dedicated travel portal outlined updated and detailed guidelines to enter and exit Brunei Darussalam. See http://www.pmo.gov.bn/travelportal.
Canada	Canada maintains several online portals that update travellers of current travel restriction measures and requirements.
Chile	Chile has an online portal that uploads some relevant information about ongoing travel bans and restrictions.
China	China has progressively introduced online visa applications to facilitate the issuance of visas. Diplomatic missions handling visa applications detail the relevant travel documents and procedures required for travel to China.
Hong Kong, China	Hong Kong, China maintains a unified portal dedicated to COVID-19 travel restrictions and information. (https://www.coronavirus.gov.hk/) Travel restrictions and requirements are clearly detailed and updated on a regular basis. Furthermore, the portal is available in several languages, including Hindi, Nepali, Urdu, Thai, Bahasa Indonesia, Tagalog, Burmese, Bengali, Vietnamese, and Simplified and Traditional Chinese.
Indonesia	Indonesia has some COVID-19 related information published on various webpages, such as embassy websites and other ministry portals.
Japan	Japan has several online portals dedicated to COVID-19 travel requirements and restrictions. (https://www.mofa.go.jp/ca/cp/page25e_000337.html. https://www.japan.travel/en/coronavirus/)
Korea	Korea has consolidated some travel guidelines on dedicated online portals.
Malaysia	The Immigration Department of Malaysia provides updates on travel measures and limitations at its website:

	https://esd.imi.gov.my/portal/latest-news/announcement/reduced-quarantine-perio-for-inbound-travellers/
Mexico	Mexico has several websites detailing the most up-to-date travel restrictions and requirements.
New Zealand	New Zealand has a dedicated portal containing information related to travels restrictions, requirements and exemptions related to COVID-19. Information on border closures are available at https://www.immigration.govt.nz/about-us/covid-19/border-closures-and-exceptions while quarantine information are available here: https://www.miq.govt.nz/
Peru	Peru has listed some of its travel requirements and protocols on various websites.
Russia	Russia maintains an online portal that updates the public on the current epidemiological situation and amendments to measures currently in place: http://publication.pravo.gov.ru
Singapore	Singapore maintains an online portal for special travel arrangements (https://safetravel.ica.gov.sg) and for updates on border control measures (https://www.ica.gov.sg/covid-19)
Chinese Taipei	Chinese Taipei maintains an updated and detailed information for people travelling to the economy. Updated information can be found at the website of the Bureau of Consular Affairs (BOCA) at https://www.boca.gov.tw/cp-220-5691-aa1c3-2.html
Thailand	Thailand is currently working on implementing an online registration for Certificate of Entry and expanding Thailand's e-Visa system to screen and facilitate more inbound travel.
United States	The US maintains a dedicated COVID-19 travel portal that caters to the need of travellers: https://travel.state.gov/content/travel/en/traveladvisories/ea/covid-19-information.html

3. ECONOMICS OF CROSS-BORDER MOBILITY

Cross-border mobility encompasses all forms of movement across borders. Although many things such as goods, services, data, ideas, and money flow across borders, the lynchpin of cross-border mobility are people. Various transporters such as drivers, seafarers, and pilots carry goods across borders. Service providers, both white-collar (i.e. consultants, researchers, trainers, medical staff) and blue-collar (i.e. construction workers, domestic workers) travel to deliver their services. Mismatch on the demand and supply for technical staff, such as those working in tech and data sectors, could also be mitigated by the cross-border mobility of people. Finally, migrants working in other geographic locales can introduce new ideas and economic activities in their host communities, as well as generate financial remittances and cultural returns for their home.

Cross-border flows generate massive economic benefits and contribute to a large portion of global GDP. An estimate in 2012 shows that the flows of goods, services, and finance reached USD 26 trillion globally, equivalent to 36% of global GDP. This amount was 1.5 times larger than the global GDP in 1990.[3] Further estimates from the same study expected that the global flows contributed around USD 250 billion to USD 450 billion of growth to global GDP each year. In 2017, gross trade in services alone totalled USD 5.1 trillion while trade in goods accounted for USD 17.3 trillion globally, although trade in services grew 60% faster than goods traded over the past decade.[4]

Cross-border data flows are also generating massive economic outputs. In 2014 alone, the free flow of data was estimated to have contributed USD 2.8 trillion to the global economy, a figure that could reach USD 11 trillion by 2025.[5] The almost zero marginal cost of ICT technologies such as digital communications opens new possibilities for firms to conduct their businesses across borders on a much larger scale. For instance, while growth in global trade and finance have been slowing down, e-commerce and digital businesses are opening up new opportunities for growth. Small businesses worldwide are transcending the borders more than ever via digital platforms such as eBay, Amazon, Facebook and Alibaba. Social media connects people online, and allows them to take part in the cross-border e-commerce. According to McKinsey (2016), there has been a USD 2.8 trillion GDP increase from data flows in 2014 alone, amplifying the contribution of overall trade to the global GDP by an additional 10%, or about USD 7.8 trillion.[6] Nevertheless, cross-border data flows are still tethered to cross-border mobility of people. Many goods bought online are physical, and would still need to be shipped by people. Moreover, ICT systems are maintained by professionals who may not be readily available in local job markets.

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[3] James Manyika et al., "Global Flows in a Digital Age: How Trade, Finance, People, and Data Connect the World Economy" (McKinsey Global Institute, April 2014), https://www.mckinsey.com/~/media/mckinsey/featured%20insights/globalization/global%20flows%20in%20a%20digital%20age/global_flows_in_a_digital_age_full_report%20march_2015.pdf.

[4] Susan Lund et al., "Globalization in Transition: The Future of Trade and Value Chains" (McKinsey Global Institute, 2019), https://www.mckinsey.com/~/media/mckinsey/featured%20insights/innovation/globalization%20in%20transition%20the%20future%20of%20trade%20and%20value%20chains/mgi-globalization%20in%20transition-the-future-of-trade-and-value-chains-full-report.pdf.

[5] James Manyika et al., "Digital Globalization: The New Era of Global Flows" (McKinsey Global Institute, March 2016), https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/digital%20globalization%20the%20new%20era%20of%20global%20flows/mgi-digital-globalization-full-report.pdf.

[6] Manyika et al.

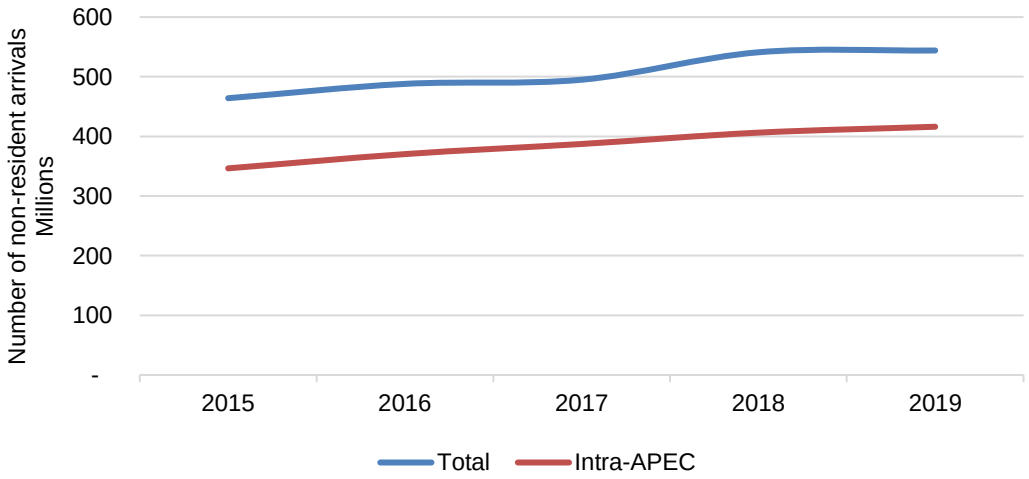
CROSS-BORDER MOVEMENT OF PEOPLE

The cross-border movement of people is crucial for the global economy. The scope of cross-border movement of people can vary widely in terms of duration. These cross-border movements are also be linked to a wide range of reasons, including but not limited to economic, leisure, and education purposes. Short-term movement may involve a time span of a few days to several months. Tourists and business travellers visit another locale for a few days, while exchange students may stay for several semesters as part of their educational programs. These short-term movements may increase the likelihood of long-term migration. Economic opportunities as well as increased familiarity with the host economy could lead to seasonal, temporary migration of some members of a household, which could later lead to long-term migration, wherein people eventually engage in work in foreign economies. Conversely, permanent relocation may also generate short-term recreational movements as visiting activities from families and friends.[7] In addition to short-term visitors and long-term migrants, there are also cross-border commuters, who travel across borders on a frequent or even daily basis. This section gives an overview of the general types of short-term, long-term, and high-frequency cross-border movements present in APEC.

Short-term movement

Short-term travellers include, but are not limited to, tourists, business travellers, and students. Short-term travel, which can span from a few days to several months, has various implications to the trade and economic growth of their destinations.[8] As seen in Figure 3.1, there were about 544 million non-resident arrivals in APEC in 2019, of which 416 million were from other APEC economies. Between 2015 and 2019, total non-resident arrivals in APEC grew an average of 4.0% per year, while intra-APEC arrivals grew 4.6% per year.

Figure 3.1: Non-resident arrivals in the APEC region, 2015–2019



Source: UNWTO data and APEC Policy Support Unit (PSU) staff calculations.[9]

[7] Sveta Milusheva et al., "Understanding the Relationship between Short and Long Term Mobility," *Working Paper*, Working Paper (Agence française de développement, June 22, 2018), https://ideas.repec.org/p/avg/wpaper/en8646.html.
[8] Jacques Poot, "Cross-Border Migration and Travel: A Virtuous Relationship," *IZA World of Labor*, November 1, 2015, https://doi.org/10.15185/izawol.209.
[9] World Tourism Organization (UNWTO), "Tourism Statistics Data," 2021, https://www.unwto.org/tourism-statistics-data.

Tourists

Tourists travel primarily for pleasure, leisure, and holidays, but can also travel to meet families based in the destination economy. Tourism can go two ways: people can travel to foreign destinations, while foreign-based workers can also travel to their home economies for leisure and family visit purposes.

The World Travel and Tourism Council estimates that the travel and tourism industry contributed USD 8.9 trillion annually, accounting for 10.3% of global GDP in 2019.[10] The labour market, on the other hand, benefits from 330 million jobs stemming from the tourism industry, approximately 1 in 10 jobs globally.[11] Moreover, a quarter of the net new jobs were created by the tourism sector over the last five years.[12] The value of international visitor spending reached up to USD 1.7 trillion in 2019, a cumulative value that forms 6.8% of total exports and 27.4% of global services exports.[13]

Tourism generates trade in commercial goods and services. In terms of trade in goods, arrivals of foreign visitors stimulate expenditures on accommodation, food, transportation, and other goods. A study on cross-border tourism across Indonesia, Malaysia, and Singapore found positive impacts of such movements towards income and employment among the locals who benefitted from the new stream of income opportunities such as restaurants, newly established infrastructures, and local economic linkages.[14] With regard to services, tourism contributes to all the four modes of service delivery as defined under the General Agreement on Trade in Services (GATS). First, tourism encompasses cross-border service delivery such as booking services for travel agents, hotels, and travel guides. Second, tourism contributes to consumption abroad, such as when non-resident customers pay for accommodation and food while overseas. Third, tourism exhibits commercial presence overseas, such as establishing local travel agencies as overseas subsidiaries. Lastly, tourism also encompasses presence of natural persons, such as when tour operators and hotels employing foreign staff with skill sets that are not readily available in their origin economy of operation. As all of this show, tourists generate massive contributions to the destination economy.

Business travellers

Business travellers count towards short-term movements. Although work-related and leisure-related travel are slightly different in terms of expenditure and economic contributions, current statistical conventions and other international organisations like the UNWTO often categorise people who travel for business or professional purposes as tourists.[15] Davidson and Cope (2013) suggested two categories of business travellers: (1) those who travel with co-workers

[10] Jeff Poole and Tiffany Misrahi, "Travel & Tourism - Global Economic Impact & Trends 2020," ed. Nejc Jus (World Travel & Tourism Council, May 2020), https://wttc.org/Portals/0/Documents/Reports/2020/Global%20Economic%20Impact%20Trends%202020.pdf?ver=2021-02-25-183118-360.
[11] Poole and Misrahi.
[12] Poole and Misrahi.
[13] Poole and Misrahi.
[14] Mark P. Hampton, "Enclaves and Ethnic Ties: The Local Impacts of Singaporean Cross-Border Tourism in Malaysia and Indonesia," *Singapore Journal of Tropical Geography* 31, no. 2 (2010): 239–53, https://doi.org/10.1111/j.1467-9493.2010.00393.x.
[15] World Tourism Organization (UNWTO), "Glossary of Tourism Terms," May 18, 2021, https://www.unwto.org/glossary-tourism-terms.

for meetings, incentives, conventions, and exhibitions (MICE), and (2) individuals whose work requires frequent trips to various destinations, such as international foreign affair officials and to a certain extent, travel bloggers and other remote workers.[16]

More often than not, the proliferation of international business in the era of globalisation and trade stimulates the growth of individuals who engage in cross border travels for various work activities, adopting those business trips as part of their routine daily life.[17] While estimates from the UNWTO show that business travel segment only made up 14% of the international tourism market in 2014,[18] the World Travel & Tourism Council calculated that 24.4% of global direct travel and tourism GDP in 2013 was explained by business travel spending.[19] While business travellers are a smaller market, they account for a relatively large share of tourism expenditures and economic benefits.

Students and trainees

Another form of international travel involves students and trainees. In building human capital, cross-border mobility has been a subject of interest due to its potential transformative impact. OECD (2007) suggested that cross-border mobility in higher education is crucial towards capacity development, such as through acquisition of higher-level skills.[20] Studies among cross-border students in Egypt; the European Union; and Thailand found that spending a term or more in the host economy positively impacted cross-border students across multiple domains, such as learning outcomes, linguistic abilities and career orientations.[21] The European Commission (2014) also found that the risk of long-term unemployment after graduation was half as likely for students with cross-border education or work experience compared to non-mobile students.[22] Voin and Gérard (2013) found that participating in an exchange programme increases one's chance to be mobile on the international labour market by 9 to 12.5 percentage points.[23]

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[16] Rob Davidson and Beulah Cope, *Business Travel: Conferences, Incentive Travel, Exhibitions, Corporate Hospitality and Corporate Travel* (Harlow, England ; New York: Prentice Hall Financial Times, 2003).
[17] Per Gustafson, "Managing Business Travel: Developments and Dilemmas in Corporate Travel Management," *Tourism Management* 33, no. 2 (April 1, 2012): 276–84, https://doi.org/10.1016/j.tourman.2011.03.006.
[18] World Tourism Organization (UNWTO), *UNWTO Tourism Highlights, 2014 Edition*, 2014, https://doi.org/10.18111/9789284416226.
[19] World Travel & Tourism Council, "Travel & Tourism - Economic Impact 2014 World," 2014, https://wttc.org/Portals/0/Documents/Reports/2020/Global%20Economic%20Impact%20Trends%202020.pdf?ver=2021-02-25-183118-360.
[20] Organisation for Economic Co-operation and Development and The World Bank, *Cross-Border Tertiary Education: A Way towards Capacity Development* (Washington, DC; Paris: The World Bank OECD Publishing, 2007).
[21] Michael E. Gemer and Fred Perry, "Gender Differences in Cultural Acceptance and Career Orientation Among Internationally Mobile and Non-Internationally Mobile Adolescents," *School Psychology Review* 29, no. 2 (June 1, 2000): 267–83, https://doi.org/10.1080/02796015.2000.12086014; Robert Stronkhorst, "Learning Outcomes of International Mobility at Two Dutch Institutions of Higher Education," *Journal of Studies in International Education* 9, no. 4 (December 2005): 292–315, https://doi.org/10.1177/1028315305280938.
[22] European Commission, *The Erasmus Impact Study: Effects of Mobility on the Skills and Employability of Students and the Internationalisation of Higher Education Institutions.* (Luxembourg: Publications Office, 2014), https://data.europa.eu/doi/10.2766/75468.
[23] Mélanie Voin and Marcel Gérard, "A Contribution to The Study of Global Competition for Talent: The Determinants of Student Mobility and Its Consequences for the Internationalization of the Labor Market" (College of Europe, 2013), http://aei.pitt.edu/58401/1/beep_27.pdf.

Long-term movement

Long-term movement, on the other hand, refers to medium to long-term settlement in the destination economy, which typically occurs due to economic, social, or security push factors in the origin economy. This movement would include movements of low-skilled workers and high-skilled professionals, as well as migrants, refugees and asylum seekers. These groups typically change their residency for at least one year,[24] depending on their respective purposes. The International Organization for Migration (IOM) estimates that in 2019, around 272 million people were living in an economy other than that of their birth, over three times what it was in 1970.[25] Most international migrants are of working age (20 to 64 years of age) with slight decrease among youths (below 20 years of age) and constant share of elderly migrants (above 65 years of age) over the last two decades.

Many papers have empirically found a positive relationship between migration and bilateral trade.[26] At the macro level, it can be argued that immigration-augmented population growth increases aggregate demand and output, which consequently increases the demand for imports and exports. On the other side of the coin, at the micro level, immigrants are expected to have ongoing links with their home economies, enabling the host economy to develop networks to facilitate trade back-and-forth. Empirically, a meta-analysis of 48 studies finds that a 1% increase in the number of immigrants leads to a 0.15% increase in the volume of international trade, and noted that immigration complements rather than substitutes for trade flows between host and origin economies.[27]

Overseas workers

Various APEC economies have relied on overseas workers as a means of addressing local skills and labour force shortages. According to a joint APEC-ILO report on labour mobility and labour market data,[28] labour force surveys held in various economies in 2017 showed differences in employment patterns among migrants in selected economies. In Australia, slightly over 50% of migrants were employed as medium or low-skilled workers. Other economies, have a higher percentage of migrants working in medium and low-skilled occupations such as Brunei Darussalam (74%); Russia (83%); and Malaysia (95%). These wide differences can be attributed to the structure of labour market in each economy. For example, emerging economies like Malaysia would require higher number of low skilled migrants to bolster its rapidly evolving manufacturing and construction industry.

According to the IOM, several APEC economies have substantial workers overseas. The Philippines recorded a high number of overseas workers, with more than 1.5 million overseas

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[24] United Nations, ed., *Recommendations on Statistics of International Migration*, Statistical Papers. Series M, no. 58, rev. 1 (New York: United Nations, 1998).
[25] Marie McAuliffe, Binod Khadria, and Céline Bauloz, *World Migration Report 2020* (Geneva: International Organization for Migration, 2019), https://publications.iom.int/system/files/pdf/wmr_2020.pdf.
[26] Jacques Poot and Anna Strutt, "International Trade Agreements and International Migration," *The World Economy* 33, no. 12 (2010): 1923–54, https://doi.org/10.1111/j.1467-9701.2010.01299.x; Roger White and Bedassa Tadesse, *International Migration and Economic Integration*, *Books* (Edward Elgar Publishing, 2011), https://ideas.repec.org/b/elg/eebook/14318.html.
[27] Murat Genc et al., "The Impact of Immigration on International Trade: A Meta-Analysis," in *Migration Impact Assessment*, by Peter Nijkamp, Jacques Poot, and Mediha Sahin (Edward Elgar Publishing, 2012), 301–37, https://doi.org/10.4337/9780857934581.00019.
[28] International Labour Organization, "Labour Mobility and Labour Market Data: A Baseline Study of APEC Economies," Report, December 1, 2019, http://www.ilo.org/asia/publications/WCMS_737366/lang--en/index.htm.

