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

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Abstract: *Given the importance of services for economic activity in general and the salience of reducing service link costs for overcoming the economic and health challenges emanating from COVID-19, we examine the implications of the pandemic for services trade in the original group of ASEAN+6 countries that began negotiating the Regional Comprehensive Economic Partnership agreement. Our analysis reveals that with the exception of the Philippines and Viet Nam for services exports, and Cambodia and India for services imports, up to half of total services trade for all other sample countries could be adversely affected by the pandemic. In the absence of bilateral services trade data for 2020, we proxy the impact of COVID-19 on services trade using bilateral data on announced greenfield investment in services sectors from fDi Markets. Structural gravity estimates suggest that a 1% increase in COVID-19-related deaths in the source country may have reduced ASEAN+6 bilateral greenfield investment by US$0.15 million in 2020 relative to the corresponding value in 2019.*

Keywords: COVID-19; services trade; ASEAN; RCEP; STRI; gravity; greenfield investment

JEL Classification: F1; F15; F23

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1. Introduction

The importance of services trade is growing for countries across the world. According to data from the World Trade Organization (WTO), between 2010 and 2018, trade in commercial services grew by 42% for developed economies, by 60% for developing and emerging economies, and by 49% for least developed countries (LDCs), whilst global trade in commercial services grew by 48%. In fact, exports of commercial services alone witnessed a 90% increase for LDCs over this period.

Whilst services matter as a potentially important source of foreign exchange revenue and associated employment and household income, a large body of evidence also confirms the positive role of the services sector on productivity, growth, trade, investment, development, and global value chain (GVC) integration.[1] In a nutshell, services are important for economic growth and development by virtue of their role as inputs in production in all sectors of economic activity ('servicification'). In fact, the share of services in global trade nearly doubles from 25% once we account for services trade in value-added terms (WTO, 2019).

The quality, price, and availability of services inputs are determined by a mix of factors, including infrastructure connectivity network investments, the restrictiveness of trade and investment policies for goods and services, the investment climate, and the business environment. At the same time, trade costs for services are higher than trade costs for goods, and the rate of decline observed for services trade costs since the early 2000s has been much less than that for goods (Miroudot, Sauvage, and Shepherd, 2013).

The outbreak of COVID-19 has led to intermittent partial and complete lockdowns in countries across the world, stalling economic activity globally. The International Monetary Fund (IMF) and the WTO, amongst other organisations, have predicted massive losses in economic growth and international trade in countries and regions across the world. The WTO predicted a 13%–32% decline in trade early on,[2] depending on whether the recovery takes a V-shape or an L-shape,

[1] See Francois and Hoekman (2010) for an excellent early review and Arnold, Javorik, and Mattoo (2011, Arnold et al. (2016); Lodefalk (2014); Beverelli, Fiorini, and Hoekman (2017); Hoekman and Shepherd (2017); and Fiorini and Hoekman (2018) for more recent analysis.
[2] https://www.wto.org/english/news_e/pres20_e/pr855_e.htm

but these predictions are likely to be underestimates as they are only based on merchandise trade (Shingal, 2020a).

Services trade was shown to be more resilient to the 2008 global financial crisis (GFC) than merchandise trade (Borchert and Mattoo, 2009; Ariu, 2016), given its low sensitivity to demand shocks and low dependence on supply finance. Whilst COVID-19 resulted in an immediate supply shock followed by a demand shock, what matters more this time are the travel bans, social distancing, and contagion-related fears that have a bearing on services transactions requiring physical interaction between buyers and sellers and which cannot be replaced by services traded over the Internet.

There are four different ways[3] in which services are traded across borders, and three of these four 'modes of services delivery' (in WTO General Agreement on Trade in Services parlance), accounting for three-fourths of total services trade, require proximity between buyers and sellers. More specifically, the adverse effects of travel restrictions and social distancing practices in the wake of COVID-19 are going to be the largest for services transacted via Modes 2, 3, and 4 as these require physical interaction between the suppliers and consumers. Illustratively, tourism and related accommodation services, which are an example of services delivered via Mode 2, have been amongst the most adversely affected sectors during the pandemic due to travel restrictions and social-distancing practices. Similarly, restrictions on international travel have meant that professionals cannot cross borders to deliver services abroad, thereby impacting a whole range of Mode 4 services. Likewise, greenfield investment has also been adversely affected by the lockdowns, with United Nations Conference on Trade and Development (UNCTAD) estimates suggesting a 40% decline in foreign direct investment on average; this has negative implications for Mode 3 services trade. Whilst Mode 1 services remain relatively insulated as these are transacted over the Internet and can continue to be delivered in work-from-home scenarios, several Mode 1 services are also complementary inputs to manufacturing and other services, activity in which

[3] These include Mode 2 ('consumption abroad', e.g. tourism services), Mode 3 ('commercial presence', or foreign direct investment (FDI) in services, e.g. international banking services) and Mode 4 ('movement of natural persons', e.g. IT professionals working onsite abroad and intra-corporate transferees). Mode 1, or 'cross-border services trade', includes the entire range of services transacted via the Internet, e.g. medical or legal transcription services.

has been drastically affected, if not completely stalled, by lockdowns and social distancing. Moreover, data security, client confidentiality, access to information and communications technology (ICT), and related issues are likely to render even some otherwise remotely deliverable Mode 1 services activities infeasible. Thus, the effects of the pandemic on Mode 1 services trade are also far from benign.

Against this background and given the importance of services for economic activity in general and the salience of reducing service link costs for overcoming the economic and health challenges emanating from COVID-19 (Kimura, 2020), we examine the implications of the pandemic for services trade in the original group of ASEAN+6 countries[4] that began negotiating the Regional Comprehensive Economic Partnership agreement. Whilst the WTO, amongst others, has examined the likely effect of the pandemic on merchandise trade in different scenarios, similar work has not been undertaken in the context of services trade in general or for countries in Asia-Pacific. We add value by filling this gap.

Our analysis reveals that with the exception of the Philippines and Viet Nam for services exports, and Cambodia and India for services imports, up to half of total services trade for all other sample countries, roughly US$1.4 trillion by value, could be adversely affected by the pandemic. In the absence of bilateral services trade data for 2020, we proxy the impact of COVID-19 on services trade using bilateral data on announced greenfield investment in services sectors from fDi Markets, a private database maintained by the Financial Times. Estimates from a structural gravity model suggest that a 1% rise in COVID-19-related deaths in the source country may have reduced ASEAN+6 bilateral greenfield investment by US$0.15 million in 2020 relative to the 2019 value.

The rest of the paper is structured as follows. Section 2 provides a review of the recent literature relevant to our analysis. Section 3 provides stylised facts on the importance of the services sector in the economies of the sample countries, looks at the distribution of services trade by sector and mode of supply, including the importance of services trade in value-added terms, and examines regulatory barriers to trade in services in the sample countries. Section 4 discusses the implications of the pandemic for ASEAN+6 services trade given the distribution of that trade by

[4] Australia, China, India, Japan, New Zealand, and the Republic of Korea.

mode of supply and stylised facts presented in the preceding section. Section 5 presents a structural gravity model to examine the effects of COVID-19 incidence on announced ASEAN+6 bilateral greenfield investment and discusses findings from this estimation. Section 6 concludes with policy recommendations.

2. Related Literature

Shingal (2020a) produced amongst the earliest commentary on the pandemic's implications for services trade, arguing that whilst economic lockdowns would be lifted eventually, social distancing (both voluntary and selective) is likely to stay for longer, and this would continue to have a huge adverse impact on services transactions requiring proximity between buyers and sellers. A similar view was subsequently echoed by the WTO (2020a), which in its information note on the subject, highlighted the significant adverse effect on tourism, transport, and distribution services emanating from mobility restrictions and social distancing measures imposed for public health reasons; and UNCTAD (2020a), which documented massive disruptions to tourism, hospitality, and retail sectors. Both Shingal (2020a) and the WTO (2020a) also emphasise the knock-on effects on other sectors of economic activity, given increasing 'servicification' in countries across the world.

