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THE IMPACTS OF THE COVID-19 PANDEMIC ON CAMBODIA'S TRADE, GLOBAL VALUE CHAINS AND EXPORT COMPETITIVENESS

HING VUTHA



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The Impacts of the COVID-19 Pandemic on Cambodia's Trade, Global Value Chains and Export Competitiveness

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Acronyms and Abbreviations

ASEAN	Association of Southeast Asian Nations
E-commerce	Electronic Commerce
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GFT	Garment, Footwear and Travel
GSP	Generalized System of Preferences
GTA	Global Trade Alert
GVC	Global Value Chain
HS	Harmonized System
ICT	Information, Communication and Telecommunication
LDC	Least Developed Countries
PPML	Pseudo- Poisson Maximum Likelihood
RCA	Revealed Comparative Advantage
RCEP	Regional Comprehensive Economic Partnership
SEZ	Special Economic Zone
SIDA	Swedish International Development Agency
SME	Small and Medium Enterprise
STI	Science, Technology and Innovation
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
USA	United States of America
USD	United States Dollar
WHO	World Health Organization
WTO	World Trade Organization

Executive summary

Key findings:

- The outbreak of the COVID-19 pandemic caused overwhelming public health concerns and unprecedented economic recession worldwide, disrupting international trade, investment and global supply chains and causing rising protectionism and non-cooperative trade policies.
- Cambodia's economy and its people have suffered from the pandemic, with gross domestic product (GDP) declining by 3.1 percent in 2020, dragging Cambodia into a recession for the first time in three decades. The latest World Bank survey suggests that the pandemic has had negative impacts on jobs and incomes and forced many people into poverty.
- The pandemic has had adverse effects on Cambodia's exports as evidenced by a gradual decline in volume since the COVID-19 outbreak started. Different sectors have been affected differently, with merchandise exports relatively less affected and the service trade more exposed and vulnerable because of COVID-19 related restrictions that affected service supplies.
- The pandemic also disrupted Cambodia's machinery supply chains, which are significantly more sensitive to the economic and health conditions of Cambodia's trading partners than the same conditions in Cambodia's own territory.
- Export competitiveness driven by low labour costs and preferential market access unilaterally given to Cambodia is gradually declining and might not last in the long run. However, a wide range of products became more competitive in the export market during the pandemic.

Policy Suggestions

- Broadening and deepening of regional economic partnerships
- Moving up garment, textile and footwear value chains
- Intensifying integration in electronic and machinery supply chains
- Promoting digital trade
- Ensuring the existence of key success factors such as: strong policy coherence and effective public and private institutions; a higher level of coordination and cooperation among ministries and between government, private sector and educational institutions; maintaining political and economic stability, a robust favourable business climate, and ecosystems conducive to human capital and technological development; and creating leading domestic companies in key GVC activities that will provide key linkages to regional and global activities.

1. Introduction

The coronavirus (COVID-19) disease, which was first identified in Wuhan, China in December 2019, rapidly spread, prompting the World Health Organization (WHO) to declare a global pandemic. The disease is still persistent, causing overwhelming public health concerns and unprecedented economic recession worldwide. As of 13 August 2022, the number of COVID 19 cases in the world had increased exponentially to more than 589 million and the number of deaths due to the disease rose to 6.43 million¹. The COVID-19 pandemic has also triggered severe social and economic disruption and recession. In October 2021 the UN (2021) estimated that global output fell by 4.3 percent in 2020, the largest global recession since the Great Depression. The economic shock has been primarily due to simultaneous severe supply and demand disruption affecting major economic activities including commodity markets, logistics networks, supply chains, foreign direct investment (FDI), and tourism. Countries that rely heavily on international tourism, external trade, and foreign investment were badly hit by the spread of the pandemic. In the Maldives and Barbados, for example, output growth declined by 20.4 percent and 16 percent, respectively. The economic slowdown caused significant shock to labour markets and poverty. ILO (2020) estimates that at the global level the crisis led to the loss of about 420 million full-time-equivalent jobs and the loss of over USD 3,500 billion of global income. Furthermore, Sumner, Hoy et al. (2020) show that global poverty could increase by as much as 420-580 million people in 2020 compared to the level in 2018.