Filipino workers in 2019 working across various essential sectors such as healthcare, freight, and domestic care. Migrant outflows from Viet Nam have steadily increased from 2012, standing slightly over 150,000 in 2019. On the other hand, Indonesia has slowly reduced the number of overseas workers each year, but still saw an outflow of 280,000 migrants in 2019.[29]

Inflows of skilled workers are often associated with employment generation and increased productivity in host economies.[30] The host economies often employ skilled workers to facilitate knowledge transfer as they move towards service-based economies.[31] This allows recipient economies and its migrants to later transfer skills, ideas, and resources to the sending economies. A study in the United Kingdom found that that there is a significant and positive relationship between migrant stock and outward foreign direct investment from the United Kingdom to their host economies.[32] This shows that both the sending and host economies stand to gain from cross-border movement, as they could facilitate transfer of resources, information, opportunities, and investments across borders. Additionally, globalisation has led to an increase of cross-border travel as business travellers establish network in foreign economies, creating a network of multinational companies (MNCs). To build trust and establish a strong foothold abroad, businesses need to develop contact and presence in foreign economies.[33]

Refugees and asylum seekers

Refugees and asylum seekers encompass people who move to other economies to flee violence, persecution, and other reasons. By the end of 2018, there were a total of 25.9 million refugees globally, still growing annually since 2012, albeit at a slower pace.[34] In addition, as of 2018 there were approximately 3.5 million people seeking international protection and currently waiting for their refugee status, with most of them coming from economies with unresolved conflict. APEC economies such as Australia; Canada; and the United States continued to host most of the world's permanent refugees. In 2018, Canada resettled the highest number of refugees at 28,000, while the United States and Australia helped out with the resettlement of over 20,000 and 10,000 refugees, respectively. In 2017 and 2018, the IOM supported over 40 economies in carrying out resettlement, humanitarian admission and relocation initiatives in over 138 economies. In 2018, a total of 95,400 individuals travelled to 30 economies under IOM auspices for resettlement assistance.[35]

High-frequency movement

The last type of movement pertains to those who move across borders on a high frequency by virtue of their occupation or by their respective geographic condition. For instance, air crew, seafarers, and transport crew operate vehicles across borders and thus cross them on a routine or almost daily basis. Meanwhile, communities living near border crossings may live on one side of the border and work, attend school, or visit family on the other.

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[29] McAuliffe, Khadria, and Bauloz, *World Migration Report 2020*.
[30] Mark C. Regets, "Research and Policy Issues in High-Skilled International Migration: A Perspective with Data from the United States," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, September 1, 2001), https://papers.ssrn.com/abstract=285424.
[31] Jagdish Bhagwati and Koichi Hamada, "The Brain Drain, International Integration of Markets for Professionals and Unemployment: A Theoretical Analysis," *Journal of Development Economics* 1, no. 1 (1974): 19–42.
[32] Masood Gheasi, Peter Nijkamp, and Piet Rietveld(Deceased), "Migration and Foreign Direct Investment: Education Matters," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, September 29, 2011), https://doi.org/10.2139/ssrn.1935825.
[33] Poot, "Cross-Border Migration and Travel."
[34] McAuliffe, Khadria, and Bauloz, *World Migration Report 2020*.
[35] McAuliffe, Khadria, and Bauloz.

Transport and logistics personnel

Transport and logistics personnel—such as air crews, seafarers, and truck drivers—are the workers who enable the movement of people and goods across borders. Because of the nature of their jobs, some of these workers cross borders on a routine basis. COVID-19 considerations for these types of workers vary by mode of transport and cargo. For transport workers working with passengers, such as those on repatriation flights or ship voyages, minimising the risk of COVID-19 is paramount to ensure that further transmission of the virus does not happen during the voyage. Meanwhile, for people working with cargo, avoiding delays is important to ensure that any perishable goods will not be damaged during transport.

The development of the logistics and transport sector has long been proven to have positive impacts on economic growth by facilitating the geographical decentralisation of production, promoting the globalisation of consumption, and thus stimulating economic growth.[36] Within the North American Free Trade Agreement region, it was estimated that almost USD 2.4 billion of merchandise trade crossed the US-Canada and US-Mexico borders on a daily basis in 2014.[37] Although the COVID-19 pandemic has accelerated digitalisation and e-commerce, cross-border logistics is still a key factor in supporting e-commerce trade, with any shortage in logistics bringing about bottlenecks in the transactions.

Cross-border commuters

Cross-border commuters are another group of people who engage in high-frequency cross-border movements. Among APEC economies, prominent examples of cross-border commutes happen between China and Hong Kong, China; Malaysia and Singapore; and Mexico and the United States. There are about 300,000 people living in Malaysia who commute across the border on daily basis, traveling back-and-forth to Singapore for work on a daily basis.[38] Another type of cross-border commuters would encompass people living in isolated communities, whose access may be possible by traveling through another economy. Examples of this include communities in Alaska who need to travel through Canada to go to other areas of the United States.

Increasing adoption of technology in the world of work enables a growing trend of work-from-home arrangements, which can reduce the need for frequent cross-border crossing. As companies adopt remote working technology, more employees can work on a project in a different economy while staying in another. Deloitte (2020) noted a rising number of companies in Australia, for example, that do work in Singapore while being based in Australia, without the need to physically cross the borders.[39] As part of the virtual assignments, the technology has enabled such remote working arrangements to be blended with face-to-face interactions via occasional or ad-hoc business trips. While technology enables such novel arrangements, these would likely only be accepted in types of work that can be done remotely and virtually. Labour and manual work would require the cross-border workers to be on-site.

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[36] Azmat Gani, "The Logistics Performance Effect in International Trade," *The Asian Journal of Shipping and Logistics* 33, no. 4 (December 1, 2017): 279–88, https://doi.org/10.1016/j.ajsl.2017.12.012.
[37] Bill Anderson and Juan Carlos Villa, "Transportation and Trade across International Borders," *Research in Transportation Business & Management* 16 (September 2015): 1–3, https://doi.org/10.1016/j.rtbm.2015.08.005.
[38] Kentaro Iwamoto, "Malaysia Lockdown Complicates Business and Life in Singapore," *Nikkei Asia,* March 18, 2020, https://asia.nikkei.com/Spotlight/Coronavirus/Malaysia-lockdown-complicates-business-and-life-in-Singapore.
[39] Deloitte, "The Resilience of Global Mobility in Asia Pacific," 2020, https://www2.deloitte.com/cn/en/pages/tax/articles/the-resilience-of-global-mobility-in-asia-pacific.html.

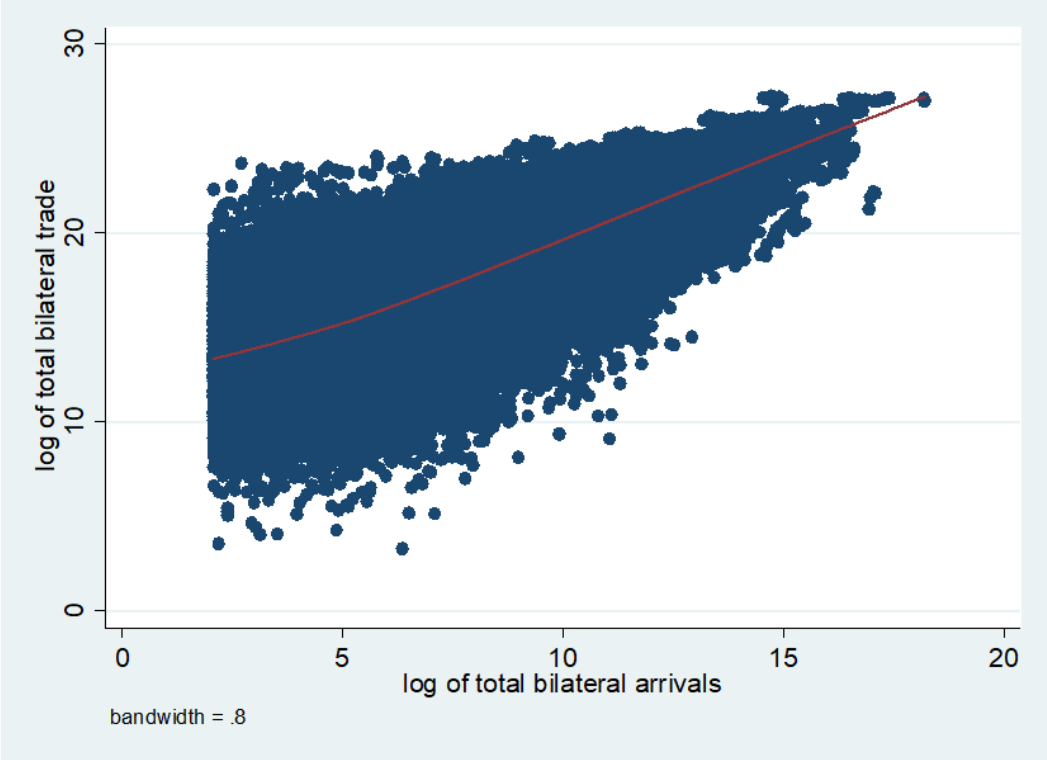
QUANTITATIVE BENEFITS OF CROSS-BORDER MOBILITY

In order to quantitatively measure the direct economic benefits of cross-border mobility, we gathered bilateral trade and arrival data from UN Comtrade[40] and UNWTO,[41] respectively, covering the years 1995–2019. As can be seen in Figure 3.2, there is a positive correlation between bilateral trade linkages and non-resident arrivals. The trendline in the figure is derived using locally weighted scatterplot smoothing, which draws an unbiased nonparametric line to show the relationship between two variables given the data. The line shows a clear positive relationship between the two variables, albeit with significant heteroscedasticity. However, this nonparametric trendline does not provide a statistic that allows us to estimate the slope or its statistical significance, and it does not control for other factors that also affect bilateral trade linkages such as economic activity, trade facilitation, and other variables.

To quantitatively analyse the large volume of bilateral trade and non-resident arrival data, we employ a method of multivariate analysis called gravity modelling. Gravity models are a class of econometric models that are commonly used to explain bilateral trade flows.[42] As the name suggests, these models are analogous to physical models of gravitational attraction: two economies are more attracted to each other depending on their mass, distance, and gravitational factors (i.e., the gravitational constant in physics). In trade economics, mass denotes factors such as GDP size and population (indicator of demand and productive capacity), distance is the geographical distance between trading partners (indicator of transportation and transaction costs), while gravitational factors are those that either attract or repel trade between economies such as having a common language, shared history, trade facilitation indicators, or being in a regional free trade area (i.e., push and pull factors). Thus, in addition to UNWTO and Comtrade data we also gather various explanatory and control variables from the World Bank's World Development Indicators (WDI); [43] Chinese Taipei's Directorate-General for Budget, Accounting and Statistics (DGBAS);[44] and the Centre d'Études Prospectives et d'Informations Internationales (CEPII).[45]

[40] United Nations, "UN Comtrade: International Trade Statistics Database," accessed April 15, 2021, https://comtrade.un.org/.
[41] World Tourism Organization (UNWTO), "Tourism Statistics Data."
[42] For a brief discussion, see Scott Baier and Samuel Standaert, "Gravity Models and Empirical Trade," Oxford Research Encyclopedia of Economics and Finance, March 31, 2020, https://doi.org/10.1093/acrefore/9780190625979.013.327.
[43] World Bank, "World Development Indicators," accessed April 15, 2021, http://datatopics.worldbank.org/world-development-indicators/.
[44] Chinese Taipei, "Directorate General of Budget, Accounting and Statistics," accessed May 18, 2021, https://eng.dgbas.gov.tw/mp.asp?mp=2.
[45] Centre d'Études Prospectives et d'Informations Internationales, "Centre d'Études Prospectives et d'Informations Internationales: Gravity Database," 2021, http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=8.

Figure 3.2: Scatterplot of Bilateral Trade and Non-resident Arrivals, 1995-2019



Source: UN Comtrade, UNWTO data, and PSU staff calculations.

Formally, we estimate the following equation; subscripts denote *o* = the tourist's origin economy, *d* = the destination economy, and *t* = time in calendar years (terms in bold are vectors):

$$\ln(T_{odt}) = \alpha + \beta_1 \ln(A_{odt}) + \beta_2 \ln(Y_{ot}) + \beta_3 \ln(Y_{dt}) + \beta_4 R_{odt} + \boldsymbol{\beta_5 F_{ot}} + \boldsymbol{\beta_6 F_{dt}} + \beta_7 \ln(P_{ot}) + \beta_8 \ln(P_{dt}) + \boldsymbol{\beta_9 G_{od}} + \boldsymbol{\delta_1 t} + \varepsilon_{odt}$$

Where *T* = *d*'s trade with *o* (in terms of export, imports or total trade), *A* = non-resident arrivals from *o* to *d*; *a* = 1 if the *d* is an APEC economy, *Y* = gross domestic product, *R* = 1 if o and d are members of the same RTA or FTA, *F* = vector of time-variant trade facilitation variables (e.g., entry costs, procedures, and time for importation; WTO membership) for *o* and *d*, *P* = population, *G* = vector of time-invariant gravity control variables (e.g., distance, common border, common language, common colony), and *t* = vector of year dummy variables.

We first estimate the above equation through fixed effects panel Ordinary Least Squares (OLS) with each bilateral pair as a categorical variable and using Huber-White standard errors to correct for heteroscedasticity. The results are presented in Table 3.1 in columns (1) to (3). As can be seen in the table, coefficients for non-resident arrivals are positive and significant for all specifications, indicating that non-resident arrivals are correlated positively with trade indicators. Given the log-log specification of the trade and arrivals data, these coefficients can be interpreted as elasticities; i.e., every 1% increase in non-resident arrivals is associated with a 0.04% increase in exports by the destination economy to the origin economy, 0.06% increase in imports by the destination economy from the origin economy, and 0.05% increase in total trade between the partners, even after controlling for factors such as GDP, trade facilitation, other gravity controls, and time idiosyncrasies.

Table 3.1: Elasticities of Bilateral Trade with Respect to Non-resident Arrivals

	Destination bilateral trade indicators					
	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables	Exports	Imports	Trade	Exports	Imports	Trade
Prev. year exports				0.149***		
				(0.0205)		
Prev. year imports					0.263***	
					(0.0249)	
Prev. year trade						0.281***
						(0.0313)
Non-resident arrivals	**0.0449*** **	**0.0597*** **	**0.0552*** **	**0.0335* **	**0.0331**	**0.0343*** **
	(0.0143)	(0.0158)	(0.0106)	(0.0184)	(0.0206)	(0.0126)
GDP of destination	1.431***	0.919***	1.192***	1.092***	0.654***	0.934***
	(0.0840)	(0.116)	(0.0717)	(0.127)	(0.163)	(0.0946)
GDP of origin	1.459***	1.646***	1.382***	1.129***	1.227***	1.111***
	(0.0979)	(0.0936)	(0.0693)	(0.165)	(0.137)	(0.103)
FTA/RTA partners	-0.0505	0.00448	-0.0378	-0.00117	0.0525	-0.0308
	(0.0316)	(0.0384)	(0.0231)	(0.0333)	(0.0457)	(0.0254)
Destination is WTO member	0.0619	0.0672	0.0222	0.00254	0.0158	0.00153
	(0.0586)	(0.0530)	(0.0356)	(0.0721)	(0.0638)	(0.0414)
Origin is WTO member	-0.0108	0.219***	0.0202	0.187**	0.0219	0.0684
	(0.0812)	(0.0586)	(0.0474)	(0.0873)	(0.0722)	(0.0623)
Goods entry cost, destination		-0.000200	-1.21e-06		0.000339	0.000317*
		(0.000318)	(0.000172)		(0.000298)	(0.000166)
Goods entry procedures, destination		-0.00910*	-0.0147***		-0.00220	-0.00328
		(0.00533)	(0.00355)		(0.00588)	(0.00355)
Goods entry time, destination		-0.000289	1.73e-05		0.000615	0.000142
		(0.000416)	(0.000256)		(0.000391)	(0.000210)
Goods entry cost, origin	0.000181		-0.00055**	0.000267		7.71e-05
	(0.000423)		(0.000225)	(0.000452)		(0.000246)
Goods entry procedures, origin	-0.0260***		-0.0139***	-0.0119**		-0.00565
	(0.00528)		(0.00355)	(0.00570)		(0.00365)
Goods entry time, origin	-0.000113		-0.0008***	-0.000494		-0.0012***
	(0.000404)		(0.000306)	(0.000694)		(0.000444)
Constant	-53.26***	-41.62***	-42.46***	0	0	0
	(3.829)	(4.375)	(3.214)	(0)	(0)	(0)
Observations	73,005	68,249	66,442	54,601	51,038	48,892
R-squared (overall)	0.525	0.397	0.608			
Number of bilateral pairs	9,594	9,103	8,990	8,196	7,895	7,643

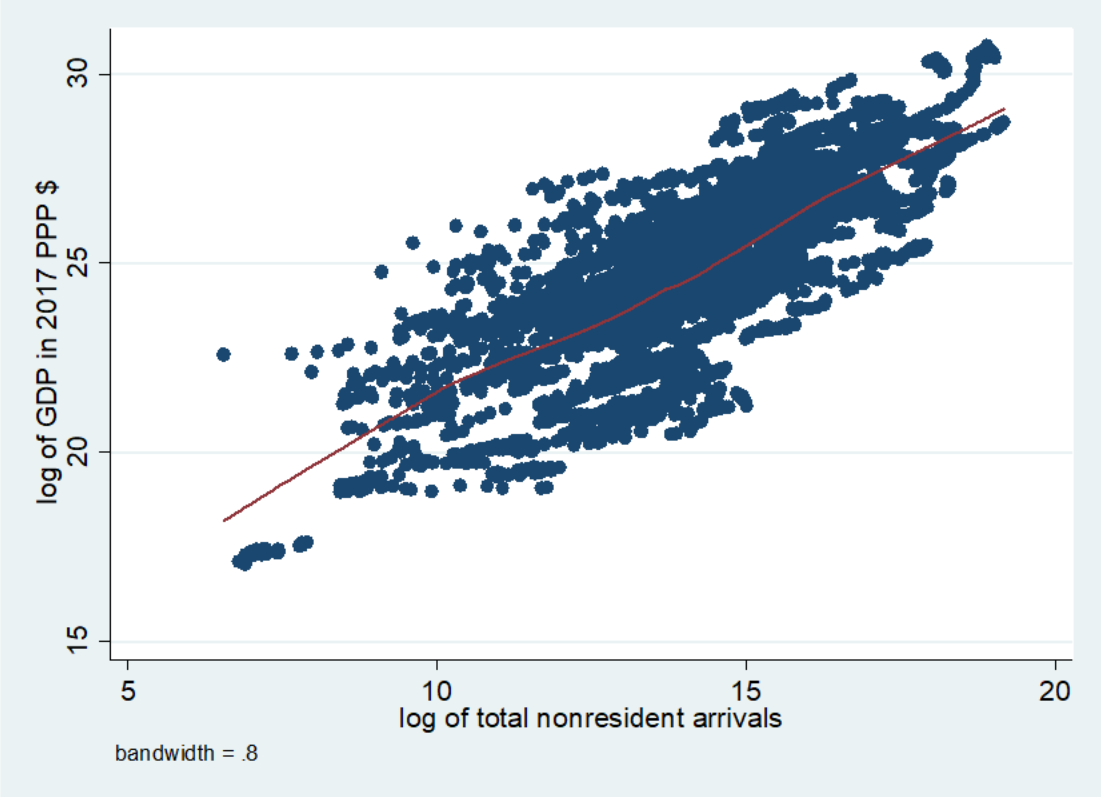
Notes: Trade is the sum of exports and imports. Econometric model used for estimates in columns (1) to (3) is fixed effects panel OLS; model for columns (4) to (6) is Arellano-Bond GMM using lags of the dependent variable as the instrument to control for reverse causality. Robust standard errors in parentheses. Asterisks denote statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Non-economic gravity control variables (population, distance, colonial relationship, common language, same economy) as well as controls for year idiosyncrasies are suppressed for brevity.