In their updated assessment of the economic impact of the pandemic on global trade, the Asian Development Bank (ADB, 2020) models the increased cost of trade in services, especially aviation and outbound and inbound tourism, emanating from travel restrictions and travel bans. Complementing this work and the analysis in Shingal (2020b) examining the relationship between regulatory barriers to Mode 4 and services trade by mode of supply, Benz, Gonzales, and Mourouganeet (2020) examine the impact of regulatory restrictions – implemented on health and safety grounds following the outbreak in March this year – on the movement of people across international borders on services trade costs. They hypothesise scenarios in which countries close their borders to passengers but leave freight trade open and estimate services trade costs to increase by an average of 12% of export values across sectors and countries in the medium term. Their analysis identifies

significant heterogeneity in the increase in services-trade costs across sectors and countries, 'reflecting the stringency of initial regulations and the relative importance of business travel and labour mobility to international services trade'.

In a related assessment, Dingel and Neiman (2020) classify the feasibility of working from home for all occupations and merge this classification with occupational employment counts. They find 37% of United States (US) jobs to be amenable to working from home, with significant variation across cities and industries. As expected, these jobs typically pay more than jobs that cannot be done at home and account for 46% of all US wages. Their analysis also suggests that lower-income countries have a lower share of jobs that can be done at home, which is consistent with the level of economic development of these countries.

At the same time, Drake-Brockman (2020), the Organisation for Economic Co-operation and Development (OECD, 2020), Stephenson and Sotelo (2020), UNCTAD (2020b), Villafuerte (2020) and the WTO (2020a, 2020b) highlight the spurt in the online delivery of services in the wake of the pandemic in sectors such as retail, health, education, telecommunications, and audiovisual services, and the potential of this development for the greater use of Mode 1 trade in the future. This work also emphasises the technology and connectivity disparities both within and across countries that impair both the supply and use of digitally delivered services. In their analysis, Stephenson and Sotelo (2020) also focus on three areas of digital services trade at the core of the response during the pandemic – telework, remote education, and healthcare – to document the developments therein following the outbreak and to highlight the measures needed to enable the sector to flourish. Meanwhile, Drake-Brockman (2020) laments the lack of international coordination in approaches to facilitate the provision of essential services during periods of extended lockdown, which was associated with severe adverse effects on services value chains and on the IT/business process outsourcing (BPO) sector in particular.

In other work, Shingal (2020c) has examined the effect of the pandemic on Commonwealth services trade. He suggests that at least 40% of Commonwealth services exports and more than 45% of its imports could be compromised by COVID-19, with tourism-reliant Caribbean and Pacific Commonwealth countries

likely to be most severely impacted, whilst African and Asian Commonwealth countries are likely to be relatively less vulnerable.

Overall, the growing literature on services trade during the crisis underscores the importance of services that enable online delivery – telecommunications and computer services, as well as the broader infrastructural role of financial, transport, distribution, and logistics services – in facilitating merchandise trade and economic growth. It also highlights the role of the government in addressing infrastructure, institutional, and regulatory challenges that exacerbate the digital divide both within and across countries. Finally, all recent work emphasises the vital role that the revival of the services sectors and services trade will play in economic recovery in the aftermath of the pandemic.

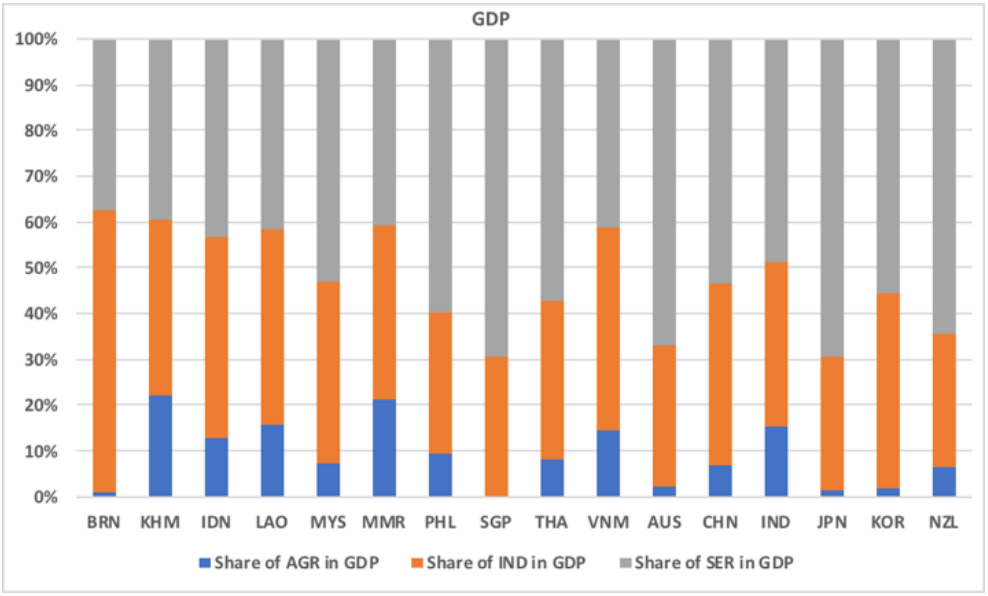
3. Stylised Facts

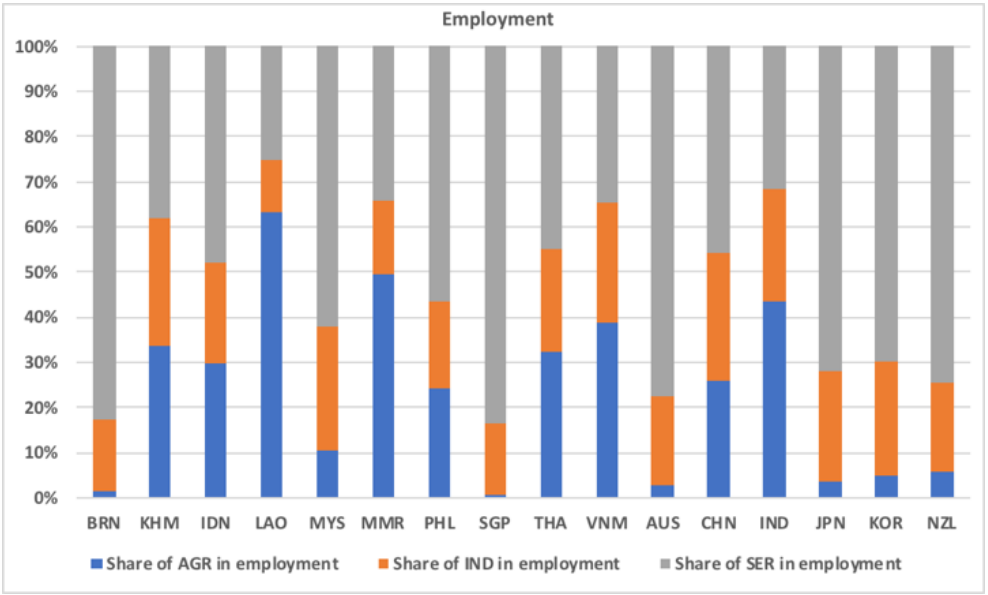
3.1. Importance of services in ASEAN+6

Economic development is associated with structural transformation and change in the concentration of output and employment from agriculture to manufacturing and eventually to services. Whilst most developed countries have witnessed a commensurate change in both the composition of gross domestic product (GDP) and occupational structure in favour of the services sector, the sector is still not the largest employer in most developing countries, though it accounts for the bulk of their GDP. This has obvious implications for the productivity and growth of economic activity in these countries, especially given the increasing trend towards servicification (WTO, 2019).

It turns out that the services sector is far more developed in the ASEAN+6 countries than in the ASEAN region (Figure 1, left panel). ASEAN Member States had 51% of their total employment in services, on average, in 2018, up from 45.6% in 2010. The ASEAN+6 countries had 58% of their total employment in services in 2010, and this share increased further to 62% in 2018, making it the most services-intensive grouping in the whole of Asia, the Middle East, Africa, and the Pacific.

Figure 1: Sectoral Composition of GDP and Employment in ASEAN and East Asia (% shares, 2018)





AGR = agriculture, GDP = gross domestic product, IND = industry, SER = services.
Source: World Bank World Development Indicators.

Within ASEAN, Brunei Darussalam and Singapore were the most services-intensive economies, with the sector's share in employment in these countries, at over 80% in 2018, well in excess of the ASEAN+6 average. In contrast, agriculture remained the major employer in the Lao PDR and Myanmar, accounting for over 60% and half of total employment, respectively. Significantly, both Cambodia and Viet Nam (as well as Indonesia and Thailand) seem to have witnessed a structural

transformation of their economies over 2010–2018, with labour moving from agriculture and allied sectors to industry and services.