International trade, investment and global supply chains have been heavily disrupted. Public health measures introduced to curb the spread of COVID-19 including lockdowns, quarantine, travel restrictions, stricter border controls, port closures and export prohibitions caused deep disruption to cross-border movement of goods, services, and people. Consequently, global trade has drastically declined. By 2020, international trade in goods and services decreased by 8 percent (WTO 2021). Services trade was hit harder than merchandise trade, with volume decreasing by 21 percent. By October 2021, trade in goods quickly recovered to pre-pandemic levels but trade services remain sluggish, owing to the collapse of the travel industry (IMF 2022). Apart from a slowdown in trading activities, the COVID-19 pandemic exacerbated the fragility of the global trade order by inducing several countries to implement non-cooperative, nationalist, and protectionist trade practices, a departure from long-standing liberal and rule-based global trade governance. Consequently, trade policy has been highly uncertain, causing an immediate and negative impact on foreign direct investment (FDI). UNCTAD (2020) predicted that global FDI flow will decrease by 40 percent in 2020 from the 2019 value of nearly USD 1.6 billion.

As in most countries, Cambodia's economy and its people have suffered from the outbreak and spread of COVID-19. As of 15 August 2022, the country had a total

1 https://en.wikipedia.org/wiki/COVID-19_pandemic, accessed on 15 August 2022

number of 137,000 cases and 3, 056 deaths, triggering a heavy unprecedented impact on the country's public health system. Although Cambodia has controlled and managed the outbreak relatively well compared to several countries in the region, COVID-19 remains highly contagious, requiring ongoing containment policies as well as supporting programs to mitigate its impacts. Beyond health, the pandemic has also had a devastating impact on the economy and the Cambodian people's livelihood. In 2020 the country's gross domestic product (GDP) declined by 3.1 percent dragging Cambodia into a recession for the first time in the last three decades². Although the economy shows a quick recovery with economic growth of 3 percent in 2021 and a projection of 5.6 percent growth in 2022, the pandemic's impacts on business activities, the labour market and livelihood persist. The latest results from the World Bank survey suggest that the pandemic has had negative impacts on jobs and incomes and dragged many people into poverty.

Several studies on the effects of COVID-19 in Cambodia have emerged since the onset of the pandemic. The most common strand of research focused on identifying the impact of the pandemic on macroeconomic variables such as output growth and poverty. The World Bank, for instance, has published a series of Cambodia's Economic Updates with special focus on impacts of COVID-19 on output growth. The results show that key sectors including tourism, construction and real estate, and merchandise trade slowed down because of the pandemic. Similar negative effects of COVID-19 were found by UNDP (2021). Using an integrated CGE modelling approach, UNDP (2021) estimated that COVID-19 caused Cambodia's economy to slow down by 3.1 percent in 2020, before picking up to anywhere between 1.7 percent and 2.3 percent in 2021. The uptick in the economy seen for 2021 was predicated on the availability of social protections and other economic stimulus measures.

Another branch of studies examines the socio-economic impacts of COVID-19. Through its regular survey of Cambodian households in both urban and rural areas since mid-May 2020, the World Bank reported an economic slowdown due to COVID-19 which resulted in a reduction in employment and income and a rise in poverty. Since June 2020, about 25 percent more households have been classified as "newly poor". Similarly, UNDP (2021) predicted that about 2.5 million people, equivalent to 14.7 percent currently live in poverty. In the latest release by the Royal Government of Cambodia, the poverty rate in 2021 increased to 17.7 percent suggesting even greater negative effects of COVID-19 on the poor. Recent research on COVID-19 by CDRI had diverse themes ranging from the assessment of the pandemic's impact on inclusive development and governance to social protections, gender and local leadership.