Source: UNWTO, UN Comtrade, WDI, CEPII, DGBAS data, and PSU staff calculations.

However, it is recognised that there could be a problem with reverse causality in the estimation method—i.e., bilateral trade could also influence non-resident arrivals between the partners—which would overestimate the elasticity between trade and arrivals. To control for this, we employ the Arellano-Bond Generalised Method of Moments (GMM) and use lags of the dependent variable as an instrumental variable to correct for reverse causality: the results are presented in columns (4) to (6) of Table 3.1. As expected, the estimated coefficients are reduced but they remain positive and significant in the case of exports and total trade; i.e., even after correcting for reverse causality every 1% increase in non-resident arrivals is associated with a 0.03% increase in trade between the destination and origin economies.

The data also show that there is a positive correlation between non-resident arrivals and real GDP. Figure 3.3 presents a scatterplot showing the relationship between real GDP (measured in 2017 PPP USD) and non-resident arrivals between 1989 and 2019 for all economies. As in Figure 3.2, the trendline in Figure 3.3 is derived using locally weighted scatterplot smoothing and shows a clear positive relationship between the two variables but with significant heteroscedasticity.

Figure 3.3: Scatterplot of Real GDP and Non-Resident Arrivals, 1989-2019



Note: Trendline is generated using locally weighted scatterplot smoothing.
Source: UNWTO, WDI, DGBAS, and PSU staff calculations.

In order to estimate the slope of the curve in Figure 3.3, we conduct a simple econometric exercise and estimate the following equation; terms in bold are vectors and variables and subscripts *d* and *t* are as previously defined:

$$\ln(Y_{dt}) = \alpha + \beta_1 \ln(A_{dt}) + \beta_2 \ln(P_{dt}) + \boldsymbol{\delta_1 \mathbf{d}} + \boldsymbol{\delta_2 \mathbf{t}} + \varepsilon_{dt}$$

Note that vector **d** in the regression controls for economy-level variables affecting GDP that are not specified in the equation, while vector **t** controls for year-specific events. As in the previous exercise, we run the model using fixed effects panel OLS as well as the Arellano-Bond GMM that controls for reverse causality. Results of the econometric analysis are shown in Table 3.2: as can be seen, the coefficients for non-resident arrivals are significant and positive for both models. Given the log-log specification of the GDP and arrivals variables, the coefficients can be interpreted as elasticities. In other words, every 1% increase in non-resident arrivals is associated with an increase in GDP of 0.03% to 0.15%.

Table 3.2: Elasticities of GDP with Respect to Non-resident Arrivals, 1989-2019

Explanatory variables	(1) real GDP	(2) real GDP
Prev. year real GDP (in 2017 PPP USD)		0.818***
		(0.0360)
Non-resident arrivals	**0.146*** **	**0.0311*** **
	(0.0176)	(0.00557)
Population	0.495***	0.0241
	(0.0938)	(0.0295)
Constant	14.18***	3.584***
	(1.448)	(0.575)
Observations	4,176	3,946
R-squared	0.821	
Economies covered	189	188

Notes: Econometric model used for estimates in column (1) is fixed effects panel OLS; model for column (2) is Arellano-Bond GMM using lags of the dependent variable as the instrument to control for reverse causality. Robust standard errors in parentheses. Asterisks denote statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Controls for economy and year idiosyncrasies are suppressed for brevity.
Source: UNWTO, WDI, DGBAS data, and PSU staff estimates.

IMPACTS OF BORDER RESTRICTIONS

The outbreak of COVID-19 made economies impose stringent border controls in pursuit of protective sequestration, a strategy that imposes movement controls to protect a still-uninfected population from the entry of the disease. As noted by Markel et al. (2006), "protective sequestration, if enacted early enough in the pandemic, crafted so as to encourage the compliance of the population involved, and continued for the lengthy time period in which the area is at risk, stands the best chance of guarding against infection."[46]

However, once the virus has widespread local transmission, border closures may only have a moderate impact on community spread, but have severe repercussions on the economy. Border control measures are costly: Felbermayr et al. (2016) estimated that the controls implemented during the EU refugee crisis in 2015 such as tighter identity checks and security at the border reduced the EU's real GDP by over EUR 12 billion (equivalent to 0.1% of the EU's GDP).[47] When EU economies were deliberating the use of border closures as a response to the COVID-

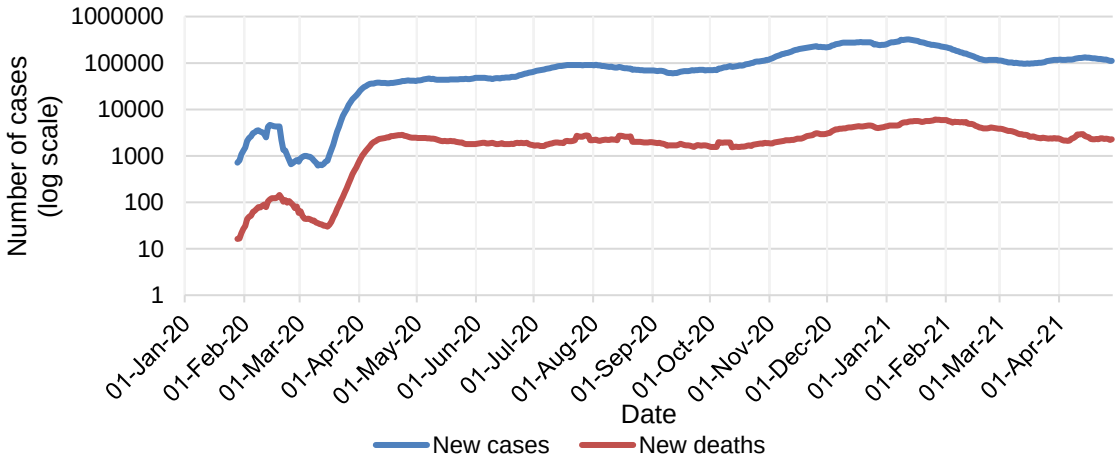
[46] Howard Markel et al., "Nonpharmaceutical Interventions Implemented by US Cities During the 1918-1919 Influenza Pandemic," *JAMA* 298, no. 6 (August 8, 2007): 644, https://doi.org/10.1001/jama.298.6.644.
[47] Gabriel Felbermayr, Jasmin Gröschl, and Thomas Steinwachs, "Trade Costs of Border Controls in the Schengen Area," April 27, 2016, https://voxeu.org/article/trade-costs-border-controls-schengen-area.

19 pandemic, Meninno and Wolff (2020) argued that the economic fallout would be several times greater than the 2015 refugee crisis due to the increase in cross-border commuting among EU residents.[48] Despite the expected costs, many economies have proceeded with restrictive border measures.

Impacts on pandemic control

After more than a year of at-the-border restrictive policies, the COVID-19 pandemic is still an ongoing public health and humanitarian crisis. As of late April 2021, the APEC region logged a total of 47.5 million COVID-19 cases and 1.1 million deaths. The APEC region also registered about 112,000 new COVID-19 cases and 2,300 deaths daily during this month (Figure 3.4).[49]

Figure 3.4: COVID-19 Daily New Reported Cases and Deaths in APEC (7-day Rolling Average), 1 Jan 2020 - 28 Apr 2021



Source: John Hopkins University (via Our World in Data) and PSU staff calculations.

Studies suggest that travel restrictions early in the pandemic reduced the risk of importing the virus. Russell at al. (2021) estimated that if travel volumes were not reduced, the contribution of international travellers to COVID-19 cases in 102 economies would have been higher than 10% of the total cases.[50] Eckardt, Kappner and Wolf (2020) showed that border control measures in the 18 Western European economies helped reduce daily new COVID-19 cases by up to 25%, but only for regions with a substantial number of cross-border commuters prior to the crisis.[51]

Travel restrictions have clear benefits when there are few to no cases in the destination economy. Once case numbers within an economy grow and where local transmission is widespread and self-sustaining, travel restrictions become less effective. Chinazzi, Davis and

[48] Raffaella Meninno and Guntram Wolff, "As the Coronavirus Spreads, Can the EU Afford to Close Its Borders?," February 28, 2020, https://voxeu.org/content/coronavirus-spreads-can-eu-afford-close-its-borders.
[49] John Hopkins University, "Our World in Data: COVID-19 Data," May 18, 2021, https://github.com/owid/covid-19-data.
[50] Timothy W. Russell et al., "Effect of Internationally Imported Cases on Internal Spread of COVID-19: A Mathematical Modelling Study," *The Lancet Public Health* 6, no. 1 (January 1, 2021): e12–20, https://doi.org/10.1016/S2468-2667(20)30263-2.
[51] Matthias Eckardt, Kalle Kappner, and Nikolaus Wolf, "Covid-19 Across European Regions: The Role of Border Controls," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, August 1, 2020), https://papers.ssrn.com/abstract=3688126.

Ajelli (2020) argued that travel bans are only effective at the initial stage of the pandemic and any additional restrictions would only have modest effect unless paired with further public health interventions.[52] Similarly, Keita (2020) found that economies that implement travel restrictions are associated with a delayed onset of infections. However, the same study also found that many of these restrictions were implemented relatively late: out of 120 economies, 90 economies only implemented travel restrictions after registering more than 50 confirmed cases of COVID-19.[53] In cases where border controls were introduced, lack of stringent enforcement still enabled the importation of the virus.[54] Hence, many travel restrictions were enforced late or half-heartedly, and no longer served their primary purpose: keeping the virus out of their borders.

Border restrictions are useful in preventing the entry of a disease within a jurisdiction, but have very limited effects on controlling local community transmission of the disease. Bonardi et al. (2020) found out that the closure of borders and/or travel restrictions in communities experiencing widespread transmission have little to no effect in containing COVID-19.[55] Blocking borders would not matter without effective internal measures such as domestic lockdowns and social distancing. Similarly, Askitas, Tatsiramos, and Verheyden (2020) and Weber (2020) found out that among non-pharmaceutical interventions, the closure of international borders had no measurable effect.[56] Cancellation of mass events and closures of workplaces and schools, on the other hand, played a significant role in curbing the transmission as they reduce periods of extended contact among people.

The same conclusions are made in our analysis of COVID-19 border policy and pandemic progression in the region. Figure 3.5 shows the intensity of border policies based on the stringency index developed by Oxford COVID-19 Government Response Tracker (OCGRT)[57] and the progression of the COVID-19 pandemic using data from John Hopkins University.[58] A visual inspection of the figure shows no clear patterns between more stringent border policies (in shades of red) and reductions in the intensity of COVID-19 daily new cases (in shades of blue). Indeed, darker shades of blue correspond to various levels of border stringency, and in most cases, the worst of the pandemic (darkest shades of blue) correspond to periods of stringent border policy.

Indeed, our statistical analysis of APEC economies' border policy stringency based on the OCGRT index and various indicators of success in controlling the pandemic such as reduced daily reported cases did not yield robust or significant results. Among the statistical methods tried were difference-in-difference (with border stringency index value of 3 or above as a treatment variable), structural breakpoint tests (to see if level of border stringency resulted in a breakpoint in daily reported cases), and even multinomial logit regressions (to see if lower daily cases can predict more stringent border policies).

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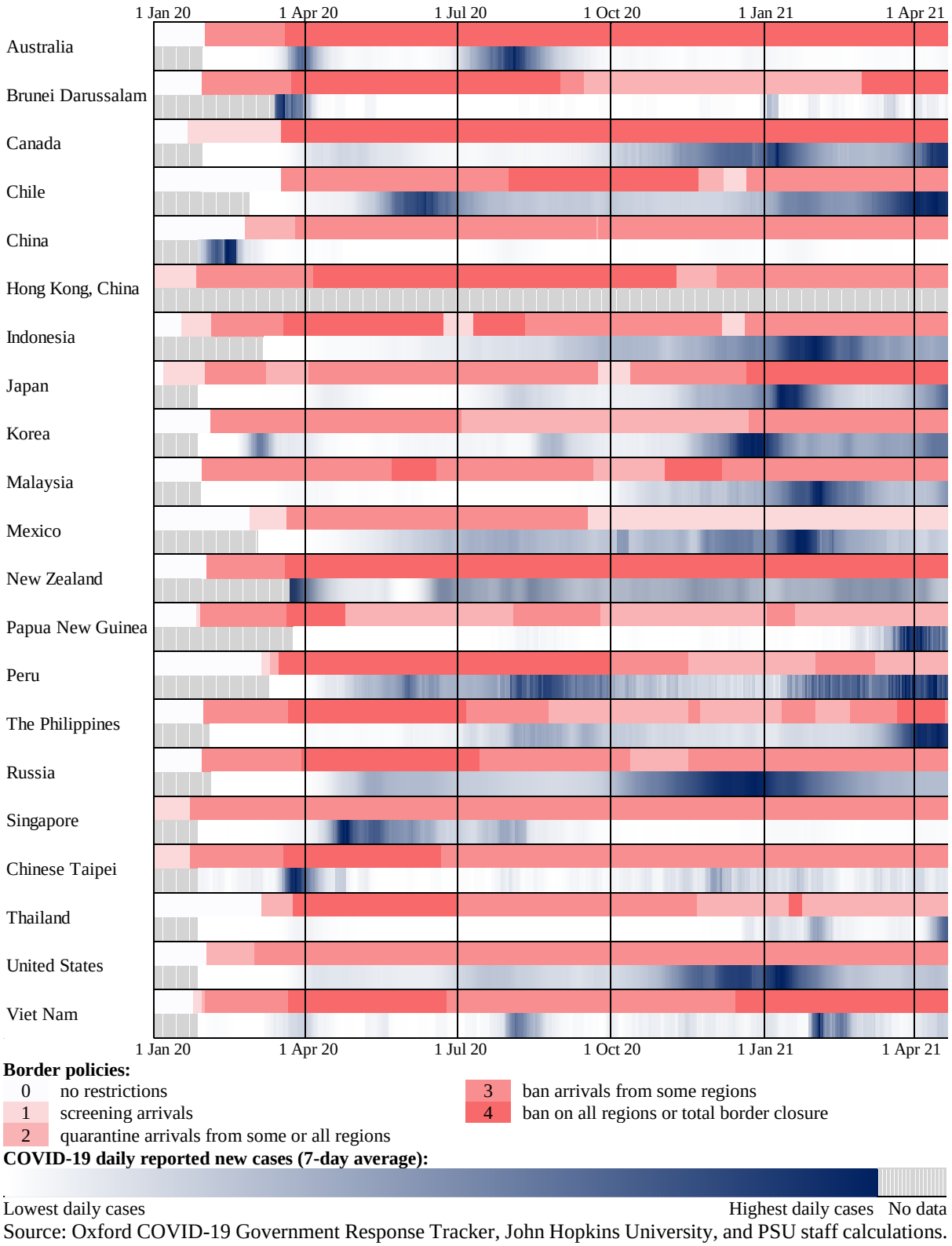
[52] Matteo Chinazzi et al., "The Effect of Travel Restrictions on the Spread of the 2019 Novel Coronavirus (COVID-19) Outbreak," *Science* 368, no. 6489 (April 24, 2020): 395–400, https://doi.org/10.1126/science.aba9757.
[53] Sekou Keita, "Air Passenger Mobility, Travel Restrictions, and the Transmission of the Covid-19 Pandemic between Countries," *Centre for Economic Policy Research: Covid Economics*, no. 9 (April 2020): 77–96.
[54] Jean-Philippe Bonardi et al., "Fast and Local: How Lockdown Policies Affect the Spread and Severity of Covid-19 and Real-Time Papers," *Centre for Economic Policy Research: Covid Economics*, no. 23 (May 28, 2020): 325–50.
[55] Bonardi et al.
[56] Nikos Askitas, Konstantinos Tatsiramos, and Bertrand Verheyden, "Lockdown Strategies, Mobility Patterns and Covid-19," *Centre for Economic Policy Research: Covid Economics*, no. 23 (May 28, 2020), https://cepr.org/sites/default/files/news/CovidEconomics23.pdf; Enzo Weber, "Which Measures Flattened the Curve in Germany?," *Centre for Economic Policy Research: Covid Economics*, no. 24 (June 1, 2020): 205–17.
[57] University of Oxford: Blavatnik School of Government, "Oxford COVID-19 Government Response Tracker," accessed April 15, 2021, https://covidtracker.bsg.ox.ac.uk/.
[58] John Hopkins University, "Our World in Data: COVID-19 Data."

Figure 3.5: Border Policies and COVID-19 Daily New Cases, 1 Jan 2020 - 20 Apr 2021



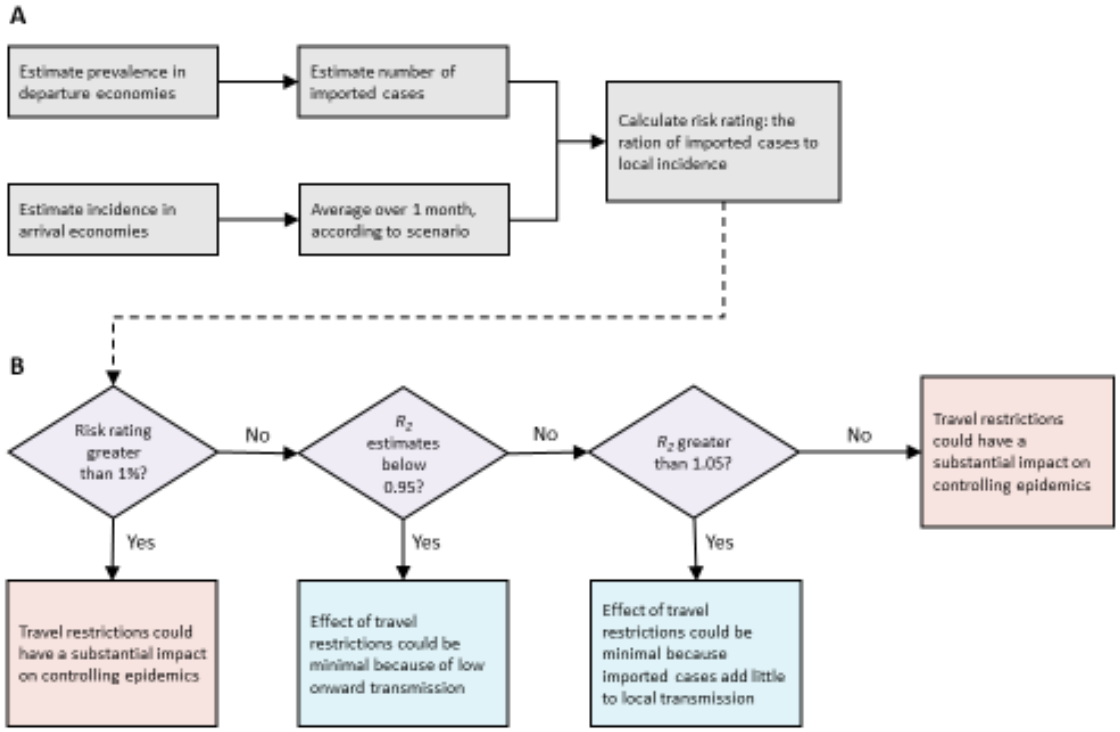
Source: Oxford COVID-19 Government Response Tracker, John Hopkins University, and PSU staff calculations.