The ASEAN+6 average is driven by its OECD members, Australia, Japan, the Republic of Korea (henceforth, Korea), and New Zealand – the share of services in total employment was around 70% or more in all these countries in 2018. With a 32% share of services in total employment, India was the least services-intensive economy in this group in 2018, followed by China at 46%, though both countries witnessed a structural transformation of their economies during 2010–2018.

The sectoral composition of GDP (Figure 1, right panel) mirrors that of employment in ASEAN+6, with the exception of Brunei, India, and Korea, where the services share in GDP in 2018 was much higher than that in employment in the case of India and relatively lower for Brunei and Korea. On average, the Plus-6 countries are again far more services-intensive than the ASEAN Member States. Only Singapore had a share in GDP exceeding 70%; for most other ASEAN countries it hovered between 40% and 60% (Malaysia, the Philippines, and Thailand had shares exceeding 50%).

The services-intensiveness of the economies also translates into the contribution of the sector as inputs in the domestic economy. Table 1 reports domestic value added as a percentage share of gross exports across ASEAN+6 countries and services sectors calculated from the Eora Multi-region Input–Output Table (MRIO) database. Countries with domestic value-added shares that are significantly higher than the average for ASEAN and the Plus-6 economies across the different sectors are highlighted in red. The table illustrates the importance of all services as inputs in the domestic economy for countries across the region, but especially for Myanmar in ASEAN and India amongst the Plus-6 countries. Meanwhile, Malaysia, Singapore, and Viet Nam in ASEAN report shares that are significantly lower than the respective averages. The financial intermediation and business services and retail and wholesale trade sectors contribute the maximum to the domestic economy across ASEAN Member States; for the Plus-6, education and health services are the second-largest contributors behind financial intermediation and business services. With the exception of wholesale trade, domestic value-added shares are lower on average in ASEAN compared to the Plus-6 economies in all other services sectors.

Table 1: Domestic Value Added Across Services Sectors in ASEAN+6

(% share in gross exports, 2015)

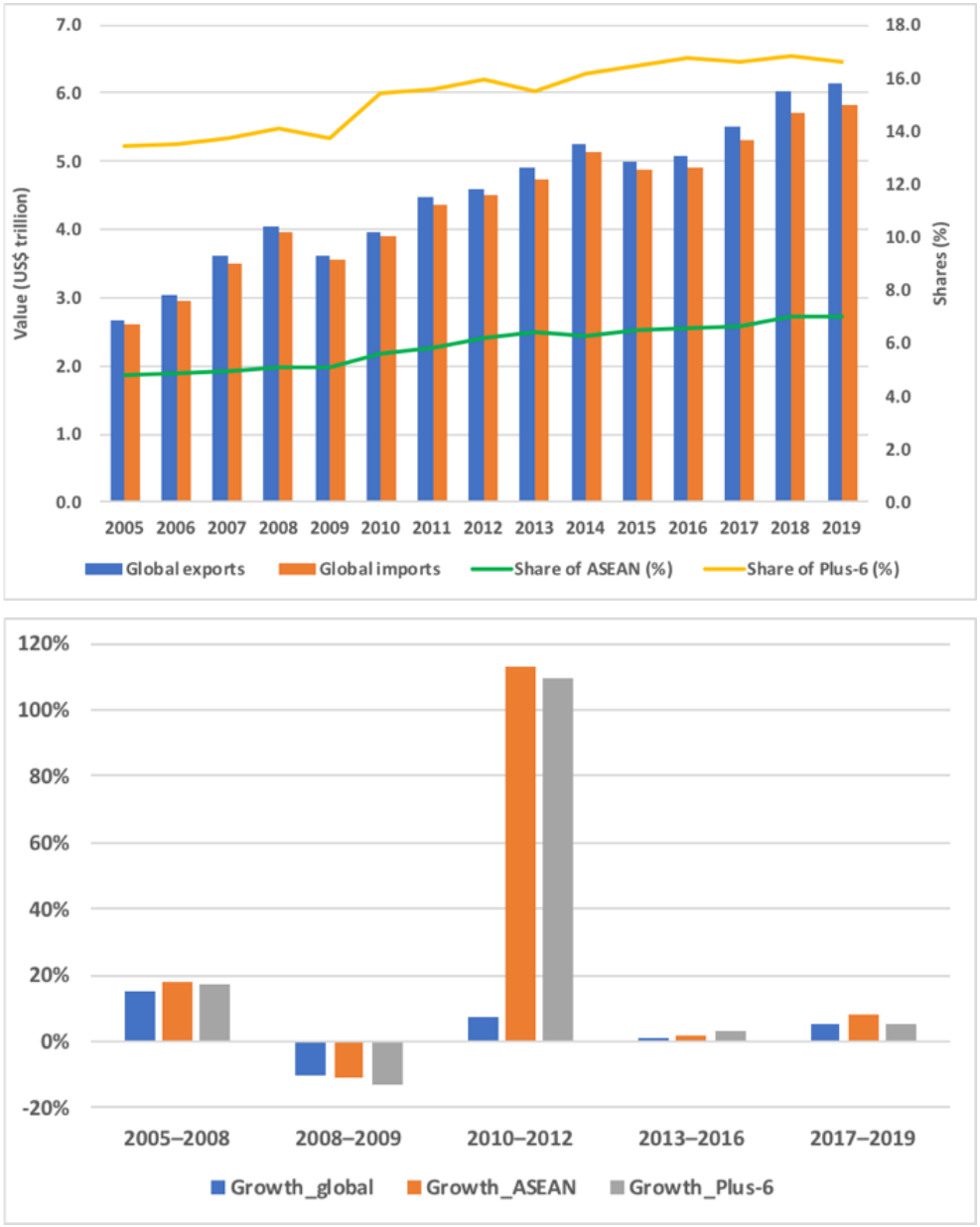
Country	Constrn	M&R	Wholesale	Retail	H&R	Transport	P&T	FIBS	Pub_admn	Edu_Health
BRN	88.2	85.6	90.2	92.7	86.8	87.1	92	95.6	90.4	93.4
IDN	84.4	94.4	94.4	94.4	95.3	85.7	96.6	95.2	94.7	93.6
KHM	83.4	83.6	85.4	91.9	86.1	82.9	89.7	92.6	79.6	88.5
LAO	93.8	87.1	94.8	97.3	95.1	91.1	95.2	96.9	92.1	95.2
MMR	99.9	99.3	100	100	99.9	99.9	99.9	100	99.9	100
MYS	48.9	87.3	87.3	87.3	59.8	57.5	71.2	82.5	70.5	76.1
PHL	85.6	94.4	94.4	94.4	90.6	81.2	94	94.6	59.3	88
SGP	60	69.2	69.2	69.2	72.4	48.2	34.1	74.5	59.5	81.6
THA	74	96.1	95.9	96.2	88.7	83.4	95.1	87.2	100	89.7
VNM	50.1	79.2	79.7	71.7	77.9	66.9	77	82.6	80.1	79.9
ASEAN	**76.8**	**87.6**	**89.1**	**89.5**	**85.3**	**78.4**	**84.5**	**90.2**	**82.6**	**88.6**
AUS	90.0	76.1	65.2	86.0	88.6	83.9	85.8	91.5	86.6	92.7
CHN	84.6	93.5	93.5	93.5	94.4	92.2	93.3	93.9	94.1	92
IND	88.1	97.4	97.4	97.4	94.6	89.8	95.2	97.0	99.8	92.8
JPN	88.6	93.7	91.2	96.3	87.3	85.6	95.9	95.8	95.3	93.9
KOR	85	93.1	93.1	93.1	88	63.7	89.8	90.7	70.2	89.3
NZL	84.4	79.8	80.9	78.6	90.1	82.3	82.8	94.4	90.9	89.9
Plus-6	**86.8**	**88.9**	**86.9**	**90.8**	**90.5**	**82.9**	**90.5**	**93.9**	**89.5**	**91.8**

Note: Constrn = construction, Edu_Health = education and health, FIBS = financial intermediation and business services, H&R = hotels and restaurants, M&R = maintenance and repair, P&T = post and telecommunications, Pub_admn = public administration.
Source: Eora MRIO database; own calculations.

3.2. Services trade in ASEAN+6

Gross global trade in services more than doubled in value over 2005–2019. The share of ASEAN Member States in average services trade increased over time from 4.8% to 7.0% and that of the Plus-6 from 13.4% to 16.6% (Figure 2, left panel).