Despite growing research on COVID-19 and its impacts on Cambodia, the extent to which COVID-19 affects Cambodia's trade, global value chains (GVCs) and export

² <https://mef.gov.kh>

competitiveness has not yet been well established. This study, therefore, aims to fill knowledge gaps and examine the dynamic of Cambodia's exports, GVCs and competitiveness during the pandemic. Specifically, it analyses Cambodia's export performance and assesses the extent to which the pandemic affects Cambodia's export structure and dynamic comparative advantage. The paper will also conduct an empirical analysis on the impact of the pandemic on Cambodia's participation in GVC activities based on gravity modelling. The findings from this study not only provide insights into the vulnerability of Cambodia's trade, GVCs and competitiveness during the pandemic but also inform policy design for post-pandemic recovery.

The remainder of this paper proceeds as follows. Section 2 briefly discusses how the COVID-19 pandemic reshapes the global trade landscape. Section 3 investigates the pandemic's impact on export performance with a strong emphasis on changes in export structure and geographical distribution of export markets. Section 4 elaborates the empirical specification and strategy for estimating the impact of COVID-19 on Cambodia's participation in GVC activities. Section 5 assesses the change in Cambodia's export competitiveness by analysing revealed comparative advantage for pre- and post-COVID periods. Section 6 draws conclusions and provides policy recommendations.

2. How the COVID-19 pandemic reshapes the global trade landscape

The COVID-19 pandemic represents the gravest disruption to international trade, order and governance, causing a dramatic decline in the movement of goods, services and people. Statistics show that international trade in goods and services in 2020 decreased by 8 percent (WTO 2021). The pandemic also caused significant disruption in transport and logistics, the backbone of international trade, and triggered protectionism and non-cooperative trade practices, a departure from the long-term liberal trade paradigm. Although trade in goods shows promising signs of recovery, movement of services and people remains significantly hindered by rising trade costs and protective policy interventions. This section discusses the extent to which the global trade landscape is changing during the pandemic. In particular, it highlights the key channels through which the pandemic shapes the global trade environment, including rising protectionism, increasing trade costs and disruptions in global value chains. At the end of this section, we discuss how the evolving global trade order affects Cambodia's trade performance and trajectory.

COVID-19 spurs protectionism and non-collaborative trade policies

Before the COVID-19 pandemic, global trade policies had already been under huge pressure due to US-China trade tension and more broadly, power rivalry between the two largest trading countries. In 2018 the USA accused China of "unfair" trade practices

and imposed subsequent tariffs³ on lists of imported goods from China worth more than USD 250 billion. China retaliated and imposed tariffs on imports from the US, escalating trade tension at the global level. The escalation of tariffs imposed by the two major economic superpowers not only ruined the long-established and rule-based multilateral trading system that already faces huge challenges in effectively managing global trade, but also caused large world trade uncertainty leading to disruptions in trade flow, investment and global value chains in Asia and beyond (Elms 2021). WEF (2021) asserts that trade tension and policy uncertainty results in the localisation of supply chains. The COVID-19 pandemic even worsened the complicated and fragile global commercial landscape by inducing several countries to alter their trade practices toward non-cooperation, nationalism, and protectionism. As part of their attempts to curb the spread of COVID-19, governments have introduced a range of temporary measures including lockdowns, entry bans, travel restrictions, border closures, port closures and changes in port protocol. These measures not only reduced manufacturing outputs but also heavily affected the movement of goods and services, leading to drastic contraction in global trade. Travel restrictions in particular have had a heavy impact on a wide range of sectors including tourism, education and business services. Some countries even introduced export prohibitions and restrictions aiming to mitigate critical food shortages and protect their national interests. By 22 April 2020 eighty countries had imposed export bans on medical supplies, pharmaceuticals, medical equipment and personal protective equipment needed to fight the spread of COVID-19 (WTO 2020). The Eurasian Economic Union (which includes Russia), as well as Vietnam and Cambodia banned exports of certain agricultural staples to mitigate potential food shortages. Moreover, this health crisis has changed the role of the state in the economy in which we have seen wide-ranging state intervention from non-cooperation to partial or complete nationalisation (Jean 2020). The latest data from Global Trade Alert (GTA⁴) indicates rising harmful policy interventions at the global level, pointing out the prevalence of behind-the-border measures within the international trade system. Such prevailing protectionist and nationalist trade practices have put the multilateral trading system in danger and could even slow down trade recovery. Although many of the measures are temporary and justifiable under the World Trade Organization (WTO) rules, such a complex trade environment challenges the role of WTO and other major trade blocs in effectively governing global trade in the context of transparent, predictable, and open trade norms. It is important to note that the rise of international production networks (IPNs) especially in East Asia has been largely driven by a more liberal and rule-based international trading order which creates an essential condition for effective and efficient functioning of IPNs (Kimura 2021).