This association between border policy and pandemic control — or the lack thereof — reflects some of the findings of Russell et al. (2021) where they use a risk-based analysis to model the effectiveness of border policies in preventing the spread of COVID-19 locally (see Figure 3.6

for the model's conceptual framework).[59] They find that the more stringent border restrictions generally have little impact on the course of the pandemic behind borders. They conclude that in many economies "strict untargeted travel restrictions are probably unjustified… other than those that have both good international travel connections and very low local COVID-19 incidence."[60]

In fact, a review of 29 studies on the effectiveness of COVID-19 travel measures in the early phases of the COVID-19 pandemic by Grépin et al. (2021) shows that a *cordon sanitaire* approach — i.e., imposing travel restrictions to prevent infected people from going out — has been more effective in preventing the spread of SARS-CoV-2 virus than the more popular protective sequestration approach — i.e., imposing travel restrictions to prevent the disease from coming in — adopted by most economies.[61]

Figure 3.6: Risk Modelling and Policy Procedure in Deliberating Travel Restrictions



Source: Russell et al. 2021.[62]

Impacts on cross-border arrivals

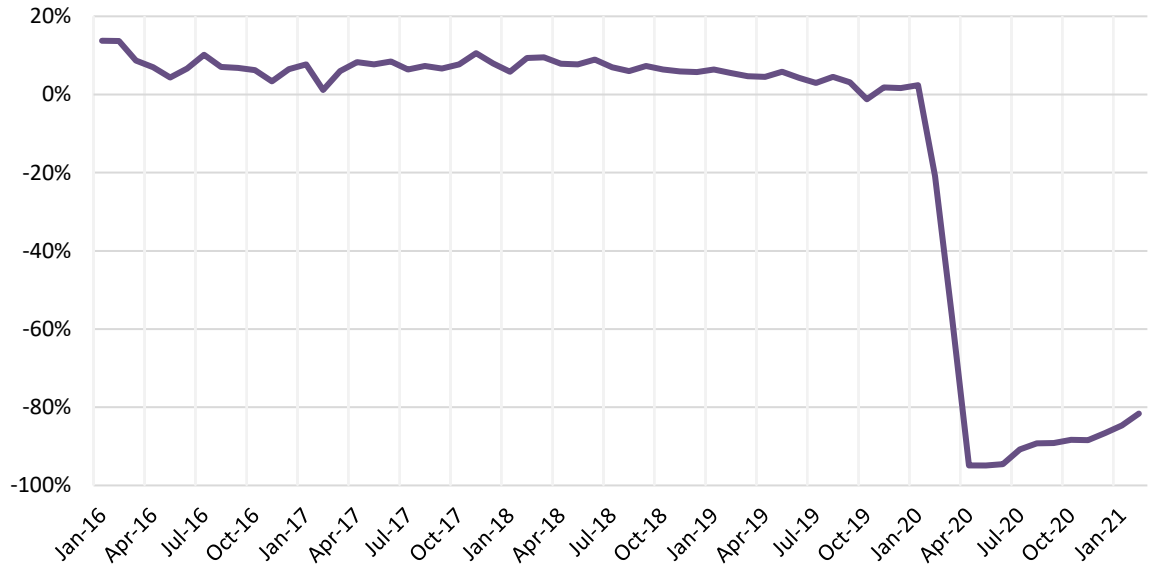
While the effectiveness of border restrictions on controlling the pandemic is mixed, it is beyond doubt that the restrictions resulted in a massive reduction of cross-border arrivals in APEC in 2020. In order to estimate the impact of border restrictions on cross-border arrivals, we gather booking and flights data from OAG Aviation Worldwide covering January 2015 – February

[59] Russell et al., "Effect of Internationally Imported Cases on Internal Spread of COVID-19."
[60] Russell et al., e19.
[61] Karen Ann Grépin et al., "Evidence of the Effectiveness of Travel-Related Measures during the Early Phase of the COVID-19 Pandemic: A Rapid Systematic Review," *BMJ Global Health* 6, no. 3 (March 1, 2021), https://doi.org/10.1136/bmjgh-2020-004537.
[62] Russell et al., "Effect of Internationally Imported Cases on Internal Spread of COVID-19."

2021. Passenger traffic data from OAG's Traffic Analyzer includes bookings made from global distribution systems like Amadeus, Sabre, and Travelport.[63] Along with a calibration algorithm on the raw data, it combines with official data to estimate the true market figure. As such, it is unable to inform on arrivals through land or sea, or chartered flights. While the data may have some limitations with regard to arrivals magnitudes, it can be a reliable data source to determine growth rates and trends and analyse the impact of border restrictions on air arrivals.

As Figure 3.7 shows, total air arrivals in the APEC region plummeted in 2020. On a monthly year-on-year basis, arrivals fell in March and April 2020 as the more stringent border policies were introduced, before starting to slowly go up again in July 2020. On an annual basis, air arrivals in the APEC region fell by 74.7% in 2020 compared to 2019 levels.

Figure 3.7: APEC Cross-Border Air Arrivals Monthly y-o-y Growth
Jan 2016 – Feb 2021

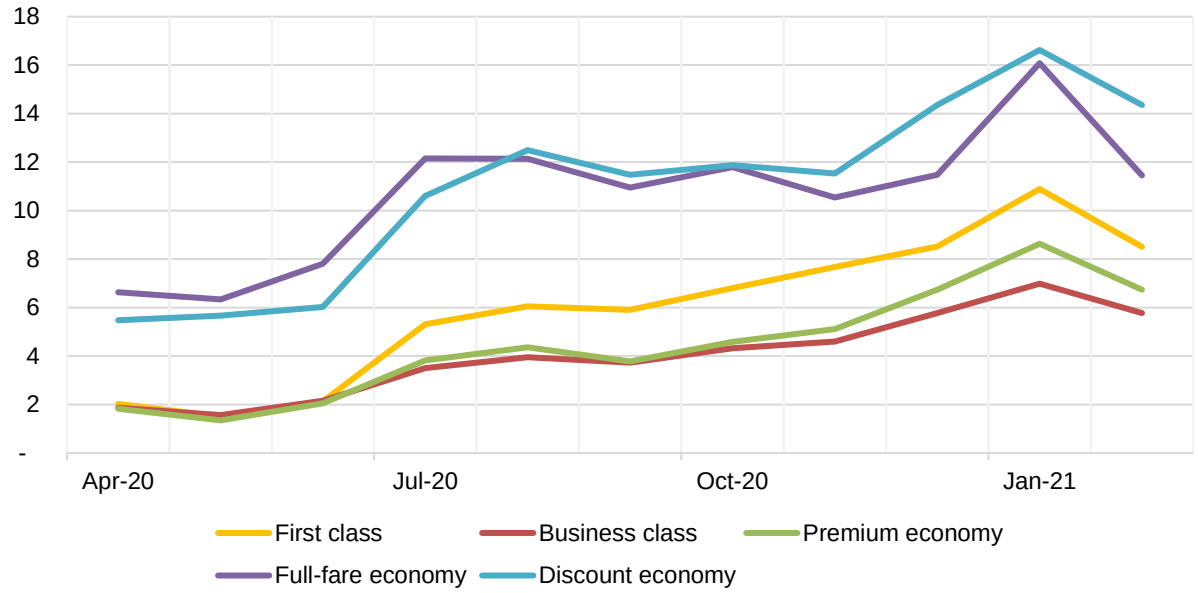


Source: OAG Aviation Worldwide data and PSU staff calculations.

While the data does not permit us to distinguish between purposes of travel, we can use it to distinguish between cabin class. Data from OAG can be disaggregated into five cabin classes: first class, business class, premium economy, full-fare economy, and discount economy. As can be seen in Figure 3.8, compared to January 2020 levels — that is, before the full impacts of the COVID-19 pandemic were seen in air travel — some muted recovery has been recorded in the full-fare economy and discount economy classes, while premium economy and business class travel has recovered comparatively slower. In fact, first class travel has recovered faster than business class travel in relative terms. If business class travel can be used as a bellwether of business travel, this data could indicate that business travel has been hit especially hard by the COVID-19 border measures and the additional time, cost, and uncertainty they have brought about. It could also indicate the greater use of remote working technology such as teleconferencing apps as a substitute for business travel.

[63] OAG Aviation Worldwide, "OAG Traffic Analyzer," May 2021, https://www.oag.com/traffic-analyzer.

Figure 3.8: Air arrivals by cabin class in APEC, Apr 2020 – Feb 2021 (Normalised Scale: Jan 2020 = 100)

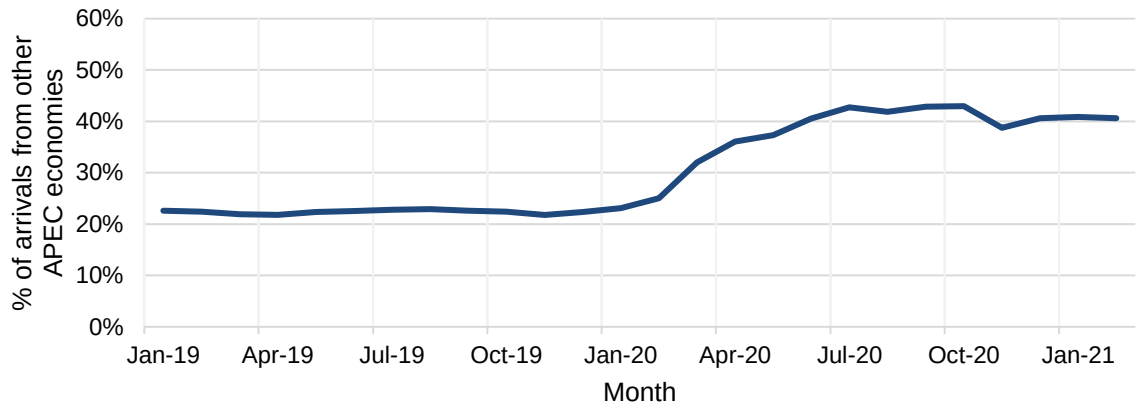


Source: OAG Aviation Worldwide data and PSU staff calculations.

COVID-19 border policies also had an impact on travel routes and connections within the region. Until 2019, roughly 78-80% of air travellers from within APEC economies flying to other APEC economies reached their destinations through direct flights, and only around 20-22% of passengers required transits (Figure 3.9). Among those who needed to transit, most travellers completed their transits through APEC economies, and less than 1% of transit passengers passed through a non-APEC airport. However, faced with border restrictions and transit bans through some gateway airports from March 2020, many passengers were forced to find alternative transit options. The share of intra-APEC transit passengers who had to pass outside of APEC increased from an average of 0.8% in 2019 to 1.5% in March 2020 (Figure 3.10). Moreover, as airlines optimised their fleet to address the sudden negative demand shock, many airlines suspended unprofitable direct flights, and started to leverage on connecting flights to reduce costs.[64] As a result, more cross-border travellers needed to transit to reach their destinations: the percentage of intra-APEC cross-border travellers who needed pass by an intermediary airport almost doubled from 20-22% in 2019 to 40% in late 2020 (Figure 3.9).

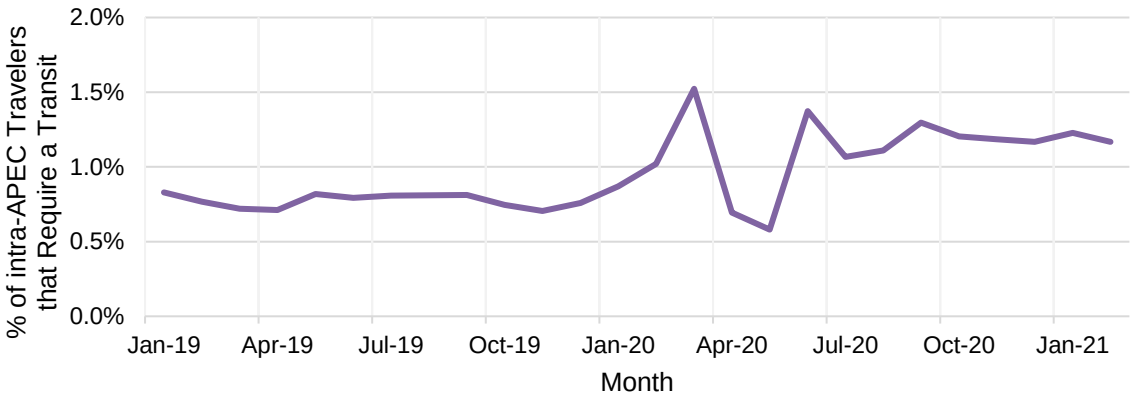
[64] Toyotaro Suzumura et al., "The Impact of COVID-19 on Flight Networks," *ArXiv:2006.02950 [Physics]*, February 14, 2021, 19, http://arxiv.org/abs/2006.02950.

Figure 3.9: Percentage of Transit Passengers among Intra-APEC Arrivals, Jan 2019 – Feb 2021



Source: OAG Aviation Worldwide data and PSU staff calculations.

Figure 3.10: Percentage of out-of-APEC Transits among Transiting Intra-APEC Travelers, Jan 2019 – Feb 2021

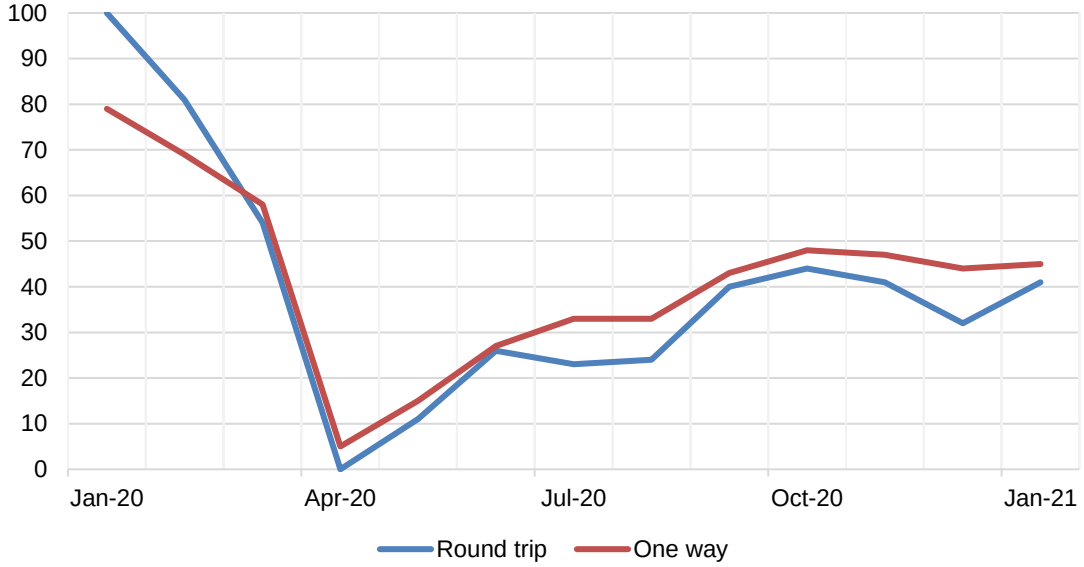


Source: OAG Aviation Worldwide data and PSU staff calculations.

COVID-19 border restrictions have also changed air travellers' behaviour and made them more risk averse. One estimate from airfare pricing and marketing firm EveryMundo using data from its 60 airline clients shows that since the introduction of travel restrictions in early 2020, one-way bookings now make up a greater share of all airfare bookings, in contrast to earlier trends (Figure 3.11). While round-trip bookings on average accounted for 55% of airline bookings before the pandemic, travel restrictions have caused more uncertainty for travellers, hence making them opt to book one way tickets for the added flexibility.[65]

[65] Anton Diego, "One Way vs. Round Trip Bookings - 2020 Airline Booking Data," EveryMundo, accessed May 19, 2021, https://www.everymundo.com/2020-one-way-vs-round-trip-booking/.

Figure 3.11: One-Way and Round-Trip Air Travel Bookings, Jan 2020 – Jan 2021 (Normalised scale, Jan 2020 = 100)



Source: EveryMundo and PSU staff calculations.

Impacts on the economy

The border restrictions have had unambiguous negative impacts on the region's economy. From a macro perspective, the OECD (2021) estimated that the global output fell by more than 10 percentage points due to the pandemic, thanks to disruption in supply chains and labour supply. Global industrial production collapsed by close to 16 percentage points while global trade fell by almost 30% year-on-year.[66] Even economies that have shielded their population from COVID-19 were not immune to the economic fallout. Viet Nam had an almost 50% increase in unemployment rate compared to pre-COVID period and reduction of 5.5% of monthly income in the third quarter of 2020.[67]

Nonetheless, it is important to note that the massive downfall in economy is not the fault of cross-border restrictions alone. Fundamentally, border closures disrupt the normal flow of goods, capital, and people, which sequentially cause business and production to reduce operations or shut down, at least temporarily.[68] Nonetheless, as pointed out by Guerrieri et al. (2020), COVID-19 is a supply shock that consequentially leads to a demand shock amplified by the internal measures such as lockdown and social distancing, which further weakens the domestic demand.[69] Hence, whilst border control partly contributes to the initial supply shock, it is not fully responsible for the sequential effects on the demand side. Given this, the impact of border closures across various sectors would also be mixed.

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[66] OECD, *OECD Economic Outlook, Interim Report March 2021*, OECD Economic Outlook (OECD, 2021), https://doi.org/10.1787/34bfd999-en.
[67] Hai-Anh H Dang and Cuong Viet Nguyen, "Did a Successful Fight against the COVID-19 Pandemic Come at a Cost? Impacts of the Outbreak on Employment Outcomes in Vietnam," *IZA Institute of Labor Economics*, December 2020, http://ftp.iza.org/dp13958.pdf.
[68] Suborna Barua, "Understanding Coronanomics: The Economic Implications of the Coronavirus (COVID-19) Pandemic," *SSRN Electronic Journal*, 2020, https://doi.org/10.2139/ssrn.3566477.
[69] Veronica Guerrieri et al., "Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?" (Cambridge, MA: National Bureau of Economic Research, April 2020), https://doi.org/10.3386/w26918.

Contraction in service-oriented sectors

The sectors that have arguably suffered the most from border closures are service-oriented industries such as travel, tourism, hospitality, and MICE. Unlike goods, services are often delivered in-person, and cannot be produced, stored, or sold at a later stage. The transport sector, particularly aviation and cruise, has also been one of the largest victims of these travel restrictions. Because some forms of travel such as repatriation are essential, many transport service providers still need to operate, often in situations of low demand and revenue loss.