Figure 2: Global Services Trade, Share of ASEAN+6, and Growth Rates

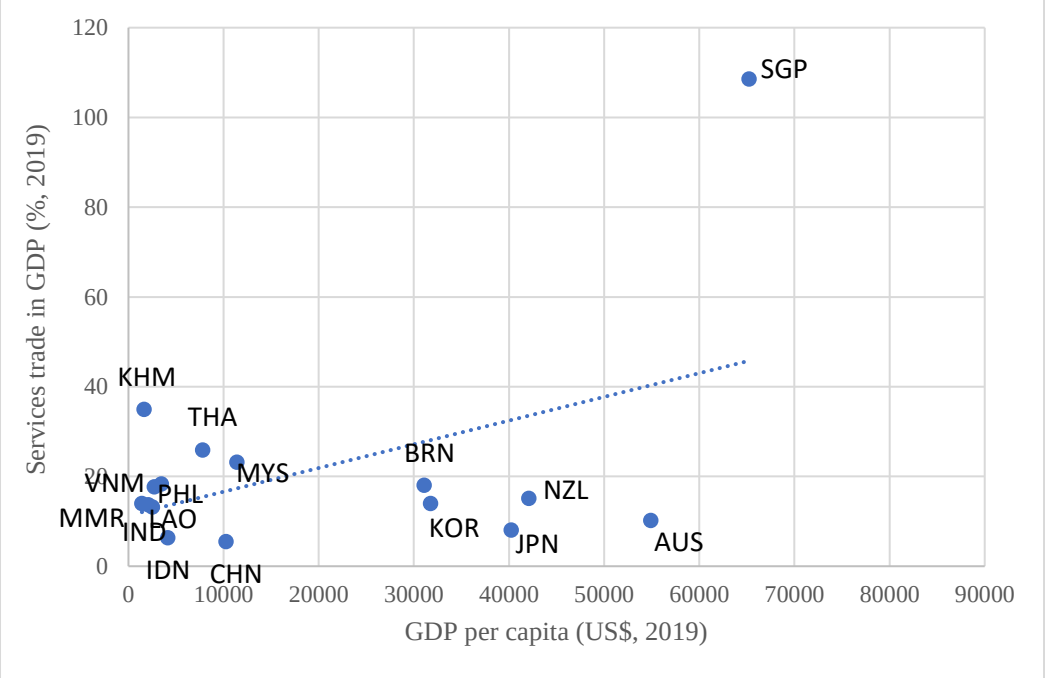


Source: Author's calculations using World Trade Organization Services Trade data.

However, the overall growth over 2005–2019 masks significant differences. Global exports and imports of services grew most rapidly in the pre-GFC years (2005–2008) at 15.2% per annum, on average. Growth slumped to –10.5% during the GFC, followed by a 7.5% recovery in the post-GFC period (2009–2010); then plummeted to 0.6% in the years from 2013 to 2016, with a rebound in the last 3 years at 5.1%. ASEAN+6 services trade registered phenomenal growth in the post-GFC years, but has fallen significantly thereafter, hovering around the global growth rates, but with ASEAN growth rates exceeding those for the Plus-6 (Figure 2, right panel).

Singapore is ASEAN's largest services trading economy by far, with exports and imports of US$200 billion in 2019. These values are roughly similar to those of Japanese and Indian services trade but well behind what China exported (US$280 billion) and imported (US$500 billion) in that year. Notably, just the size of China's services trade deficit is larger than the services exports or imports of any other economy in our country sample. However, as a share of GDP, Singapore is by far the largest services trading economy in the region and drives the positive relationship between services-intensiveness and per capita income observed in Figure 3. Notably, all ASEAN countries (barring Brunei and Indonesia) are more services-trade-intensive than countries at a comparable level of economic development.

Figure 3: The Richer Economies Are Also the Largest Services Traders in ASEAN+6

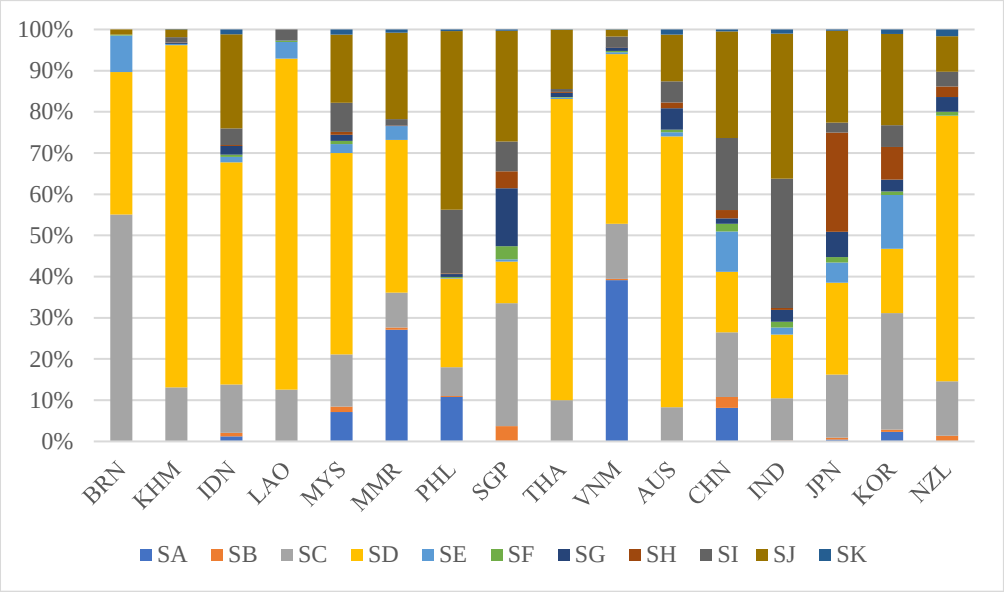


GDP = gross domestic product.
Source: Author's calculations using World Trade Organization Services Trade data and GDP data from World Bank, World Development Indicators.

According to data from the ASEAN Secretariat, 15% of ASEAN services trade in 2019 was intra-group and another 7% was with Japan (according to data from the OECD International Trade in Services Statistics). Thus, close to 40% of ASEAN services trade may be with the ASEAN+6. Similarly, according to OECD data, over 7% of East Asian services trade in 2019 was with Japan alone. Thus, most of these countries' major services trading partners are located within the region, emphasising the role of geographical factors, both physical and cultural, as determinants of their bilateral services trade.

At the sector level, services exports are dominated by travel (mostly personal), transport, and other business services across ASEAN+6 (Figure 4), with a few notable exceptions: manufacturing services in Myanmar and Viet Nam; construction services in Brunei, China, and Korea; computer services in the Philippines, India, and China; financial services in Singapore and Hong Kong; and charges for the use of intellectual property in Japan and Korea. On average, services exports of ASEAN Member States (barring Singapore) are less diversified sectorally compared to the distribution for Plus-6 countries.

Figure 4: ASEAN+6 Services Exports by Sector, 2018 (%)



SA = manufacturing services on physical inputs; SB = maintenance and repair services; SC = transport; SD = travel; SE = construction; SF = insurance and pension services; SG = financial services; SH = charges for the use of intellectual property; SI = telecommunications, computer, and information services; SJ = other business services; SK = personal, cultural, and recreational services.
Source: Author's calculations using World Trade Organization Services Trade data

The contribution of services exports in value added terms is examined in Table 2, which reports backward participation (BP) and foreign participation (FP) as a percentage share of gross exports across ASEAN+6 and services sectors for the year 2015, based on the Eora MRIO database. Countries with GVC participation higher than the average for ASEAN and East Asia across the different sectors are highlighted in red in this table. The table illustrates the importance of all services as inputs into exports across ASEAN+6 countries, but especially for Malaysia, Singapore, and Viet Nam in terms of backward linkages, and for Myanmar, the Philippines, and China in terms of forward linkages.

At the sector level across ASEAN Member States, Malaysia reports the maximum use of imported inputs in its gross exports (backward linkages) in construction, health and education, and hotels and restaurants; Singapore does the same in financial intermediation and business, post and telecoms, and distribution and transport services. Similarly, the Philippines reports the maximum use of its exports used as inputs in gross exports of other countries (forward linkages) in maintenance and repair services, retail trade, post and telecoms, and health and education; Malaysia in financial intermediation and business services; and the Lao PDR in construction services.