3 In July 2018, the USA imposed a 25 percent tariff on 818 products imported from China with a value of roughly USD 34 billion. A month later, the USA applied a 25 percent tariff on an additional 279 products with estimated import value of USD 16 billion. The last measures took place in September 2018 when the USA imposed a 10 percent tariff worth an additional USD 200 billion in 5733 tariff lines.

4 <https://www.globaltradealert.org>

COVID-19 increases trade costs

Rising trade costs are another consequence of COVID-19. Several necessary public health measures such as border closures or stricter sanitary measures caused considerable delays to international cargo transport, affecting cross-border movement of goods (WTO 2020). Similarly, maritime transport is affected by port closures, changes in port protocol, and decrease in supply of sailing; while air transport is hard hit by travel restrictions, with annual global air cargo capacity declining by 24.6 percent by March 2020. These severe disruptions in the transport sector have caused significant rises in trade costs, creating critical interruptions in trade flow and GVC activities (Evenett 2020). Recent evidence reported by OECD (2022) suggests that both bulk freight rates and container freight rates have risen and reached their highest levels since the global financial crisis. Recent statistics show trade costs remain significantly higher than the pre-COVID period, casting a shadow on trade and economic recovery. Global trade logistics and costs further deteriorated due to the Russia-Ukraine war, causing a sharp increase in fuel and energy prices.

COVID-19 causes unprecedented disruption to the global value chains

Prior to the COVID-19 pandemic, GVCs were the most dominant production configuration⁵ that allowed lead firms to achieve greater efficiency and sizable profits. Because GVCs involve several countries in the supply of parts and components, and then assembly and distribution of final outputs to consumers worldwide, participating economies and their domestic enterprises gain from joining GVC activities. In other words, participating in a GVC is a fundamental element in modern development policy that offers a wide range of economic benefits especially in terms of increasing trade and investment, and enhancing greater competitiveness and growth (Cattaneo, Gereffi et al. 2013, De Backer, De Lombaerde et al. 2018). GVCs also enhance industrial productivity and thus lead to improvement in the performance of the private sector including small and medium enterprises (SMEs) through supplying intermediate goods and services. However, the efficiency of GVCs has been undermined by the pandemic. The wide range of government measures introduced to control infection, including lockdowns, business closures, social distancing and other forms of restrictions dramatically reduce labour supply and production, causing input shortages and supply chain disruption. Moreover, the pre-COVID trade landscape which was more conducive to GVCs has been significantly marred by growing non-cooperation, protectionism and rising transportation costs, which worsen the efficiency and resilience of supply chains. UNCTAD (2020) provided anecdotal evidence of supply chain disruptions as a result of rising logistics and transport costs. This evolving trading environment and existing pandemic-related challenges drive some firms to reconfigure their supply chains, possibly reshaping global and regional structures and governance of supply chains.

5 The rise of GVCs is largely driven by rapid progress in information, communication and technology (ICT), cheaper costs of moving goods and services along the value chain networks due to efficient transport and logistics services, and more open global trade regimes.