The global tourism and service industry, which include both leisure-related and business-related travel, are generally sensitive to negative shocks such as recessions, terrorist events, diseases, or natural disasters.[70] COVID-19 caused travel bans and restrictions that consequentially hampered the daily activities in these industries. Flights were cancelled, borders were closed, international arrivals were blocked, and quarantine measures made short-term travel undesirable. With the current trajectory, the UNWTO does not expect international tourism to return to pre-COVID levels before 2023.[71] Sequentially, the spillover effects in food, accommodation, and other hospitality services have been massive. UNWTO (2021) estimated that the pandemic caused up to 73% decrease in international tourism in 2020, with the largest chunk taken up by the Asia and the Pacific region. On top of that, there is an estimated loss of USD 1.3 trillion in tourism receipts, equivalent to eleven times of what it was during the last global financial crisis in 2009.[72]

Overseas education has also been severely impacted by COVID-19 travel restrictions. COVID-19 reduced demand for overseas studies, especially in the face of rising costs and mounting safety concerns. Many higher education institutions in Australia; Canada; and the United States were heavily reliant on tuition from international students; hence, the drastic reduction in overseas students, as well as onerous and expensive travel requirements for students, are threatening to exacerbate the problems faced by educational institutions relying on students from overseas.[73]

Growth in domestic and digitalised sectors

While services sectors relying on cross-border travel have been negatively affected, travel restrictions have also redirected some demand towards domestic services. For instance, travel restrictions have caused new tourism trends in the foreseeable future. According to a report by UNWTO (2021), there are six emerging trends that influence people's recent approach towards travel. First, domestic tourism has shown positive signs in many markets as people tend to travel closer and go for 'staycations' which are nearer to their place of origin. Second, nature, rural tourism and road trips have been getting higher traction among travellers due to travel limitations and the quest for open-air experiences, which is most likely associated with the lockdown fatigue. Third, travellers have been more conscious of health and safety measures provided by the accommodation and travel service provider. Fourth, travel recovery has been

[70] Sharon Teitler-Regev, Shosh Shahrabani, and Oksana Goziker, "The Effect of Economic Crises, Epidemics and Terrorism on Tourism," 2013.
[71] World Tourism Organization (UNWTO), "COVID-19 and Tourism | 2020: A Year in Review," January 2021, https://www.unwto.org/covid-19-and-tourism-2020.
[72] World Tourism Organization (UNWTO).
[73] Dick Startz, "Coronavirus Poses Serious Financial Risks to US Universities," *Brookings* (blog), April 21, 2020, https://www.brookings.edu/blog/brown-center-chalkboard/2020/04/21/coronavirus-poses-serious-financial-risks-to-us-universities/; Ellie Bothwell, "Australian Universities in 'Deep Trouble' as Borders Stay Closed," February 5, 2021, https://www.timeshighereducation.com/news/australian-universities-deep-trouble-borders-stay-closed.

stronger among younger segments as 'mature' travellers and senior citizens are taking the backseat due to the higher risk of contracting the virus. Fifth, people are giving more importance to creating a positive impact on local communities as they are gradually looking for authenticity. Finally, last minute bookings are increasing due to the volatility of pandemic-related events and restrictions.[74]

Digital services and e-commerce also stood out in the midst of the pandemic as people and firms digitalised their consumption and production activities. As lockdowns occur across economies, businesses and consumers unable to travel shifted their attention towards digital purchases, raising e-commerce's share of global retail trade from 14% in 2019 to 17% in 2020 (UNCTAD, 2021).[75] Digital entertainment platforms such as in-demand video and music streaming have also shown remarkable growth during the pandemic: streaming platform Netflix experienced a surge in new subscriptions in the early days of the pandemic.[76] A survey done by UNCTAD in collaboration with NetComm Suisse on online consumers in nine economies found out that consumers in emerging economies are shopping online more often than before. Several sectors like consumer electronics and ICT products, do-it-yourself, and healthcare products, showed the largest growth of active users across all economies.[77]

In China, e-commerce retail transactions went up by 24.6% between January and August 2020 (OECD, 2020).[78] Thailand also saw downloads of shopping apps going up by 60% within one week during March 2020, as people started to adapt to the movement restrictions and lockdowns.[79] The trend towards e-commerce is likely to be sustained throughout the recovery from COVID-19 as people embrace the new way of working and living.

Even as there was a strong uptake of e-commerce globally, UNCTAD has warned against the disparity of the digitalisation across regions.[80] For instance, many of the world's least developed economies have yet to capitalise on pandemic-induced opportunities due to persistent barriers and huge digital divides, which include costly broadband services, poor digital skills and infrastructure, overreliance on cash, and governments' limited attention to e-commerce. In fact, the pandemic has mostly benefitted the world's leading digital platforms. Plenty of solutions being used for e-commerce, teleworking and cloud computing are provided by a small number of large digital firms. Therefore, while small players may have gained deeper foothold during the pandemic, their market presence is still overshadowed by these digital giants which could entrench their dominant role during the pandemic.[81]

[74] World Tourism Organization (UNWTO), "COVID-19 and Tourism | 2020."
[75] United Nations, "COVID-19 and E-Commerce: A Global Review" (United Nations Conference on Trade and Development (UNCTAD), 2021), https://unctad.org/system/files/official-document/dtlstict2020d13_en_0.pdf.
[76] Jonathan Ponciano, "5 Big Numbers That Show Netflix's Massive Growth Continues During The Coronavirus Pandemic," *Forbes*, October 19, 2020, https://www.forbes.com/sites/jonathanponciano/2020/10/19/netflix-earnings-5-numbers-growth-continues-during-the-coronavirus-pandemic/?sh=d67e02f225e9.
[77] United Nations, "COVID-19 and E-Commerce: A Global Review."
[78] OECD, "E-Commerce in the Time of COVID-19," OECD, October 7, 2020, https://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/.
[79] United Nations, "COVID-19 and E-Commerce: A Global Review."
[80] United Nations, "COVID-19 and E-Commerce: A Global Review."
[81] United Nations.

Disruptions to global value chains and trade

Unlike the previous outbreaks such as SARS or Ebola, COVID-19 has affected all nodes and edges of global supply chain simultaneously, causing an unprecedented disruption to global value chains.[82] Demand shocks for essential goods such as personal protective equipment (PPE), ventilators, and face masks exceeded the existing supply, while challenges in transportation and manufacturing processes — such as labour shortages, restricted vehicle movements, border closures, and physical distancing in manufacturing facilities — reduced the global capacity to meet demand.[83] Therefore, the multifaceted impacts on supply chains, combined with other economic challenges, provided a difficult situation for global trade.

Ivanov and Dolgui (2020) suggested that the border restrictions, amplified by local lockdowns in most economies, caused a disruption to international trade and global supply chains as supply availability has been drastically reduced and misbalanced with demand.[84] Moreover, the supply chain of many companies became vulnerable to COVID-19. Fortune (2020) announced that 94% of the Fortune 1000 companies' supply chains have been affected by the coronavirus as 12,000 of their supply chain facilities are in COVID-19's quarantine areas.[85] For some companies, the demand for certain products (e.g. facial masks, hand sanitiser) has drastically increased. However, supply was not able to cope with such an abrupt rise due to insufficient resources and delays caused by movement restrictions. This shows the need for economies to ensure that their supply chains remain resilient and robust amidst sudden shocks.[86]

Baldwin and Tomiura (2020) predicted that the impact of COVID-19 on the manufacturing sector would almost be threefold of what it was during 2009 financial crisis with immediate supply disruptions cascading down to other manufacturing sectors in less-affected economies.[87] Sheffi (2020) outlined two key channels of the global supply chain effects: (1) production shocks and (2) shocks to trade flows due to transports and logistic disruptions.[88] Moreover, Sheffi noted that the supply chain situation varies widely across industries. For example, while food value chains are robust even during the pandemic because they are predominantly localised, medical manufacturing cannot scale up to meet new demand due to delocalised and internationalised supply chains.[89] Harris et al. (2020) echoed several factors that led to the collapse in production and supply chains. Firstly, the lockdown and effective closure of the

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[82] Saileshsingh Gunessee and Nachiappan Subramanian, "Ambiguity and Its Coping Mechanisms in Supply Chains Lessons from the Covid-19 Pandemic and Natural Disasters," *International Journal of Operations & Production Management* 40, no. 7/8 (January 1, 2020): 1201–23, https://doi.org/10.1108/IJOPM-07-2019-0530; Sanjoy Kumar Paul and Priyabrata Chowdhury, "A Production Recovery Plan in Manufacturing Supply Chains for a High-Demand Item during COVID-19," *International Journal of Physical Distribution & Logistics Management* 51, no. 2 (January 1, 2020): 104–25, https://doi.org/10.1108/IJPDLM-04-2020-0127.

[83] Paul and Chowdhury, "A Production Recovery Plan in Manufacturing Supply Chains for a High-Demand Item during COVID-19."

[84] Dmitry Ivanov and Alexandre Dolgui, "Viability of Intertwined Supply Networks: Extending the Supply Chain Resilience Angles towards Survivability. A Position Paper Motivated by COVID-19 Outbreak," *International Journal of Production Research* 58, no. 10 (May 18, 2020): 2904–15, https://doi.org/10.1080/00207543.2020.1750727.

[85] Erik Sherman, "94% of the Fortune 1000 Are Seeing Coronavirus Supply Chain Disruptions," *Fortune*, February 22, 2020, https://fortune.com/2020/02/21/fortune-1000-coronavirus-china-supply-chain-impact/.

[86] Tom Linton and Bindiya Vakil, "Coronavirus Is Proving We Need More Resilient Supply Chains," *Harvard Business Review*, March 5, 2020, https://hbr.org/2020/03/coronavirus-is-proving-that-we-need-more-resilient-supply-chains.

[87] Richard Baldwin and Eiichi Tomiura, "Economics in the Time of COVID-19," in *Economics in the Time of COVID-19*, ed. Richard Baldwin and Beatrice Weder di Mauro (London: CEPR Press, 2020), 59–72.

[88] Yossi Sheffi, "Commentary: Supply-Chain Risks From the Coronavirus Demand Immediate Action," *Wall Street Journal*, February 18, 2020, sec. C Suite, https://www.wsj.com/articles/commentary-supply-chain-risks-from-the-coronavirus-demand-immediate-action-11582054704.

[89] Peter Dizikes, "Supply Chain Outlook: Why the Situation Varies by Industry," *MIT News*, March 25, 2020, https://news.mit.edu/2020/sheffi-global-supply-chain-covid-19-0325.

economy substantially reduced the demand and led to decline in purchases of consumer durables such as automobiles and domestic appliances. Additionally, the total cessation of air travel caused many tier 1 suppliers and Original Equipment Manufacturers to cancel orders, face downfall in share prices, had their credit rating cut and debt downgraded, eventually pushing them to cut their workforces. Rolls-Royce in the UK, for instance, had to reduce its workforce by 9,000 in 2020, causing sharp reduction in the production. The most vulnerable manufacturing sectors are the ones who are most exposed to internationalised supply chains with high reliance on labour and export.[90]

The trade restrictions and the supply chain disruptions described above, more often than not, brought about spillover effects that led to other crises like food insecurity and shortage of other essential goods. In regions that are reliant on food imports, disruptions and delays in the food value chain could cause food insecurity, especially as many food products are perishable and cannot tolerate severe disruptions. In the United States and Europe, the near complete closure of the aviation industry severely affected supply chains of specialised products that rely on air-freight, such as high-value horticultural exports from Africa.[91] Global trade restrictions, similarly, created an upward spiral in prices of staple foods, further exacerbating global food supply problems.[92] In the early phase of the pandemic, world prices of rice rose 20% around January and April 2020 and became highly volatile in May while world wheat prices have been volatile from January to May 2020.[93]

According to the OECD Interim Economic Outlook published in March 2021, the pandemic brought about close to a 16% decline in global industrial production, which also reduced global retail sales volume.[94] Due to cross-border restrictions, the services exports and air freights plunged by as much as 30% year-on-year.[95] Purchasing managers' indices (PMIs) also showed that new export orders plunged to 27.1 in April 2020, compared to a normal baseline value of 50, while the container shipping tumbled slightly during the peak of the pandemic.[96]

In addition to disruptions to supply chains, cargo operators and freighters also faced substantial challenges in fulfilling deliveries and shipments to meet global needs. Border closures and travel restrictions meant that that their services would be delayed and bound by certain restrictions. The International Air Transport Association (IATA) estimated that the airline industry had a net loss of USD 126.4 billion in 2020, resulting in a net profit margin of -33.9%.[97] In the United States, as US airlines reduced the number of flights, almost 52% of the fleet were sidelined by mid-May 2020.[98] Additionally, COVID-19 also brought about a

[90] JL Harris et al., "The Covid-19 Crisis and Manufacturing: How Should National and Local Industrial Strategies Respond?," *Local Economy* 35, no. 4 (June 1, 2020): 403–15, https://doi.org/10.1177/0269094220953528.
[91] David Laborde et al., "COVID-19 Risks to Global Food Security," *Science* 369, no. 6503 (July 31, 2020): 500–502, https://doi.org/10.1126/science.abc4765.
[92] Glauber Joseph et al., "COVID-19: Trade Restrictions Are Worst Possible Response to Safeguard Food Security" (IFPRI : International Food Policy Research Institute, March 27, 2020), https://www.ifpri.org/blog/covid-19-trade-restrictions-are-worst-possible-response-safeguard-food-security.
[93] Laborde et al., "COVID-19 Risks to Global Food Security."
[94] OECD, *OECD Economic Outlook, Interim Report March 2021*.
[95] OECD.
[96] OECD.
[97] IATA, "Reduced Losses but Continued Pain in 2021," April 21, 2020, https://www.iata.org/en/pressroom/pr/2021-04-21-01/.
[98] "Impact of COVID-19: Data Updates," *Airlines For America* (blog), accessed May 19, 2021, https://www.airlines.org/dataset/impact-of-covid19-data-updates/.

27.7% drop year-on-year in global air cargo volumes in April 2020.[99] To make matters worse, the capacity dropped by an even greater rate of 42%, due to the loss of belly cargo from sidelined passenger aircrafts.[100] In April 2020, the belly cargo loss hit its trough with 75% reduction in capacity, slowly recovering towards the end of the year.[101] Hence, even with reduced demand, there was not enough capacity to match the demand, as several cargo shipments also relied on passenger aircrafts. Although the absolute volume of cargo shipments dropped, severe shortage in cargo capacity pushed up the air cargo rates by 30% in 2020.[102] The rates only declined once passenger aircraft service resumed, which expanded overall cargo capacity through cargo compartments on passenger carrying services. Despite the limitations in air freight, air cargo operators seem to have been able to flexibly change their transport methods to remain profitable, although at the expense of higher costs passed on to other sectors.

Meanwhile, maritime shipping, which transports more than 80% of the world's merchandise trade, is projected to decline by only 4.1% in 2020.[103] While the resilience of the shipping industry might be counterintuitive, it should be noted that shipping industry is not unfamiliar with global crises due to its inherent cyclicality. Notteboom et al. (2020) pointed out that the shipping industry learned from the global financial crisis of 2008, deploying several mechanisms to cope with the current pandemic. Some measures include rationalising services and cost structure, as well as fleet optimisation by deploying larger ships and idling smaller ones. The move makes scale economies to work in favour of shipping companies.[104] Additionally, many shipping companies formed and consolidated alliances between 2014–2017, allowed shipping companies to be vertically integrated, opening up possibilities of joint capacity management and co-internalised terminal charges.[105]

Unlike ocean and air transport, land transport has remained partially available globally as roads have remained in use, except in economies with severe lockdowns. In fact, trucking capacity is strained due to additional demand to necessities such as food and medical supplies. US-based logistics company Trucker Tools observed an increase of 25% in truck loads in the United States in March 2020.[106] Combined with reduced employee availability due to movement restrictions, road freight operators charged higher rates as their service supply was limited in several areas. Nonetheless, the increase in rates is subdued by weaker demand from sectors that usually require land transport, such as manufacturing, as the sectors are not able to operate at full capacity.[107] Resultantly, road freight spot rates have fallen in some markets. On the other

[99] John R. Bartle, Rebecca K. Lutte, and Deniz Zeynep Leuenberger, "Sustainability and Air Freight Transportation: Lessons from the Global Pandemic," *Sustainability* 13, no. 7 (January 2021): 3738, https://doi.org/10.3390/su13073738.
[100] Bartle, Lutte, and Leuenberger.
[101] Bartle, Lutte, and Leuenberger.
[102] Bartle, Lutte, and Leuenberger.
[103] United Nations, *Review of Maritime Transport 2020* (New York: United Nations Conference on Trade and Development (UNCTAD), 2021).
[104] Theo Notteboom, Thanos Pallis, and Jean-Paul Rodrigue, "Disruptions and Resilience in Global Container Shipping and Ports: The COVID-19 Pandemic versus the 2008–2009 Financial Crisis," *Maritime Economics & Logistics*, January 4, 2021, https://doi.org/10.1057/s41278-020-00180-5.
[105] Daniele Crotti, Claudio Ferrari, and Alessio Tei, "Merger Waves and Alliance Stability in Container Shipping," *Maritime Economics & Logistics* 22, no. 3 (September 1, 2020): 446–72, https://doi.org/10.1057/s41278-019-00118-6.
[106] "Trucker Tools Launches Two Initiatives to Help Freight Brokers, Truckers on the Front Lines of COVID-19 Overcome Operating Challenges, Speed Delivery of Critical Goods," *Trucker Tools* (blog), March 27, 2020, https://www.truckertools.com/web/trucker-tools-launches-two-initiatives-to-help-freight-brokers-truckers-on-the-front-lines-of-covid-19-overcome-operating-challenges-speed-delivery-of-critical-goods/.
[107] Ian Twinn et al., "The Impact of COVID-19 on Logistics" (World Bank International Finance Corporation, June 2020), https://www.ifc.org/wps/wcm/connect/Industry_EXT_Content/IFC_External_Corporate_Site/Infrastructure/Resources/The+Impact+of+COVID-19+on+Logistics.

hand, demand for rail services has steadily grown as a substitute for other means of transportation, due to higher air cargo rates, blank sailings, and longer transit time for trucks.[108]

Impacts on people

Cross-border mobility of people has been dramatically reduced because of border closures and unprecedented travel restrictions.[109] This has sizable implications on various groups of people including, but not limited to (1) employees of badly hit sectors, (2) women, (3) overseas workers, migrants, and their families, and (4) cross-border commuters.

Impact on workers in vulnerable sectors

People employed in vulnerable sectors impacted by border controls like tourism and travel are at risk from losing their jobs: an estimate from the ILO notes that, globally, a total of 114 million jobs were lost compared to 2019.[110] In relative terms, employment losses were more pronounced for women than for men (5% employment loss versus 3.9%), and for young workers than for older workers (8.7% employment loss versus 3.7%).[111] Likewise, employees, students, and family members who need to commute across borders for work or study may suddenly be unable to do so, risking the loss of their livelihoods and opportunities.