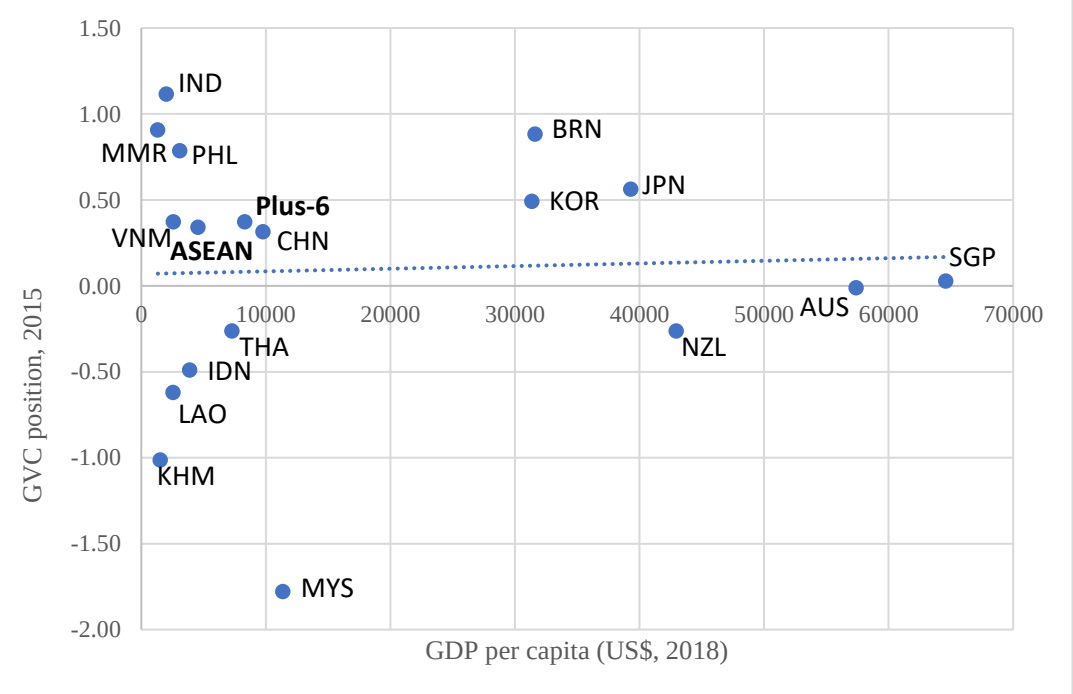
Table 2: ASEAN+6 Participation in Global Value Chains Across Services Sectors (% share in gross exports, 2015)

Sector	Constrn		M&R		Wholesale		Retail		H&R		Transport		P&T		FIBS		Pub_admn		Edu_Health	
Country	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**	**BP**	**FP**
BRN	11.8	4.0	14.4	18.2	9.8	22.1	7.3	6.2	13.2	3.6	12.9	16.7	8.0	18.7	4.4	26.6	9.6	19.9	6.6	5.9
IDN	15.6	7.4	5.6	22.3	5.6	22.3	5.6	22.3	4.7	8.2	14.3	20.1	3.4	27.2	4.8	23.3	5.3	8.9	6.4	24.3
KHM	16.6	14.6	16.4	19.7	14.6	24.0	8.1	20.1	13.9	15.7	17.1	16.6	10.3	25.3	7.4	25.9	20.4	17.5	11.5	11.3
LAO	6.2	20.5	12.9	19.6	5.2	13.0	2.7	22.2	4.9	12.8	8.9	20.5	4.8	22.7	3.1	26.9	7.9	21.7	4.8	6.1
MMR	0.1	19.0	0.7	25.8	0.0	38.4	0.0	23.8	0.1	14.3	0.1	21.3	0.1	26.2	0.0	27.7	0.1	25.2	0.0	13.5
MYS	51.1	3.8	12.7	24.1	12.7	24.1	12.7	24.1	40.2	6.6	42.5	13.1	28.8	24.4	17.5	28.6	29.5	5.8	23.9	8.2
PHL	14.4	13.5	5.6	28.9	5.6	28.9	5.6	28.9	9.4	10.9	18.8	19.8	6.0	29.1	5.4	26.4	40.7	8.8	12.0	28.5
SGP	40.0	7.6	30.8	18.6	30.8	18.6	30.8	18.6	27.6	7.8	51.8	10.1	65.9	9.7	25.5	20.8	40.5	5.4	18.4	8.0
THA	26.0	7.6	3.9	23.2	4.1	25.5	3.8	15.6	11.3	7.5	16.6	16.6	4.9	27.2	12.8	22.2	0.0	8.0	10.3	6.3
VNM	49.9	3.2	20.8	22.3	20.3	25.4	28.3	4.8	22.1	6.9	33.1	13.3	23.0	19.8	17.4	18.3	19.9	12.7	20.1	5.6
ASEAN	**23.2**	**10.1**	**12.4**	**22.3**	**10.9**	**24.2**	**10.5**	**18.7**	**14.7**	**9.4**	**21.6**	**16.8**	**15.5**	**23.0**	**9.8**	**24.7**	**17.4**	**13.4**	**11.4**	**11.8**
AUS	10.0	8.6	23.9	20.1	34.8	18.6	14.0	21.1	11.4	5.7	16.1	16.2	14.2	19.5	8.5	22.6	13.4	9.5	7.3	9.7
CHN	15.4	12.7	6.5	23.5	6.5	23.5	6.5	23.5	5.6	11.5	7.8	19.3	6.7	23.2	6.1	24.7	5.9	24.7	8.0	13.6
IND	11.9	10.0	2.6	25.7	2.6	25.7	2.6	25.7	5.4	9.8	10.2	15.4	4.8	23.1	3.0	20.0	0.2	4.5	7.2	14.3
JPN	11.4	7.4	6.3	27.3	8.8	27.2	3.7	18.0	12.7	12.7	14.4	17.1	4.1	26.4	4.2	26.3	4.7	7.3	6.1	9.5
KOR	15.0	5.3	6.9	24.6	6.9	24.6	6.9	24.6	12.0	6.7	36.3	11.6	10.2	19.6	9.3	19.9	29.8	4.4	10.7	6.7
NZL	15.6	3.4	20.2	10.6	19.1	20.7	21.4	3.7	9.9	8.0	17.7	13.2	17.2	14.9	5.6	15.6	9.1	13.4	10.1	6.5
Plus-6	**13.2**	**7.9**	**11.0**	**22.0**	**13.1**	**23.4**	**9.2**	**19.4**	**9.5**	**9.1**	**17.1**	**15.5**	**9.5**	**21.1**	**6.1**	**21.5**	**10.5**	**10.6**	**8.2**	**10.1**

BP = backward participation, FIBS = financial intermediation and business services, FP = forward participation, H&R = hotels and restaurants, M&R = maintenance and repair, P&T = post and telecommunications.
Source: Eora MRIO database; own calculations.

On average, everything else being constant, the richer economies in the sample also tend to be more upstream[6] in their services participation in GVCs, though the relationship is only weakly positive (Figure 5). On the whole, the services sector is relatively more downstream in ASEAN Member States and relatively more upstream in the other countries, though the difference is marginal. India, Myanmar, Brunei, and the Philippines export more services value-added as inputs into the production and exports of other countries, whilst Malaysia, Cambodia, and the Lao PDR import more services as inputs from the rest of the world.

Figure 5: Richer Economies in the Region Also Tend to Be More Upstream in Their Services Participation in Global Value Chains