Adams-Prassl et al. (2020) found that workers in alternative work arrangements, such as those in tourism and entertainment services, are more affected in terms of the reduction of work hours and income.[112] Additionally, 33% of self-employed workers have felt that their health was at risk while working, primarily due to the financial situation and the fear of losing work in the future.[113] Nonetheless, not all outlooks are gloomy in the midst of the pandemic. The Asian Development Bank (2021) reported that employment in some sectors held up relatively well, especially in technology companies as digitalisation of businesses facilitate the ability to work from home.[114] On top of that, the occurrence of COVID-19 shed even further light onto the potential of gig economy as a form of alternative work. Umar, Xu and Mirza (2020) provided empirical evidence that the pandemic has positively affected the gig economy by increasing the number of posted and filled jobs on platform economy, powered by apps such as Uber, Lyft, and TaskRabbit.[115]

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[108] Twinn et al., "The Impact of COVID-19 on Logistics."
[109] UN International Organization for Migration and UN World Food Programme, "Populations at Risk: Implications of COVID-19 for Hunger, Migration, and Displacement," November 2020, https://docs.wfp.org/api/documents/WFP-0000120687/download/?_ga=2.267775369.622607979.1621361439-1578657724.1620886307.
[110] International Labour Organizatoin, "ILO Monitor: COVID-19 and the World of Work. 7th Edition," January 25, 2021, http://www.ilo.org/global/topics/coronavirus/impacts-and-responses/WCMS_767028/lang--en/index.htm.
[111] International Labour Organizatoin.
[112] Abi Adams-Prassl et al., "Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys," *Journal of Public Economics* 189 (September 2020), https://doi.org/10.1016/j.jpubeco.2020.104245.
[113] Jack Blundell and Stephen Machin, "Self-Employment in the Covid-19 Crisis" (London School of Economics and Political Science: Centre for Economic Performance, May 2020).
[114] Asian Development Bank, "Asian Economic Integration Report 2021: Making Digital Platform Works for Asia and the Pacific," 0 ed. (Manila, Philippines: Asian Development Bank, February 2021), https://doi.org/10.22617/TCS210048-2.
[115] Muhammad Umar, Yan Xu, and Sultan Sikandar Mirza, "The Impact of Covid-19 on Gig Economy," *Economic Research-Ekonomska Istraživanja* 0, no. 0 (December 30, 2020): 1–13, https://doi.org/10.1080/1331677X.2020.1862688.

Nevertheless, as pointed out by De Stefano (2015), the greater opportunities that comes with gig work is dampened by the lack of recognition of these workers as formal employees.[116] In reality, many organisations recognise them only as independent contractors or self-employed, which often leave them out of the labour regulations and social protection. Gig economy workers are often not entitled to enjoy basic employment rights such as annual leave, paid sick leave, minimum rest days, right for minimum termination notice, rights to union representation, access to labour courts, and many others (Mohd Nadzri and Hassan, 2020).[117]

Impact on women

Women are experiencing disproportionate and compounded impacts due to restrictions on cross-border travel during COVID-19. On average, women earn and save less, hold less secure jobs, and are more likely to work in the informal sector and industries vulnerable to external shocks.[118] These translate into women's diminished access to social protection, limiting their ability to self-sustain their lives and families during a pandemic. For female-headed households, the burden is even more pronounced.

Women workers in service-oriented sectors were negatively impacted due to the economic pressures of the COVID-19 pandemic and cross-border travel restrictions. When the pandemic hit, the first round of layoffs was concentrated in the services sector such as retail, hospitality and tourism, where 58.6% of employed women work compared to 45.5% for men.[119] WTO finds that women make up 54% of the tourism workforce,[120] and women's occupations are often concentrated in lower-level positions that can easily be replaced. With the worst year on record in 2020 for global tourism, firms were more inclined to lay off workers in low-skilled, casual, seasonal and informal jobs, which are largely held by women, while keeping high-skilled or permanent positions that are more commonly held by men.[121] The same is true in the domestic workers sector, an industry in which women make up 80% of the industry, where 72% have lost their jobs by September, 2020.[122]

Although restrictions on cross-border travel have affected all businesses, women-led businesses differ in their sector of operation, business type and strategies compared to men, resulting in a different impact on women- and men-led businesses. Globally, 26% of small businesses closed, and women-led businesses were 5.9 percentage points more likely to shut down than men-owned businesses.[123] In developing economies where more than 70% of women's employment is in the informal economy, the challenges were even more pronounced

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[116] Valerio De Stefano, "The Rise of the 'Just-in-Time Workforce': On-Demand Work, Crowd Work and Labour Protection in the 'Gig-Economy,'" *SSRN Electronic Journal*, 2015, https://doi.org/10.2139/ssrn.2682602.
[117] Razniza Nazruzila, Mohd Nadzri, and Kamal Halili, "Covid-19 Outbreak: Opportunity or Risk for Gig Economy Workers," *INTI Journal* 2020, no. 57 (2020), http://intijournal.newinti.edu.my.
[118] APEC Economic Committee, AEPR 2020: Structural Reform and Women's Economic Empowerment."
[119] ILO. "COVID-19 and the world of work: impact and policy responses," March 18, 2020. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_738753.pdf
[120] World Tourism Organization (UNWTO). "UNWTO Inclusive recovery guide – Sociocultural impacts of COVID-19, Issue 3: women in tourism," March 2021. https://doi.org/10.18111/9789284422616
[121] Zarrilli, Simonetta and Aydiner-Avsar, Nursel. "COVID-19 puts women working in SIDS tourism industry at risk," UNCTAD. May 3, 2020. https://unctad.org/fr/node/2415#_ftn1
[122] UNWOMEN. "COVID-19 and its economic toll on women: the story behind the numbers," September 16, 2020. https://www.unwomen.org/en/news/stories/2020/9/feature-covid-19-economic-impacts-on-women
[123] Goldstein, Markus, et. al. "The global state of small business during COVID-19: gender inequalities," September 8, 2020. World Bank Blogs. https://blogs.worldbank.org/developmenttalk/global-state-small-business-during-covid-19-gender-inequalities

compared to advanced economies as informal business owners generally do not qualify for government support schemes.[124] Due to cross-border travel restrictions, women who heavily rely on cross-border trade found it impossible to continue working, significantly impacting their daily income.[125] Additionally, women often lack professional networks, making it difficult to find new suppliers when their limited pool of overseas partners is constrained from exporting during the pandemic. Women's lower penetration in the digital world than men makes it more challenging to transfer business activities online to seek alternative ways of operation such as e-commerce. Finally, more than 70% of women-owned small businesses have inadequate or no access to financial services,[126] which are critical to sustaining a business during an economic crisis, further exacerbating the aforementioned issues.

Cross-border travel restrictions have also imposed obstacles for women and girls to receive treatment and health services.[127] Women and girls found it difficult to access health care during COVID-19 and were limited from access to reproductive health services in some parts of the world. Such cases are more severe for lower-income women or women with disabilities who may not be able to access reproductive health services through other means.[128]

Impact on migrant workers and their families

As economies struggle to contain the transmission of the virus, many travel restrictions were imposed with primarily domestic concerns in mind. As such, one group of people that have been severely affected by travel restrictions were overseas workers and migrants. The IOM outlined three visible shifts in cross-border human mobility that underpin migration issues.[129]

Firstly, there has been a widening gap between cross-border movers and non-movers, shedding light on the disparities between the privileged and the vulnerable. For instance, economies have been quick to seek creative ways to reopen borders and reduce travel costs for business travellers, many of whom continued to move relatively freely. However, while business travellers are granted exceptions, other types of cross-border movers such as low and medium-skilled workers and refugees and asylum seekers from the same economy would rarely receive such privileges.

Special arrangements for essential travel are generally beneficial and would be key to mitigating the pandemic's impacts on the economy. These arrangements would cover certain types of people, including those that are strategically important for an economy. However, economies have varying definitions of essential workers, leading to varied travel measures for

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[124] United Nations. "Policy brief: the impact of COVID-19 on women," April 9, 2020. https://www.un.org/sexualviolenceinconflict/wp-content/uploads/2020/06/report/policy-brief-the-impact-of-covid-19-on-women/policy-brief-the-impact-of-covid-19-on-women-en-1.pdf

[125] Zarrilli, Simonetta and Linoci, Mariangela. "What is the future for women small-scale and informal cross-border traders when borders close?," UNCTAD. May 8, 2020. https://unctad.org/es/node/2407

[126] IMF. "Bridging the gender gap in access to finance," Accessed August 6, 2021. https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/bridging+the+gender+gap+in+access+to+finance

[127] Doctors Without Borders (MSF). "Women and girls face greater dangers during COVID-19 pandemic," July 2, 2020. Accessed August 6, 2021. https://www.msf.org/women-and-girls-face-greater-dangers-during-covid-19-pandemic

[128] Wenham, Clare. "The gendered impact of the COVID-19 crisis and post-crisis period," The European Parliament. September 2020. https://www.europarl.europa.eu/RegData/etudes/STUD/2020/658227/IPOL_STU(2020)658227_EN.pdf

[129] Meghan Benton et al., *COVID-19 and the State of Global Mobility in 2020* (Geneva: UN International Organization for Migration and Migration Policy Institute, 2021), https://publications.iom.int/system/files/pdf/covid-19-and-the-state-of-global.pdf.

workers like freighters, medical workers, and family members, leading to greater uncertainty. For example, domestic workers and employees in strategic industries like telecommunications and fintech are considered essential workers in certain economies, but not in others. Moreover, some borders are fully closed to refugees and asylum seekers who are most in need of assistance. According to the UN's Office for the Coordination of Humanitarian Affairs, as of March 2021 there is an estimated 235 million people in need of humanitarian assistance and protection, representing an increase of 40 percent as compared to early 2020.[130] In fact, COVID-19 and the border closures have displaced and stranded over 80 million people, leaving them vulnerable without provision of immediate support.

Second, there has been greater socioeconomic vulnerabilities as the pandemic caused huge job losses globally. The ILO estimated a labour income loss of USD 3.7 trillion (4.4% of global GDP) due to COVID-19.[131] The migrant workers are more likely to work in sectors that are negatively affected by the pandemic due to lockdown and internal measures, but they also have minimal access to social safety nets and healthcare. Moreover, abrupt changes to travel restrictions may strand migrant workers, leading them to be unable to move to their host economies and potentially lose their jobs. As the pandemic rages on, migrant workers were also among the first to be laid off, but travel restrictions could also mean they are stranded in their host economy without income or access to social protection. Moreover, while women comprised 48.1% or 135 million of the global international stock as of mid-2020,[132] migrant women worker's labour force participation is higher than that of non-migrant women.[133] However, during the pandemic, women migrant workers were more severely affected by unemployment compared to non-migrant women, experiencing double discrimination as both migrants and as women in their host economy.

These job losses consequently reduce the number of remittances. ADB (2020) estimated that the total remittances to Asia dropped between USD 31.4 billion and USD 54.3 billion, a reduction of 11.5% and 19.8%, respectively.[134] The figure is reflected by the World Bank, who estimated that the remittances to low- and middle-income economies would fall by 14% by 2021.[135] The Internal Displacement Monitoring Centre (2020)[136] estimated that in top remittance-receiving economies like Somalia, where around 40% of the population receives remittances from family and friends abroad, the fall in remittances may reach as high as 50%. Reductions in remittances are particularly harmful to the children of migrant workers. Remittances are associated with improved nutrition, higher education spending, and reductions in child labour. It is estimated that three quarters of those remittances are used to cover essentials such as food, housing, school, and health care (UNICEF, 2020).[137] Hence, sudden halts in remittance due to layoffs among migrant workers could push people into poverty and

[130] United Nations, "Global Humanitarian Overview 2021" (United Nations Office for the Coordination of Humanitarian Affairs (OCHA), December 10, 2020), https://reliefweb.int/sites/reliefweb.int/files/resources/GHO2021_EN.pdf.
[131] International Labour Organizatoin, "ILO Monitor."
[132] United Nations. "International migrant stock 2020," Accessed August 6, 2021. https://www.un.org/development/desa/pd/content/international-migrant-stock
[133] ILO. "Global estimates on international migrant workers: results and methodology," 2020. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_652001.pdf
[134] Aiko Kikkawa Takenaka, James Villafuerte, and Raymond Gaspar, *COVID-19 Impact on International Migration, Remittances, and Recipient Households in Developing Asia* (Manila, Philippines: Asian Development Bank, 2020), https://www.adb.org/publications/covid-19-impact-migration-remittances-asia.
[135] World Bank, "COVID-19: Remittance Flows to Shrink 14% by 2021," *World Bank*, October 29, 2020, https://www.worldbank.org/en/news/press-release/2020/10/29/covid-19-remittance-flows-to-shrink-14-by-2021.
[136] Global Report on Internal Displacement 2020 (IDMC, 2020)
[137] UNICEF, "Migrant and Displaced Children in the Age of COVID-19," May 5, 2020, https://data.unicef.org/resources/migrant-and-displaced-children-in-the-age-of-covid-19/.

negatively impact livelihoods, potentially leading to more social problems such as children dropping out of school, children going into child labour, child marriage, and human trafficking.

Thirdly, COVID-19 restrictions at the border can amplify relationships of dependence and exploitation. For instance, many migrant women working as domestic workers (estimated at 8.5 million worldwide in 2013) are reportedly at higher risk of violence and abuse while trapped in host economies, and often have no legal recourse against abuse or exploitation.[138] In some cases, migrant workers reside in dedicated dormitories, temporary detention centres, makeshift camps, or communal living conditions.[139] The living conditions in these facilities are often cramped and require sharing of facilities, making them prime areas for the spread of COVID-19 as was seen in several APEC economies in 2020. With restricted access to health care, this situation will only exacerbate the migrants' situations and does not help in curbing the transmission of the virus in the community (ILO, 2020).[140]

Due to travel restrictions, many migrants are increasingly reliant on intermediaries and facilitators, partly due to the lack of repatriation options and uncertainty due to ever-changing regulations. Rapid changes and constraints in available flights, as well as mandatory quarantine and testing costs could drive up the cost of repatriation, making it financially unfeasible for some migrants. A survey in July 2020 by IOM found that 37% of surveyed migrants and refugees in Africa, Asia and Latin America expressed higher demand for human traffickers' services given the increasing difficulties to cross the borders due to COVID-19 restrictions.[141] On one hand, travel restrictions increased the demand for smuggling services among people desperate to run away from violence, natural disasters, and economic deprivation, on top of the intention to return home. Some migrants unable to finance mandatory quarantine and testing measures may also resort to traffickers to bypass these costs. On the other hand, border closures have pushed smugglers to resort to more dangerous routes and thus, raise their prices, aggravating the plight of people wishing to repatriate or migrate.

Impact on cross-border commuters

Another group of people affected by border restrictions are cross-border commuters. Some isolated communities that require transit through another economy to source basic essential needs may be completely isolated by blanket travel restrictions and border closures. Employees, students, and family members who need to commute across borders for work or study may suddenly be unable to do so, thus risking the loss of their livelihoods and opportunities. Because of travel restrictions, some cross-border commuters have become long-term migrants in another economy, paying additional costs in rent and other expenditures, in order to keep their employment or continue their schooling.[142]

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[138] UN International Organization for Migration and UN World Food Programme, "Populations at Risk: Implications of COVID-19 for Hunger, Migration, and Displacement."
[139] Sophie Cousins, "Migrant Workers Can't Afford a Lockdown," *Foreign Policy* (blog), April 8, 2020, https://foreignpolicy.com/2020/04/08/qatar-south-asian-migrant-workers-cant-afford-coronavirus-lockdown-world-cup-2022/.
[140] International Labour Organization, "Protecting Migrant Workers during the COVID-19 Pandemic," April 30, 2020, http://www.ilo.org/global/topics/labour-migration/publications/WCMS_743268/lang--en/index.htm.
[141] UN International Organization for Migration and UN World Food Programme, "Populations at Risk: Implications of COVID-19 for Hunger, Migration, and Displacement."
[142] Vincent Tan and Amir Yusof, "Away from Their Families, Malaysians in Singapore Brace Themselves for a Quiet Chinese New Year," *Channel News Asia*, January 23, 2021, https://www.channelnewsasia.com/news/asia/malaysia-singapore-covid-19-chinese-new-year-reunion-lonely-14003790.

ESTIMATING THE IMPACTS ON APEC TRADE AND GDP

Combining the elasticity estimates from the econometric regressions discussed earlier with the estimated drop in cross-border arrivals in 2020 can provide a rough estimate of the direct economic impact of border restrictions on trade and the economy. If we assume that the 74.7% drop in cross-border air arrivals is representative of the overall drop in non-resident arrivals in 2020, then we can apply the elasticity estimates in Table 3.1 and Table 3.2 to estimate the resulting percentage contractions in bilateral trade and GDP due to these losses. Table 3.3 shows the estimates based on this assumption.

Table 3.3: Estimate of Direct Economic Losses Due to Drop in Non-resident Arrivals

	Elasticity to non-resident arrivals	Percent loss	USD billions loss
Bilateral trade (high estimate)	0.055	4.1	785.8
Bilateral trade (low estimate)	0.034	2.6	488.3
GDP (high estimate)	0.146	10.9	5,780.3
GDP (low estimate)	0.031	2.3	1,231.3

Note: The "high estimate" for bilateral trade and GDP impacts refers to the elasticity estimate using fixed effect panel OLS, while the "low estimate" uses the elasticity from Arellano-Bond GMM (i.e., controls for reverse causality). Estimated USD losses are calculated based on 2019 base figures.
Source: PSU staff calculations.

As can be seen in Table 3.3, direct bilateral trade losses for the APEC from the drop in non-resident arrivals range from 2.6% to 4.1%, representing about USD 488 billion to USD 786 billion in lost trade. On the other hand, the estimates for GDP losses are more varied, ranging from 2.3% to 10.9% of total output. Note that in both cases, the "high estimate" does not control for reverse causality and may be amplifying the estimated elasticity. Moreover, given the large discrepancy between the high and low estimate for GDP, we would be cautious about using the higher end of the estimates range.

These estimated economic losses show both the reduction in trade and economic output as well as the unrealised economic activity that could be associated with the drop in cross-border movement. A caveat of this analysis is that it does not account for activity in the domestic economy, such as the uptick in government expenditure or some areas of consumer demand in 2020. As such, the total observed trade or GDP contraction in 2020 may be different from the estimates in Table 3.3 because observed aggregate trade and output figures will not account for unrealised economic activity and will already be net of the various losses and gains experienced in 2020.

4. ONGOING INITIATIVES ON CROSS-BORDER MOBILITY

In the early months of the pandemic, APEC economies primarily worked individually to manage the risk of COVID-19. Because of their different circumstances, APEC economies had varying risk tolerance towards international travel. Several economies and areas have completely shuttered their borders, working towards protective sequestration to prevent the virus entering their jurisdiction. These economies only allowed entry for returning residents, exceptional cases, and other essential purposes. Some economies have even restricted the outbound travel of their citizens for non-essential purposes. On the other hand, other economies have kept their borders open and only published advisories and introduced additional requirements for travellers going to or coming from high-risk areas.

APEC economies have established mechanisms to allow cross-border mobility while minimising the risk of importing the SARS-CoV-2 virus and its variants. These mechanisms include limitations on allowable travel, mandatory quarantine, COVID-19 tests, and transit requirements, among others. Nevertheless, many mechanisms primarily focused on addressing domestic concerns, and were implemented with little to no coordination with other APEC members. This lack of coordination led to a highly varied travel landscape across the region: among the economies that have implemented travel restrictions, there is a wide range of disparity on the types of allowable travel and other "essential travel"; the length of quarantine; the type and validity of COVID-19 tests; and other requirements such as travel insurance. Some economies have also shortlisted designated ports of entry, severely restricting the mobility options of travellers who may already be hampered by local travel restrictions. Moreover, because the global COVID-19 situation is extremely volatile, many of these travel requirements are also subject to constant change. All of these factors contribute to greater uncertainty, costs, and risks for people who need to travel.

Recognising the need to facilitate the travel of essential people and others traveling for exceptional circumstances, APEC economies have liaised with other APEC members to harmonise their travel frameworks, principles, and requirements. Because each APEC economy varies in terms of their local COVID-19 situation and their risk calculus, many APEC economies adopted a tiered approach to managing and allowing international arrivals.

BILATERAL TRAVEL ARRANGEMENTS

Bilateral travel agreements such as travel bubbles and green lanes have been negotiated by economies to facilitate certain types of travel. These travel agreements usually involve economies with strict travel restrictions. They vary in scope and are dependent on the success of participating economies in containing COVID-19. Among APEC members, there are two main types of bilateral travel agreements: fast lanes and travel bubbles.

Fast lanes have been explored by APEC economies like Brunei Darussalam; China; Indonesia; Japan; Korea; Malaysia; Singapore; and Viet Nam as a way to facilitate essential short-term travel with selected partner economies. These fast lanes are restricted for essential business and official travel purposes, and are not available for the general public. Because these fast lanes were intended to expedite and lessen the cost of short-term business travel, the defining feature

of fast lanes are quarantine waivers. However, these quarantine waivers increase the risks in importing COVID-19. As a result, many of the existing travel fast lanes have been suspended until further notice due to the worsening situation in participating economies.

To make quarantine-free travel fast lanes more viable, Singapore has explored various ways of "bubble wrapping" short-term visitors. Short-term travellers can visit Singapore without needing to quarantine, provided that they follow a strict itinerary and are housed in restricted facilities segregated from the local population.[143] Another of Singapore's initiatives to "bubble wrap" short-term visitors is Connect@Changi, the world's first safe Business Travel eXchange.[144] Launched in December 2020, Connect@Changi is a pilot purpose-built facility providing short-term accommodations for international travellers to meet with Singaporean partners in a safe environment. Connect@Changi features meeting rooms separated by glass panels, allowing Singapore residents to interact in-person with foreign visitors without the risk of cross-contamination to the local population.

An expanded version of fast lanes are travel bubbles. Unlike fast lanes which are restricted for essential travel, travel bubbles allow people in participating jurisdictions to travel freely for a wide range of purposes such as tourism, family reunification, migration, and education, among others. Travel bubbles facilitate travel between with similar COVID-19 risk profiles. Hong Kong, China and Singapore reached agreement on the framework of an air travel bubble in November 2020, but its launch was deferred due to the respective fluctuations in the epidemic situation preceding the scheduled launch back in November 2020 and May 2021. As of April 2021, there was only one active bilateral travel bubble involving two APEC economies: Australia–New Zealand.[145]

These travel bubbles have some similar characteristics: they can only be availed of by people who have spent 14 continuous days in participating jurisdictions. Moreover, participants in these bubbles are exempted from normal quarantine requirements, but are required to arrive by air. However, these travel bubbles vary in terms of technical requirements and conditions. The Australia–New Zealand travel bubble does not require COVID-19 tests.[146] Meanwhile, the planned Hong Kong, China–Singapore air travel bubble only applies to designated flights and requires participants to have negative PCR tests taken both at least 72 hours before departure from either side and after arrival at the either side and after arrival at the either side. Furthermore, residents of Hong Kong, China travelling to Singapore under the travel bubble have to be fully vaccinated under the arrangements for attempting to launch the air travel bubble in May 2021.[147]

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[143] Zhaki Abdullah, "Hong Kong-Singapore Air Travel Bubble Can Be Launched 'When Conditions Are Right': Ong Ye Kung," *Channel News Asia*, March 5, 2021, https://www.channelnewsasia.com/news/singapore/hong-kong-singapore-air-travel-bubble-right-conditions-covid-19-14339774.
[144] Connect@Changi, "Safe Business Travel in Singapore," accessed May 11, 2021, https://connectatchangi.sg/.
[145] Smartraveller - Australia, "New Zealand Travel Advice & Safety," May 8, 2021, https://www.smartraveller.gov.au/destinations/pacific/new-zealand.
[146] Government of New Zealand, "What to Do before You Travel — Australia to NZ," accessed May 11, 2021, https://covid19.govt.nz/travel-and-the-border/quarantine-free-travel/quarantine-free-travel-with-australia/travel-from-australia-to-new-zealand-quarantine-free-travel/what-to-do-before-you-travel-australia-to-nz/; Australian Government - Department of Home Affairs, "New Zealand Safe Travel Zone," accessed May 11, 2021, https://covid19.homeaffairs.gov.au/new-zealand-safe-travel-zone#toc-2.
[147] The Government of the Hong Kong Special Administrative Region, "Designated Flights under HK-Singapore Air Travel Bubble to Begin on May 26."

In addition to travel bubbles, some economies are exploring special types of travel arrangements to cover other forms of travel. For example, Malaysia and Singapore have agreed on a Periodic Commuting Arrangement.[148] Although Singapore and Malaysia have strict travel restrictions, they allow their workers to periodically commute across borders, provided that such workers remain in their destination for at least 90 days before returning and complete arrival requirements such as quarantine and COVID-19 tests. This agreement is only applicable for travel across the two land borders between Malaysia and Singapore. Besides the commuting agreement, Malaysia and Singapore are launching a petition system to enable cross-border travel on compassionate grounds, such as death or critical illness of a family member.[149]

The bilateral travel arrangements within APEC economies are a step in the right direction to facilitate cross-border travel. Nevertheless, these arrangements face significant challenges. First, bilateral travel arrangements are subject to constant change due to the evolving situation of COVID-19 worldwide. Travel bubbles—as the name implies—are fragile, and can easily burst due to changing circumstances. Second, APEC economies face challenges in expanding their travel bubbles to economies with similar risk levels. Part of the challenge in expanding travel bubbles lies with issues of harmonising travel requirements, which gets harder the more economies are involved. Third, these travel agreements need to consider how to enable the essential travel of people coming from higher-risk areas. As much as economies want to keep the virus out of their borders, expanding the bubbles mean increasing the risk of introducing the virus into the bubble, especially as participating economies are likely to have other ongoing travel arrangements. Hence, participants in travel bubbles also need to convince and prove to their partners that they are able to minimise and contain potential pandemic risks. Finally, expanding such bubbles need to consider the local situation and limitations faced by potential partners.

WORKING TOWARDS INTRA-APEC TRAVEL FRAMEWORKS

Harmonisation is a key step to expanding existing COVID-19 travel agreements. However, because of the varying COVID-19 situations and differing priorities of APEC economies, little attention has been paid towards harmonising COVID-19 travel requirements. In early 2021, APEC economies have begun preliminary work in discussing potential travel frameworks and agreements to facilitate cross-border travel.

On 3 May 2021, the APEC Business Advisory Council (ABAC) of Hong Kong, China and Singapore jointly hosted the "Public-Private Dialogue on Reopening of Borders for Safe and Seamless Travel." This dialogue provided a space for economies to learn more about the primary considerations of their partners in reopening of their borders, as well as to hear the views of the business community. Officials from Hong Kong, China and Singapore outlined their plans for the travel bubble, and explained the rationale and justifications for some of their requirements. Meanwhile, representatives of the business community such as the World Travel and Tourism Council highlighted the main points that businesses and communities face about travel restrictions, such as unclear criteria for re-imposing restrictions and lack of standardisation. One crucial point raised was that vaccines should not be required as a pre-condition for travel, but rather be used as a measure that could facilitate travel. Meanwhile,

[148] "Periodic Commuting Arrangement - Overview," accessed May 11, 2021, https://safetravel.ica.gov.sg/pca/overview.
[149] Hariz Baharudin, "S'pore and Malaysia Start Accepting Applications for Cross-Border Travel on Compassionate Grounds," *The Straits Times*, May 10, 2021, https://www.straitstimes.com/singapore/spore-and-malaysia-start-accepting-applications-for-cross-border-travel-on-compassionate.

representatives from the aviation industry emphasised that ever-changing regulations add further costs and uncertainty to the already battered aviation industry, and hence called for economies to establish harmonised standards and clear protocols, such as transparent criteria wherein travel restrictions might be reinstated.

On 7 May 2021, APEC hosted the "APEC Cross-border Travel: Virtual Roundtable on Safe Passage." Under the Roundtable, APEC economies and representatives from the World Health Organization and the aviation industry discussed several points to consider in developing protocols for cross-border travel. The WHO emphasised that the efficacy of vaccines in curtailing the spread of COVID-19 is still under study, and have advised economies to ask fully vaccinated individuals to adhere to basic safety protocols. This may have implications on the use of vaccines to remove quarantine requirements as vaccinated individuals may still contribute to undetected transmission of COVID-19. The International Air Transport Association and International Civil Aviation Organization noted that while bilateral travel agreements can be the first step in aiding the recovery of cross-border travel, there is a lack of standardisation and harmonisation among economies participating in travel bubbles. As such, travel bubbles could have onerous and have costly requirements that defeat the point of the bubble. These requirements hence must be reviewed to ensure that such travel arrangements are not discriminatory towards the economic capability of travellers. Participating economies and fora have also raised various considerations in facilitating cross-border travel. The TPTWG Chair raised the issue of stranded air crews and seafarers due to conflicting and disharmonised COVID-19 requirements and restrictions at the border (see Box 1 for a discussion related to seafarers). Some suggestions include expanding the membership and adding health information to the digital APEC Travel Business Card (ABTC); adopting digital documents to minimise physical contact at the border; leveraging on vaccine certificates as a supplement to facilitate cross-border travel; and developing harmonised standards, principles, and requirements to manage essential travellers.

MULTILATERAL INITIATIVES ON REOPENING BORDERS

Various international organisations have initiated multilateral discussions on risk mitigation strategies for border reopening and resuming travel. According to the most recent Travel Restrictions Report from the UNWTO, 70% of destinations had eased COVID-19 related travel restrictions as of November 2020, which is a significant change compared to May 2020, when 75% of global destinations were closed entirely.[150]

In July 2021, the WHO published recommendations with a risk-based approach to safe travel and reopening post-COVID-19.[151] A risk-based approach to reopening considers the risk posed by travel for the importation and exportation of the virus and relies on the premise that no strategy can yield "zero-risk" in the context of the pandemic. In line with WHO's previous guidance, member economies are recommended to lift travel restrictions, such as testing and/or quarantine requirements, for a traveller who has been fully vaccinated at least two weeks before travelling or has had COVID-19 infection within 6 months before travelling and are no longer infections. Furthermore, the WHO urges responsible and equitable opening of borders. It

[150] World Tourism Organization (UNWTO). "COVID-19 related travel restrictions | A global review for tourism," December 2, 2020. https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2020-12/201202-Travel-Restrictions.pdf
[151] World Health Organization (WHO). "Policy considerations for implementing a risk-based approach to international travel in the context of COVID-19," July 2, 2021. https://www.who.int/publications/i/item/WHO-2019-nCoV-Policy-Brief-Risk-based-international-travel-2021.1

advises economies against requiring proof of COVID-19 vaccination as a mandatory condition for entry to or exit from one destination to the other, given the limited evidence on the efficacy of vaccines in reducing transmission and inequities in vaccine supply.[152] Other alternatives, such as negative rRT-PCR tests, should be provided as options for unvaccinated or without proof of past infection.

Contact tracing mechanisms are also strongly recommended by the IATA, ICAO, and the WHO as part of risk mitigation measures for COVID-19 in congruence with systematic testing and vaccination to resume safe travel. Based on lessons learned over the course of the pandemic, a temporary process of collecting contact details for tracing purposes and travel history is valuable. To safely resume international travel, a robust contact tracing capacity based on the guidelines developed by ICAO and WHO are advised. The IATA suggests the use of mobile phone applications as the most efficient and cost-effective contact tracing solution.[153] However, ethical consideration on the use of such apps also need to be considered as pointed out by the WHO.[154]

Reducing uncertainty at borders

Transparent communication and COVID-19 insurance. Despite economies' attempts to facilitate travel, there are impediments to travel due to travellers' uncertainties about the travel destination. Publicly sharing easily accessible up-to-date data on COVID-19 incidence, public health situation, and health services capacity allows authorities to make informed decisions for travels.[155] The IATA and WTTC recommend ensuring travellers' confidence through a transparent approach to communication and providing easily accessible travel information.[156] For example, the EU launched an easily accessible and navigable platform that includes all members' travel-related information on reopen.europa.eu. This one-stop platform, which is also available on mobile, provides transparent and up-to-date information on what travellers need to prepare to comply with travel restrictions and links to relevant websites. Additionally, the UNWTO/IATA destination status tracker[157] provides member economies' health indicators, air travel restrictions, expectations and restrictions at the destination as a tool to share timely information on any evolvements regarding COVID.

IATA also recommends the availability of affordable travel insurance with COVID-19 coverage as a temporary entry requirement to restore confidence in international travel.[158] Cost-

[152] World Health Organization (WHO). "Technical considerations for implementing a risk-based approach to international travel in the context of COVID-19: Interim guidance," July 2, 2021. https://www.who.int/publications/i/item/WHO-2019-nCoV-Risk-based-international-travel-2021.1
[153] IATA. "Contact tracing and air travel: Position paper," May 5, 2021. https://www.iata.org/contentassets/28ad0c2b1e4e454b88462e612917116a/position-paper-contact-tracing.pdf
[154] WHO. "Ethical considerations to guide the use of digital proximity tracking technologies for COVID-19 contact tracing," 28 May 2020. https://www.who.int/publications/i/item/WHO-2019-nCoV-Ethics_Contact_tracing_apps-2020.1
[155] IATA. "Restoring aviation during COVID-19: medical evidence for possible strategies," August 6, 2020. https://www.iata.org/globalassets/iata/programs/covid/covid-medical-evidence-for-strategies.pdf
[156] World Travel & Tourism Council. "Leading global protocols for the new normal," May 2020. https://wttc.org/Portals/0/Documents/Reports/2020/Global%20Protocols%20for%20the%20New%20Normal%20-%20Aviation.pdf?ver=2021-02-25-183107-267
[157] UNWTO. "The UNWTO/IATA Destination Tracker," Accessed July 16, 2021. https://www.unwto.org/unwto-iata-destination-tracker
[158] IATA. "Restoring confidence: Travel insurance," November 2020. https://www.iata.org/contentassets/5c8786230ff34e2da406c72a52030e95/travel-insurance-position.pdf

effective travel insurance does not only improve travellers' confidence but can work to protect local health care systems while supporting travel recovery.

Standardising and digitalising health credentials. A common obstacle for mutual recognition of test results and vaccination certificates is the lack of a standardised approach to health credentials. The public and private sectors have launched various health credential applications for aviation travel to address this challenge. One of them is IATA's Travel Pass application, a digital health pass that has been adopted by over 45 airlines.[159] The application can support governments in mitigating COVID-19 risks from incoming travellers through standardised health credentials and providing information to passengers with destination travel requirements. Many of these applications utilise a decentralised technology using blockchain without a central database holding passenger information, providing a level of assurance to data privacy issues.

However, a major pitfall is that the number digital health apps is proliferating, and there is a prospect of downloading multiple apps for each destination travellers enter. Therefore, regional cooperation and standardisation of the process are essential to decrease uncertainties. As an example of multilateral cooperation on utilising technology to ease travel, in July 2021, the EU has adopted the EU Digital COVID certificate (EUDCC), allowing EUDCC holders to cross borders without further restrictions. The certificate contains information, including proof of vaccination, COVID-19 recovery, and negative results to COVID-19. What is worth noting is that the certificate is not a pre-condition to free movement in accordance with the WHO's guidelines but are only a means to facilitate movement. Harmonised efforts to safely reopening the borders are seen as a means to reduce confusion for travellers and build confidence, but not as a pre-condition or potential barrier to movement.

The uptake of digital health passes may be a challenge in the near future and should be discussed at the policy level. When contact tracing apps were developed and introduced in 2020, they were left with many controversies in some parts of the world, resulting in low uptake. There are concerns about data security, privacy and validation of tools that deal with personal medical data. The WHO and other international organisations are well aware of such public concerns, and they have published guidelines for app developers to adhere to the standards. Furthermore, each economies' existing data privacy regulations should be revisited and reinforced or strengthened to provide public assurance. Secondly, inequity in vaccine rollouts should be the priority concern for policymakers. Although vaccines are not being used as a pre-condition for travel, more and more economies make travel easier for people with vaccinations. Considering that there are still constraints to equitable access to vaccines, policies on border reopening should not leave out people without access to vaccines or are unable to be vaccinated for valid reasons.

Facilitating entry for cross-border workers

More than 80% of global trade is through maritime transport, and crew changeovers and repatriation of seafarers are essential for the continuity of safe and sustainable shipping.[160] The

[159] IATA. "IATA Travel pass initiative," Accessed July 16, 2021. https://www.iata.org/en/programs/passenger/travel-pass/
[160] IOM and UNCTAD. "Joint statement in support of keeping ships moving, ports open and cross-border trade flowing during the COVID-19 pandemic," June 8, 2020. https://unctad.org/system/files/official-document/osg_2020-06-08_stat01_en.pdf

same is the case with the aviation industry, where passenger air transport carried about 5.7 billion passengers in 2019, and airfreight represented 35% of the value of goods shipped in all modes combined.[161] Travel restrictions directly impacted aircrew and seafarers during the pandemic, hindering connectivity and incurring a high cost.

As of May 2021, only 58 of 174 IMO member economies have designated seafarers and marine personnel as key workers, despite the ICAO, ILO, IMO, IOM and WHO's joint statement in March 2021 to designate seafarers and aircrew as key workers.[162] There are still 200,000 crews waiting to be relieved or to join their ships.[163] It is important to ensure seafarers' access to vaccines, standardise health regulations across ports, and re-establish air connectivity between maritime hubs to facilitate crew movement and rotation (Box 1). Likewise, airline crews should not be subject to the same restrictions for the general travelling public according to the ICAO's Council Aviation Recovery Taskforce (CART) guidance. The IATA also calls on governments to prioritise aviation workers for access to vaccination.[164] While vaccination should be voluntary, any essential worker who has been vaccinated should be exempt from other measures, including testing and quarantine.