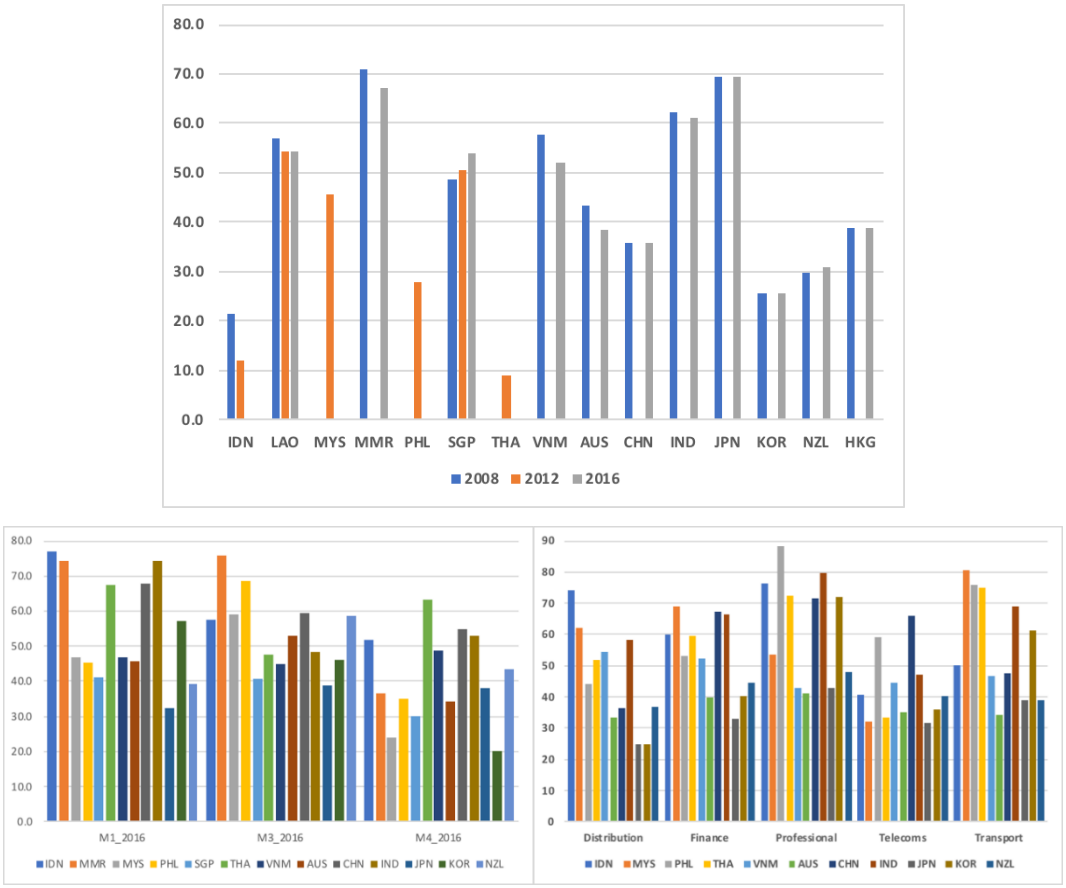
GDP = gross domestic product, GVC = global value chain.
Note: GVC position is calculated as $\ln(1+FP^{Ser})-\ln(1+BP^{Ser})$; the higher the value, the more 'upstream' is the country's services sector in GVCs.
Source: Eora MRIO database and World Bank World Development Indicators; own calculations.

[6] GVC position is calculated as $\ln(1+FP^{Ser})-\ln(1+BP^{Ser})$; the higher the value, the more 'upstream' is the country's services sector in GVCs.

3.3. Services trade barriers in the region

Analysis of services trade barriers in the region is undertaken on the basis of data on services trade restrictiveness indices (STRI) compiled by the World Bank (Borchert, Gootiz, and Mattoo, 2014; Gootiz and Mattoo, 2015). Unfortunately, STRI data are neither available for all ASEAN+6 countries, nor for all covered countries over time. This said, some economies in the sample for which comparable STRI data are available over time, seem to have become more restrictive in their services trade policies, whilst others have become less restrictive (Figure 6, top panel). Looking at the available data for 2016, ASEAN Member States (53.3) are relatively more restrictive than the Plus-6 countries (43.6) on average, including by modes of delivery (Figure 6, bottom-left panel), though in the case of telecom services (Figure 6, bottom-right panel), the ASEAN average (42.0) is lower than that for the other six countries (42.8).

Figure 6: Services Trade Restrictiveness in ASEAN+6



Source: Borchert, Gootiz, and Mattoo (2014) for 2008 data, Gootiz and Mattoo (2015) for 2012 data, and WTO-World Bank Services Trade Policy Database for 2016 data; own calculations.

The bottom panels in Figure 6 also highlight the considerable heterogeneity in the restrictiveness of applied services trade policy regimes across modes of delivery and sectors. With the exception of Japan and New Zealand, Modes 1 and 3 seem to be more restrictive for countries in the sample, on average. Significantly, some of the ASEAN Member States seem to have more liberal Mode 4 regimes than the Plus-6 countries, though Korea is by far the least restrictive towards the movement of services suppliers. The ex-ante restrictiveness of Mode 1 services trade in the sample is likely to have significant implications for the associated countries in the wake of the pandemic, given that this is the one mode of delivery that is relatively insulated from the adverse effects of social distancing and related practices.

At the sector level, professional and transport services are more restrictive across countries in the sample, followed by finance and distribution services, whilst

telecoms are the least restrictive. The ex-ante restrictiveness of professional, transport, and distribution services in particular again poses challenges for countries in the region given their importance in these countries' total services trade (Figure 4) and the reliance of these sectors on modes of services delivery that require physical interaction between buyers and sellers (see the following section for details).

One immediate policy implication from the analysis in this section is the pressing need for countries to liberalise their services trade regimes, especially for Mode 1 (given that such services can continue being delivered remotely and do not require any physical interaction between buyers and sellers) and the more restrictive sectors (given the importance of these sectors in these countries' total services trade), to minimise the adverse effects of the pandemic and to accelerate the path to recovery in the aftermath of COVID-19.

4. Implications

As outlined in the introduction, the adverse effects of social distancing practices in the wake of COVID-19 are going to be the largest for services transacted via Modes 2, 3, and 4 as these transactions require physical interaction between suppliers and consumers. In this section, we look at the distribution of aggregate and disaggregated services trade for countries in the region by mode of supply to discuss implications from the pandemic.

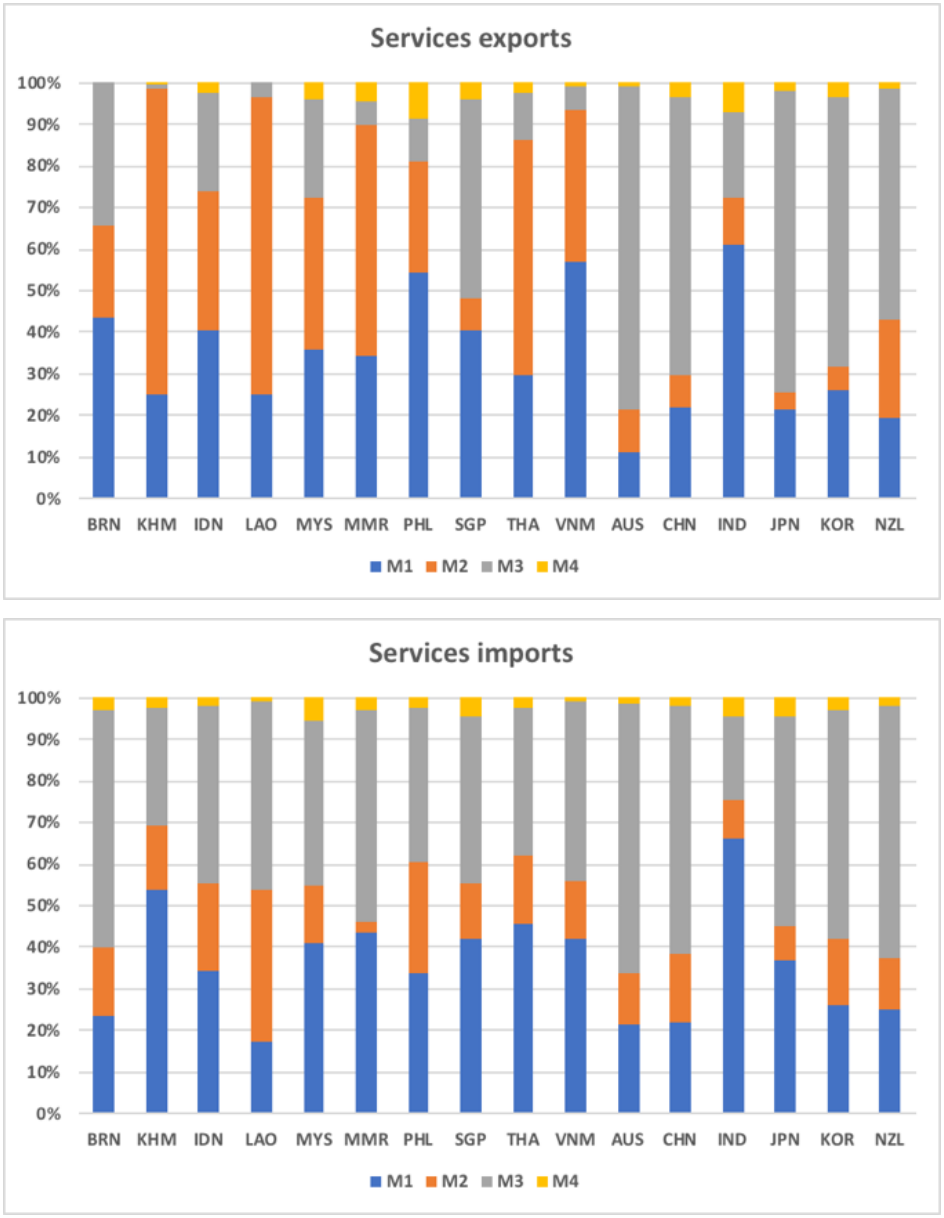
Figure 7 shows the distribution of services exports and imports for the sample countries by mode of supply in the year 2017.[7] There is considerable heterogeneity in this distribution across sample countries. Four ASEAN countries – Brunei, Indonesia, the Philippines, and Viet Nam – and India, are the most reliant on Mode 1 for transacting their services exports and are thus likely to be more insulated from COVID-19-related shocks (though both Indonesia and India have amongst the most restrictive applied policy regimes with respect to Mode 1 trade). Commercial presence is the most dominant mode of service delivery in all Plus-6 countries,