Moreover, border closures and travel restrictions had significant negative repercussions on cross-border road transport drivers, and delays at the borders caused losses in seasonal products and cash flow for small businesses. While truck drivers have played a critical role in keeping global freight chains moving during the pandemic, global support for the industry is lacking.[165] The International Road Transport Union (IRU) and the International Transport Workers' Federation (IFT) jointly urged global economies to designate road transport as a key service, introduce a digital vaccination certificate for commercial truck and coach drivers, and prioritise drivers in vaccination programs.[166] The action items also include utilising digital tools to allow information exchange at the borders without physical contact and facilitate the flow of goods. To facilitate cross-border road transportation, coordination at the global and cross-border levels remains a pre-condition to its implementation.[167]

Facilitating entry for migrants and cross-border workers is essential for minimising economic disruptions. The IOM proposes member economies adopt innovative and effective policies that are flexible and responsive solutions for supporting migrants and cross-border workers' travel. Along with providing migrant-sensitive health messaging and requiring pre-departure health assessments, improving secure visa application processes, including remote visa processing solutions, are recommended to help economies respond to capacity gaps and expedite the visa

[161] WHO. "Joint statement on prioritization of COVID-19 vaccination for seafarers and aircrew," March 25, 2021. https://www.who.int/news/item/25-03-2021-joint-statement-on-prioritization-of-covid-19-vaccination-for-seafarers-and-aircrew
[162] WHO. "Joint statement on prioritization of COVID-19 vaccination for seafarers and aircrew," March 25, 2021. https://www.who.int/news/item/25-03-2021-joint-statement-on-prioritization-of-covid-19-vaccination-for-seafarers-and-aircrew
[163] IMO. "IMO's Kitack Lim urges fair vaccine distribution for seafarers," May 11, 2021. https://www.imo.org/en/MediaCentre/PressBriefings/pages/SG-Vaccination-Statement-May21.aspx
[164] IATA. "Vaccination of aviation workers," December 2020. https://www.iata.org/contentassets/5c8786230ff34e2da406c72a52030e95/vaccination-aviation-workers-position-paper.pdf
[165] ILO. "COVID-19 and road transport," June 2020. https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/briefingnote/wcms_746914.pdf
[166] IRU. "Coronavirus (COVID-19) information hub," Accessed July 17, 2021. https://www.iru.org/covid19
[167] IRU. "IRU COVID-19 call for action to governments," November 12, 2020. https://www.iru.org/system/files/IRU%20COVID-19%20call%20for%20action%20to%20governments.pdf

process compliant with health regulations.[168] In addition, implementing a Single Window concept—i.e., using a single data platform storing data accessible for relevant agencies such as police, immigration, and health authorities—is recommended. IOM's Migration Information and Data Analysis System (MIDAS) is an example of a system that could be utilised for Single Window purposes. These existing tools can help accelerate lengthy clearance procedures for travellers and traders, facilitating cross-border mobility. Overall, international cooperation and mature partnership are emphasised to implement systematic integration of health and cross-border mobility approaches.[169]

Box 1. Cross-border Confusion and Stranded Seafarers

Seafarers are workers who provide vital services for a ship's operation and maintenance as well as provisioning of those on board. International merchant ships are an indispensable component of the modern economy, carrying around 90% of global trade.[170] In this regard, seafarers are essential workers: without them, merchant ships would not be able to operate, and international trade would be paralysed.

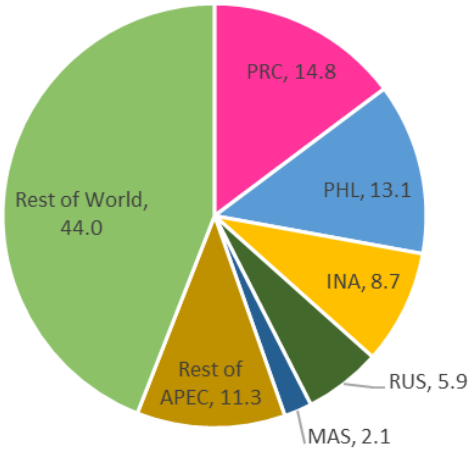
Given the importance of seafarers, international labour standards have been introduced to protect their wellbeing. Under the International Labour Organisation's 2006 Maritime Labour Convention, the maximum continuous period a seafarer can serve on board a ship without leave is 11 months. However, the COVID-19 pandemic has left many seafarers stranded on ships for longer than the stipulated time limit. According to the International Maritime Organization (IMO), crew changes which were previously commonplace have become a complicated and lengthy procedure because of additional COVID-19 safety requirements. [171]

Most economies have enacted strict health protocols at their borders and ports, preventing seafarers from going ashore or even returning home. Due to varying COVID-19 situations abroad, authorities in host port perceive seafarers as a potential COVID-19 risk, limiting the possibility of crew changes. Moreover, international air travel has been severely disrupted by the pandemic, causing poor air connectivity between key maritime hubs. Many economies have also not recognised seafarers as essential workers, putting them under the strictest COVID-19 restrictions and preventing them from having immediate access to COVID-19 vaccines.

The issue of seafarers is an APEC issue. According to latest data from UNCTAD, about 56% of all seafarers in the world are from APEC economies.[172] The five APEC economies that contribute the most number of seafarers—China; Indonesia; Malaysia; the Philippines; and Russia—account for 45% of the world's seafarers (Figure B1.1).

[168] IOM. "Cross-border human mobility amid and after COVID-19," June 17, 2020. https://www.iom.int/sites/default/files/defaul/pp_cross-border_human_mobility_amid_and_after_covid-19_policy.pdf
[169] IOM. "Labour mobility and skills in response, recovery and post COVID-19 pandemic," January 27, 2021. https://www.iom.int/sites/default/files/documents/policy_brief_labour_mobility_and_skills_in_covid_time_final_final_0.pdf
[170] International Chamber of Shipping, "Shipping and World Trade: Global Supply and Demand for Seafarers," accessed May 19, 2021, https://www.ics-shipping.org/shipping-fact/shipping-and-world-trade-global-supply-and-demand-for-seafarers/.
[171] International Maritime Organization, "COVID-19 Crew Change Crisis Still a Challenge - IMO Secretary-General," accessed May 19, 2021, https://imo.org/en/MediaCentre/PressBriefings/pages/Crew-change-COVID-19.aspx.
[172] United Nations Conference on Trade and Development (UNCTAD), "UNCTADstat - About," accessed May 19, 2021, https://unctadstat.unctad.org/EN/About.html.

Figure B1.1. Seafarers by origin (in percent), 2015



Source: UNCTAD data and PSU staff calculations.

It is important to recognise seafarers as key essential workers and provide them with priority access to COVID-19 vaccines. Seafarers play a critical role in global supply chains and trade. Reducing the health risks for seafarers will mitigate the risk of supply chain disruptions.

There is also a need to establish and implement standardised health protocols covering all ports based on existing best practice. APEC economies can implement 'The Recommended Framework of Protocols for ensuring safe ship crew changes and travel during the Coronavirus (COVID-19) pandemic,'[173] which has been recognised and tabled by the IMO. This minimises the risk of COVID-19 transmission, and in the long run will build trust that crew changes can be carried out in a safe manner.

Third, economies need to re-establish air connectivity between key maritime hubs. APEC economies need to collaborate with stakeholders in the aviation and maritime industries to ensure that airlift capacity is established between major crew changing hubs that are open and economies where seafarers are from. Economies should work together with industries to establish a harmonised framework of standards for health data to facilitate border crossing for seafarers. Moreover, this reduces cross-border uncertainty and strengthens air connectivity not only for seafarers but also for other travellers.

[173] International Maritime Organization, "Industry Recommended Framework of Protocols of Ensuring Safe Ship Crew Changes and Travel During the Coronavirus (COVID-19) Pandemic," April 22, 2021, https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/MSC%201636%20protocols/MSC.1-Circ.1636%20-%20Industry%20Recommended%20Framework%20Of%20Protocols%20For%20Ensuring%20Safe%20Ship%20Crew%20Changes%20And%20Travel.pdf.

5. CONCLUSION AND RECOMMENDATIONS

The preceding analysis allows us to draw several conclusions:

1. Cross-border movement of people is essential for trade and economic activity. There are strong and synergistic linkages between cross-border movement and bilateral trade and economic growth.

2. The effectiveness of border restrictions in preventing imported cases from seeding waves of the pandemic is not established. The effectiveness of border policies hinges on timing—i.e., before the virus has reached domestic populations—and the effectiveness of behind-the-border pandemic response.

3. The border restrictions had immediate and substantial impacts on cross-border movements and economic activity, as well as society and vulnerable groups. Estimates on the direct trade and economic impacts of border restrictions run into the hundred billions to trillions of dollars for the APEC region.

4. There was no policy coordination on testing and quarantine requirements, criteria and protocols for closure, or criteria and protocols for reopening of borders among APEC economies in the early stages of the pandemic. Stop-start attempts at bilateral travel bubbles and varying green lane policies have added to the confusion at the borders.

Some implications on policy and regional cooperation are outlined below.

COVID-19 AND SAFE REOPENING OF BORDERS

Contain COVID-19 everywhere

The COVID-19 pandemic is a threat everywhere so long as it rages anywhere. The SARS-CoV-2 virus has shown itself to be highly capable of mutation, and the likelihood of a beneficial (that is, for the virus) mutation becoming the dominant variant increases with the number of infections and virus reproductions.[174] Hence, even if an economy is successful in containing one variant of the virus, these mutations mean that that economy could still be susceptible to other new variants.[175] This means border authorities will have to revise and recalculate risk profiles each time a new wave or mutation is reported abroad. Indeed, in the past year this has led to seemingly safe travel bubbles getting postponed by new infection waves or new virus mutations.

[174] Takahiko Koyama, Daniel Platt, and Laxmi Parida, "Variant Analysis of SARS-CoV-2 Genomes," WHO (World Health Organization, June 2, 2020), https://doi.org/10.2471/BLT.20.253591.
[175] Eric J. Haas et al., "Impact and Effectiveness of MRNA BNT162b2 Vaccine against SARS-CoV-2 Infections and COVID-19 Cases, Hospitalisations, and Deaths Following a Nationwide Vaccination Campaign in Israel: An Observational Study Using National Surveillance Data," *The Lancet* 397, no. 10287 (May 15, 2021): 1819–29, https://doi.org/10.1016/S0140-6736(21)00947-8.

While COVID-19 vaccines have been scientifically proven to protect a person from the most severe symptoms of the disease, as of this writing there is still no clear evidence that the vaccine prevents shedding or transmission of the SARS-CoV-2 virus.[176] Indeed, studies in economies with high vaccination rates like Israel show that they are effective in managing the pandemic domestically and preventing healthcare systems from being overwhelmed,[177] even if viral load and transmission continues albeit at lower levels.[178] This could imply that opening borders to fully vaccinated travellers still carries the risk of imported cases infecting the local population, many of whom can develop serious illnesses if they are not yet vaccinated. On the other hand, a local population that has achieved herd immunity through vaccination — i.e., 70% to 90% vaccination rate in the population for a vaccine with 95% proven effectiveness[179] — could be consider reopening borders as the population is protected from severe COVID-19 symptoms and run lower risk of overwhelming public health systems (at least from the variant they are vaccinated against).

What these characteristics of the virus say is there is really no substitute or shortcut to quickly putting an end to the pandemic for all people and all economies. This is the only way to reopen borders safely in a way that avoids the costly uncertainty of stop-start "safe" reopening, not to mention reigniting economic activity. This requires timely and equitable access to COVID-19 vaccines, therapeutics, and tests for all people in all economies until the pandemic is controlled everywhere. Policy cooperation in areas of trade in medical products, ramping up production of vaccines and therapeutics, and ensuring equitable access to them will be crucial in this regard.

Reduce confusion at the borders

Even as APEC economies and policymakers focus on the main task of controlling the COVID-19 everywhere, there is a lot that can be done to reduce at-the-border confusion across the region. Based on the survey responses, there are no common definitions for essential travel or essential worker, no agreement on adequate testing and quarantine requirements, no regional protocols on recognising tests, and no transparent criteria for closing or reopening borders. All these contribute to travel confusion and uncertainty resulting in diminished demand for travel, not to mention confusion and stranding among the workers who enable trade such as air crew and seafarers. Indeed, there is a clear need for standards, harmonisation, and transparency with respect to COVID-19 border policies.

Various international organisations specialising in health, transportation, travel, and tourism—such as IATA, ICAO, IMO, UNWTO, WHO and WTTC—have published various recommendations, reports, and guidelines on coordinating at-the-border policies and safely (and ethically) enabling cross-border travel. There have also been a plethora of digital health

[176] Teck Chuan Voo et al., "Immunity Certification for COVID-19: Ethical Considerations," *Bulletin of the World Health Organization* 99, no. 2 (February 1, 2021): 155–61, https://doi.org/10.2471/BLT.20.280701.
[177] Haas, E. et al. "Impact and effectiveness of mRNA BNT162b2 vaccine against SARS-CoV-2 infections and COVID-19 cases, hospitalisations, and deaths following a nationwide vaccination campaign in Israel: an observational study using national surveillance data," *The Lancet* 397 issue 10287 (15 May 2021): 1819-1829.
[178] Levine-Tiefenbrun, M. et al., "Initial report of decreased SARS-CoV-2 viral load after inoculation with the BNT162b2 vaccine," *Nature Medicine* volume 27 (2021): 790–792.
[179] Kamran Kadkhoda, "Herd Immunity to COVID-19: Alluring and Elusive," *American Journal of Clinical Pathology* 155, no. 4 (April 1, 2021): 471–72, https://doi.org/10.1093/ajcp/aqaa272.

passes that aim to facilitate sharing of health information across borders: as of April 2021, the UNWTO has found 16 such digital health passes that are worth noting.[180]

The good news is that the solutions to reducing confusion at the borders are technical in nature, based on the latest scientific evidence, and provide guidance in managing risks. Based on the published proposals, there is policy space and opportunity to reduce time, cost, and uncertainty of travel while managing the risks of imported COVID-19 cases. This at-the-border policy coordination should be considered as a regional public good that will benefit all economies in the short- to medium-term. The recently launched Virtual ABTC has been mentioned as a regionally accepted digital health pass, but it will require significant work and modification if it will be used for that purpose (Box 2).

The difficulty, however, is reconciling different COVID-19 risk profiles, risk outlooks, and risk appetites across APEC's 21 member economies. While the technical solutions are already on the table, a conversation and agreement across partners still needs to happen before they can be applied across the region. This is the key challenge of policy coordination in relation to the pandemic border response, which will be essential in eliminating confusion and reducing uncertainty at the border.

Box 2. Virtual ABTC as a Digital Health Pass

In 2020, the APEC Business Advisory Council in their COVID-19 Report recommended the use of the APEC Business Travel Card (ABTC) "to assist in ensuring global health security," including the inclusion of biometric data that could enable cross-border travel.[181] In 2021, policy discussions around reopening of borders in APEC, such as the ABAC Public-Private Dialogue on Reopening of Borders for Safe and Seamless Travel and the Virtual Roundtable on Safe Passage, have mentioned the potential of the Virtual APEC Business Travel Card (ABTC) as a potential digital health pass that can enable sharing of health-related information—such as COVID-19 test results or vaccination status—across borders and facilitate safe reopening of borders.

The main appeal of the Virtual ABTC is that it is already in use and recognised by APEC members: systems are live, data is being shared across borders, and the digital card is recognised across the region.[182] There is no need to develop, socialise, and seek endorsement for a new digital card for APEC. The question, however, is whether the Virtual ABTC is ready to be used as a digital health pass, which is a function it was not designed to do. The ABTC was designed as travel document and managed by different authorities and rules compared to a digital health pass. While a digital health pass is meant to facilitate the sharing of confidential health information to mitigate public health risks, the ABTC is a travel document managed by border and immigration authorities to mitigate security and law enforcement risks. Transitioning the Virtual ABTC to a digital health pass promoting mass travel will require significant changes to how it is managed, the type of information shared, and the risk calculus in processing applications. Not only will this require a change in operating procedures, but in some economies it may even require changes in legislation.

[180] World Tourism Organization (UNWTO), "Digital Health Passes Compendium" (Riyadh, Saudi Arabia, April 8, 2021), https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2021-04/Digital-Passes-Compendium.pdf.
[181] ABAC. "ABAC COVID-19 Report: Laying the Groundwork for Economic Recovery and Resilience." http://www2.abaconline.org/assets/ABAC_COVID-19_Report.pdf
[182] Canada and the United States are transitional members of the ABTC scheme.

Furthermore, transitioning the Virtual ABTC into a digital health pass is not going to be straightforward even from the viewpoint of travel facilitation. According to the UNWTO, the essential principles of a successful digital health pass for facilitating cross-border travel are:

- Privacy and data security
- User control over data
- Inclusivity and equity
- Open standards
- Interoperability
- Scalability
- Portability
- Sustainability

In many aspects, the Virtual ABTC seems to be in line with the UNWTO's principles. For example, there seem to be robust protections for privacy and security, it is designed to be interoperable across APEC economies, and it is portable at least within the APEC economies that have applied it. However, more work needs be done regarding two crucial aspects: Scalability and Inclusivity and equity.

Scalability. Data from the Business Mobility Group shows that there are 380,017 active ABTC holders as of 2019.[183] This represents 0.1% of all APEC non-resident arrivals in 2019. The ABTC was not designed with scale and mass travel in mind, and significant changes in its processing and accessibility will need to be implemented if it will have any impact in reviving travel around the APEC region.

Inclusivity and equity. The ABTC is a travel card catering to a select group of business travellers. In some APEC economies, requirements include proof of business ownership, proof of trading activity, and membership of good standing in business organisations. The ABTC is not accessible to many kinds of business travellers as well as people who need to travel for employment, education, training, or other important reasons.

Any digital solution or policy action pursued by APEC to facilitate the reopening of borders needs to be in line with the call of Leaders to ensure that recovery is inclusive and opens opportunities for all.[184] The Virtual ABTC holds potential and promise in this regard, but will need significant overhaul and rethinking to be a viable digital health pass for the region.

Role for APEC

APEC is in a unique position to contribute to behind-the-border policy cooperation and at-the-border policy coordination to address COVID-19. APEC has various subfora on trade, standards, intellectual property, digital economy, health, life sciences, business mobility, human resources, tourism, transportation, and others. All these can be brought to bear on the post-pandemic recovery. APEC also has close working relationships with other international

[183] Akhmad Bayhaqi et al., "APEC Connectivity Blueprint: The 2020 Mid-Term Review" (APEC-PSU, November 2020), https://www.apec.org/Publications/2020/11/APEC-Connectivity-Blueprint---The-2020-Mid-Term-Review.
[184] "2020 Leaders' Declaration," in *APEC* (2020 Economic Leaders' Week, Kuala Lumpur, Malaysia: APEC, 2020), https://www.apec.org/Meeting-Papers/Leaders-Declarations/2020/2020_aelm.

organisations at the forefront of addressing the COVID-19 pandemic and safely reopening borders. APEC needs to be the forum where COVID-19 policy cooperation and coordination can happen free of the strictures and formalities that are slowing down cooperation in other organisations. These discussions need to happen in all APEC fora with the sense of urgency and emergency that the global pandemic response requires. APEC needs to regain its position as the forum where information is shared, ideas are incubated, policies are discussed, and consensus for implementation is achieved.

The COVID-19 pandemic has also shown that so-called "black sky events"—i.e., major catastrophic events that cripple key infrastructures and systems across multiple regions for a prolonged period—can and do happen. Global pandemics are clearly one example of these black sky events, but it is not hard to imagine other plausible natural, man-made, or extra-terrestrial events (e.g., solar storms or coronal mass ejections damaging satellites and electronic systems) fitting the description. Effectively managing the risks of black sky events lies with transparent information sharing, objective and rigorous analysis, and responsive regional cooperation.[185]

APEC can be the forum where information sharing, objective risk analysis, and regional cooperation happens. APEC already has the multisectoral structures that can enable cooperation wherever the black sky events may originate. Its culture of informality, non-binding agreements, and drive towards consensus can enable it to be more nimble and responsive to new regional threats as they emerge, something that more formal and binding institutions like the United Nations may find difficult to do.

For APEC to effectively cooperate to address regional black sky events, it could develop its capacity for objective and critical analysis when assessing risks and coming up with regionally coordinated measures to address them quickly and effectively. It is not an easy or straightforward path, but it is an opportunity for APEC to emerge from the COVID-19 pandemic as a highly relevant, innovative and forward-looking regional organisation.

[185] Karin von Hippel and Randolph Kent, "In a World of Pandemics and 'Black Sky Hazards', Can the UN Be Rendered Fit for the 21st Century?," *Royal United Services Institute*, March 25, 2020, https://rusi.org/commentary/world-pandemics-and-%E2%80%98black-sky-hazards%E2%80%99-can-un-be-rendered-fit-21st-century.

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