[7] This is the latest year for which services trade data by mode of supply are available from the WTO TiSMoS database.

except India, whilst Modes 1 and 3 are both equally important for Singapore. Services exports are largely delivered by Mode 2 in Cambodia, the Lao PDR, Myanmar, and Thailand, and all these ASEAN countries are thus likely to be the most adversely affected due to travel restrictions imposed in the wake of the pandemic. In contrast, the share of Mode 4 in total services trade remains small, except for the Philippines and India.

Figure 7: Distribution of Services Trade by Modes of Supply

(% shares, 2017)



Source: WTO TiSMoS; own calculations.

On the whole, with the exception of the Philippines and Viet Nam for services exports, and Cambodia and India for services imports, at least half of total services trade for all other sample countries, approximately US$1.4 trillion, was delivered by Modes 2–4, which provides the upper bound of the likely adverse effect of the pandemic on services trade in the sample countries.

Moreover, even within these countries, some services sectors are going to be more severely affected and are also likely to take longer to recover as they rely on modes of delivery that require physical interaction between buyers and sellers (see Table 3). These include manufacturing, maintenance and repair, and travel services (all of which were almost exclusively supplied by Mode 2 in ASEAN+6 in 2017); construction, heritage and recreation, and distribution services (where Mode 3 was the dominant mode of delivery in these countries in 2017); and, to some extent, computer, professional, audio-visual, health, and education services (up to a quarter of ASEAN+6 services exports in these sectors relied on Mode 4 in 2017).

Table 3: Distribution of ASEAN+6 Services Exports by Sector and Mode of Supply

(% shares, 2017)

Sector Code	Description	ASEAN				Plus-6			
		M1	M2	M3	M4	M1	M2	M3	M4
SA	Manufacturing	0	100	0	0	0	100	0	0
SB	M&R	0	90	0	10	0	90	0	10
SC	Transport	57	17	27	0	53	14	33	0
SC1	Sea	78	22	0	0	77	23	0	0
SC2	Air	76	24	0	0	82	18	0	0
SC3	Road	56	44	0	0	79	21	0	0
SDA	Business travel	0	100	0	0	0	100	0	0
SDB1	Health-related travel	0	100	0	0	0	100	0	0
SDB2	Education-related travel	0	100	0	0	0	100	0	0
SDB3	Other personal travel	0	100	0	0	0	100	0	0
SE	Construction	0	0	82	18	0	0	92	8
SF	Insurance	100	0	0	0	100	0	0	0
SG	Finance	100	0	0	0	100	0	0	0
SH	IP charges	100	0	0	0	100	0	0	0
SI1	Communications	100	0	0	0	100	0	0	0
SI2	Computer	75	0	0	25	79	0	0	21
SI3	Information	100	0	0	0	100	0	0	0
SJ1	R&D	75	0	0	25	76	0	0	24
SJ2	Professional and MC	75	0	0	25	85	0	0	15
SJ3	Tech, trade-related, and OBS	85	0	0	15	79	1	0	20
SK1	Audio-visual	70	10	0	20	70	10	0	20
SK21	Health	75	0	0	25	75	0	0	25
SK22	Education	75	0	0	25	88	0	0	12
SK23	Heritage and recreation	13	0	82	4	2	0	97	1
SK24	Other personal	73	0	3	25	9	0	89	3
SWSJ34	Distribution	42	0	58	0	33	0	67	0
SOXSW	**TOTAL**	**40**	**22**	**34**	**4**	**25**	**7**	**65**	**3**

M&R = maintenance and repair, MC = management consulting, OBS = other business services, R&D = research and development.
Source: World Trade Organization TiSMoS; own calculations.

In contrast, the effects of the pandemic on communications, information, insurance, and financial services exports are likely to be more limited (all these services were delivered online in the sample countries in 2017), as most if not all

of these services can still be delivered online in work-from-home scenarios and are, therefore, more resilient to both voluntary and selectively imposed social distancing practices.

This said, whilst remotely deliverable Mode 1 services seem theoretically tradable during these times as these can be transacted online and do not require the need for physical proximity between buyers and sellers for the transaction to be made, there are several circumstances that may render even such trade infeasible. First and foremost are the lack of access to ICT, the digital divide, and infrastructure-related issues, which are more likely to affect the ASEAN LDCs. Other challenges associated with digitalisation include cybersecurity and data privacy concerns, exposure to digital fraud, online misinformation, asymmetric market power, and platform dominance. Moreover, several business process management (BPM) services are linked to economic activity in other sectors like manufacturing, transport, and tourism, which are directly impacted by intermittent partial or complete lockdowns. In contrast, other Mode 1 health-related services like telemedicine and medical transcription services have witnessed a spurt during the pandemic.

This crisis has also witnessed a proliferation in online shopping, social media use, Internet telephony and teleconferencing, and the streaming of videos and films, resulting in spikes in business-to-consumer sales (especially of medical supplies, household essentials and food products) and an increase in business-to-business (B2B) e-commerce, though again international travel restrictions mean that this rise is more within economies than cross-border. Demand has also increased for Internet and mobile data services (WTO, 2020b). In that sense, the pandemic has highlighted the significance of the digital economy, including the pressing need to bridge the digital divide, both within and across countries. Many traditional obstacles have been accentuated and have continued to hamper greater participation from small producers, sellers, and consumers in e-commerce activities in developing countries, especially LDCs. This reinforces the need for efficient and affordable ICT services and related emerging technologies in the sample countries to facilitate e-commerce during this period.

Heterogeneity in the sectoral and modal distribution of services trade amongst ASEAN+6 also translates into differences in impact and recovery times. For instance, financial services account for roughly 15% of the services exports of Singapore, but these services are delivered exclusively via Mode 1. This suggests that despite their sectoral importance, the impact on them will be limited as they can continue being delivered remotely. In contrast, Cambodia, the Lao PDR, Macao, and Thailand are hugely reliant on tourism services, which are exclusively delivered by Mode 2; their loss will, thus, severely impact these economies as international tourist flows to these countries remain subdued for precautionary reasons, thereby impacting 'consumption abroad'. Given mandatory and voluntary travel restrictions in the wake of the pandemic, they are also likely to take much longer to recover. Meanwhile, exports of other business services account for nearly 35% and 45% of India and the Philippines' total services exports, respectively, and up to a quarter of these services are delivered by Mode 4. This suggests a modest pandemic-related impact on the Indian and Filipino economies via effects on business services exports.

Finally, COVID-19-induced delays in reigniting trade in these sectors will also affect other areas of economic activity, both in the domestic economy and abroad, where these services serve as significant inputs (see Tables 1 and 2). Thus, delayed recovery in services trade will affect both services and manufacturing sector activity in ASEAN+6 given the increasing servicification of economic activity and exports in all the sample countries.

5. Estimating the Decline in ASEAN+6 Announced Greenfield Investment Due to the Pandemic

Estimating the effect of the pandemic on services trade in a structural gravity framework using real-time data on COVID-19 incidence would require the availability of bilateral data on services trade in 2020, which, unfortunately, are still not available. We therefore proxy the impact of COVID-19 on services trade using

bilateral data on announced greenfield investment in the services sectors[8] during 2019 and 2020 from fDi Markets, which is a private database maintained by the Financial Times. We consider this to be a reasonable proxy because nearly 60% of global services trade is transacted via Mode 3 (i.e. via the activity of foreign affiliates in the destination economies). It turns out that announced greenfield investment in these sectors for ASEAN+6 declined by 33.2% from US$133.8 billion in 2019 to US$89.2 billion in 2020; the intra-ASEAN+6 decline was even more severe – announced greenfield investment fell from US$28.8 billion in 2019 to US$16.8 billion in 2020, registering a 41.8% decline.

Methodologically, we employ an augmented structural gravity model that disentangles the effect of the pandemic-induced supply and demand shocks on bilateral greenfield investment in these sectors if either the source or destination country belongs to ASEAN+6. The baseline estimating equation takes the following form:

$$I^{S}_{ijt} = \beta_1 \ln CI_{it} + \beta_2 \ln CI_{jt} + \mu_{ij} + \alpha_{it} + \gamma_{jt} + \varepsilon_{ijt} \qquad (1)$$

where I^{S}_{ijt} is the year-on-year (y-o-y) change in the cumulative value of announced greenfield investment in the 1 services sectors from country *i* to *j* during month *t* between 2019 and 2020, where countries *i* and *j* belong to ASEAN+6; $\ln CI_{it}$ and $\ln CI_{jt}$ are the logs of the COVID-19 incidence in the source and destination countries in each month of 2020; $\mu_{ij,}$ α_{it}, and γ_{jt} are the dyadic and time-varying source and destination country fixed effects; and ε_{ijt} is the error term.

Recent advancements in the estimation of structural gravity advocate the use of three-way fixed effects to mitigate endogeneity-induced biases in estimation (for instance, see Baier, Bergstrand, and Feng (2014) and Piermartini and Yotov (2016)). Note that the time-varying source and destination country fixed effects also account for multilateral resistance terms in the estimation, whilst the dyadic fixed effects subsume the bilateral gravity determinants of bilateral investment

[8] We consider the following 11 sectors in the fDi Markets database as services for the purpose of analysis in this paper: real estate, hotels and tourism, leisure and entertainment, healthcare, communications, renewable energy, software and IT services, transportation and warehousing, financial services, business services, and biotechnology.

(contiguity, common language, and colonial antecedents) as well as binary dummy variables denoting membership of preferential trade and bilateral investment agreements, both of which are also dyadic in the context of equation (1). Since the dependent variable is the y-o-y change, which can be positive or negative at the dyadic level, equation (1) is estimated using ordinary least squares (OLS).

In the analysis that follows, we introduce the COVID-incidence variables sequentially, to examine the independent effects of pandemic-induced supply and demand shocks, before including these variables together. We also consider both the incidence of COVID-19 cases and the number of deaths associated with the virus in distinct regressions, using monthly country-wide data from the European Centre for Disease Prevention and Control. One challenge in estimating equation (1) is that the variables of interest, CI_{it} and CI_{jt}, are completely collinear with the time-varying source and destination country fixed effects; we therefore include these fixed effects selectively as shown in Table 4.

Table 4 reports the estimation results. Standards errors are clustered by dyad-month in all specifications. It turns out that the number of COVID-19 cases (CI), in either the source or destination country, does not have an impact on the y-o-y change in ASEAN+6 bilateral greenfield investment, either individually or together; the coefficient estimates in columns (1), (2) and (5) lack statistical significance. In contrast, the number of COVID-19 deaths (CD) in the source country has an adverse effect on ASEAN+6 bilateral greenfield investment; the coefficient estimate reported in column (6) suggests that a 1% increase in COVID-19 related deaths in the source country may have reduced ASEAN+6 bilateral greenfield investment by US$0.15 million relative to the corresponding value in 2019, though a similar adverse effect of COVID-19 incidence is not observed in the destination country.

Table 4: Impact of COVID-19 on ASEAN+6 Greenfield Investment

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**Dependent variable (I^S_{ijt})**					
$\ln(CI_{it})$	4.590				4.435	
	(4.407)				(4.730)	
$\ln(CD_{it})$		-6.639				-15.250**
		(4.982)				(6.708)
$\ln(CI_{jt})$			3.624		3.597	
			(7.305)		(6.252)	
$\ln(CD_{jt})$				-0.761		0.270
				(5.506)		(4.963)
Observations	1,494	1,104	1,587	1,115	1,587	996
R-squared	0.263	0.323	0.270	0.342	0.166	0.239
Fixed effects:						
Month	YES	YES	YES	YES	YES	YES
Source	YES	YES	YES	YES	YES	YES
Source-month	NO	NO	YES	YES	NO	NO
Destination	YES	YES	YES	YES	YES	YES
Destination-month	YES	YES	NO	NO	NO	NO
Source-destination	YES	YES	YES	YES	YES	YES

Note: Robust standard errors are clustered by dyad-year in all specifications. Significance levels: *10%, **5%, ***1%.
Source: fDi Markets, European Centre for Disease Prevention and Control; own calculations.

6. Conclusion

This paper examines the implications of COVID-19 for services trade in Asia-Pacific. An assessment of the implications of the pandemic for services trade is important for policy design to reduce service link costs for overcoming the economic and health challenges emanating from the crisis. Stylised facts suggest that nearly half of ASEAN+6 services trade, roughly US$1.4 trillion by value, could be compromised by the adverse effects of the pandemic. This estimate is corroborated by fDi Markets data on announced greenfield investment in 11 services sectors, which fell by a third for ASEAN+6 in 2020 relative to 2019. Structural gravity estimates further suggest that a 1% increase in COVID-19-related deaths in the source country may have reduced ASEAN+6 bilateral greenfield

investment by US$152,500 in 2020 relative to the corresponding value in 2019. Thus, until the SARS-Cov-2 vaccine can effectively immunise people across the world, COVID-19 will continue to affect countries in multiple ways. It is, thus, imperative that countries in the region undertake measures to ensure that adverse effects on services trade are mitigated and economic recovery expedited.

To begin with, countries in the region must refrain from imposing restrictive barriers on services trade. ASEAN Member States are already more restrictive in their applied services trade policy than the Plus-6 countries, and all countries in the sample are particularly restrictive vis-à-vis Mode 1 trade and in professional services. Existing literature already demonstrates the adverse effects of regulatory incidence and heterogeneity in regulation on services trade (Kox and Nordås, 2007; Nordås, 2016; Nordås and Rouzet, 2017; Rouzet, Benz, and Spinelli, 2017), especially that delivered by commercial presence (Kox and Nordås, 2009; Andrenelli et al., 2018; De Backer, Miroudot, and Rigo, 2018) and the movement of services suppliers (Benz, Gonzales, and Mourougane, 2020; Shingal, 2020c), and on services value-added in GVCs (Miroudot and Cadestin, 2017).

Ideally, ASEAN+6 countries should use the pandemic as an opportunity to liberalise prevailing barriers to services trade; at the very least, they should not impose new barriers. The need for social distancing and continued fear of the pandemic may result in all countries imposing additional barriers. Thus, whilst business and leisure travel may be permitted, there are likely to be significant checks on the ground for health reasons, and mandatory quarantine periods. ASEAN+6 countries would do well to ensure that such restrictions, whilst necessary in these times, do not become prohibitive. This would be a crucial determinant of economic recovery in these countries in the pandemic's aftermath. In fact, some countries like Singapore relaxed lockdowns relatively quickly, whilst others have introduced new measures to kick-start their economies and revive their services sectors. For example, New Zealand began promoting domestic tourism to revive its tourism sector and related support sectors fairly early on in the pandemic. Australia and New Zealand have also opened up borders to each other by creating a travel corridor between themselves to help revive their tourism and related sectors.

Such developments could provide models that tourism-dependent ASEAN Member States could emulate.

The increasing use of digital trade and e-commerce also points to the need to unshackle and incentivise the e-commerce sector. Existing literature suggests that data restrictiveness has adverse effects, both on the productivity of domestic firms (Ferracane, Kren, and van der Marel, 2018) and on the imports of services (Ferracane and van der Marel, 2018) in the countries imposing the data-restrictive policies. Governments across the world have already adopted new measures, and the private sector has also cooperated to facilitate e-commerce by 'increasing network capacity, offering expanded data services at little or no cost, lowering or scrapping transaction costs on digital payments and mobile money transfers, improving delivery services and other logistics, using digital tools to enforce measures and disseminate information, promoting telehealth services, and leveraging ICT for surveillance' (WTO, 2020b). But new and practical e-commerce solutions are needed to enable the fast and secure cross-border movement of goods and services. One suggestion would be to implement common e-commerce and digital trade policy across the region and liberalise barriers to digital trade. At the same time, investment in ICT infrastructure is essential to provide digital access and bridge the digital divide both within and across ASEAN+6 countries.

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