The rearrangement of international production could revolve around four different configurations depending on industries: regionalisation, re-shoring, diversification or replication (UNCTAD 2020). A stronger tendency toward regional configuration of value chains is driven by the need to reduce the risk (physical length) of supply chains and more open and interconnected regional economies brought about by comprehensive and ambitious mega-regional trade agreements. There is a growing argument that the pandemic will result in more regionalised global production (Enderwick and Buckley 2020, Gereffi 2020, UNCTAD 2020, Zhan 2021). Recent evidence from a survey of 3,000 executives across six regions suggests that 12 percent of respondents were primarily regionalising their supply chains (The Economist Group 2022). Re-shoring refers to the investment decision to bring back some manufacturing activities previously outsourced to third countries to home countries. This is primarily happening in higher technology intensive industries with the motive of enhancing efficiency through shorter value chains and reducing exposure to risk. There is anecdotal evidence suggesting that several European companies have decided to move production back to Europe (Pla-Barber, Villar et al. 2021). Findings from the executive survey show that 48 percent of respondents chose sourcing diversification as their primary reconfiguration strategy, whereas only 5 percent of respondents chose re-shoring (The Economist Group 2022).

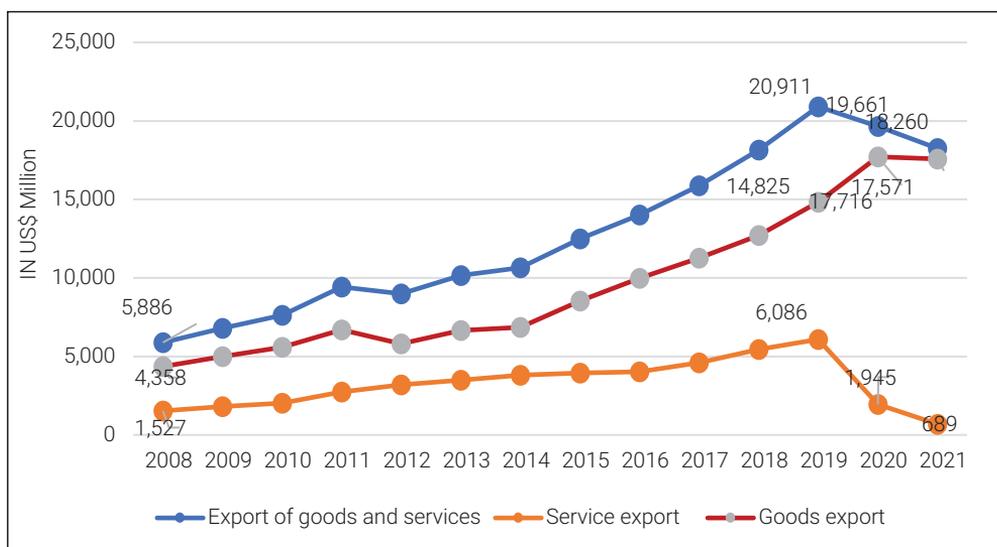
Implications of the complex global trade landscape on Cambodia's trade

Cambodia has pursued open and progressive trade and investment policies, which helped the country achieve high and sustained economic growth over the last two decades. As specifically articulated in its national development strategy, Cambodia continues to pursue a similar policy paradigm with even stronger emphasis on liberalisation and deeper integration with global and regional economies. The sudden change in the international economic environment associated with the pandemic is having a daunting effect on Cambodia's trade and investment driven growth trajectory. Since the Cambodian economy is heavily reliant on international trade as evidenced by a high trade to GDP ratio of around 123 percent over the past years, the disruption in international transport and logistics along with more restrictive trade measures are inevitably affecting its exports and imports. From the supply chain lens, Cambodia is an active supplier to global production networks in several sectors including garment, textile and footwear, bicycle, electronic machinery and transport equipment; such GVC-driven activities have been a key driver to its manufacturing sector development. Nevertheless, change in the international trade order and disruption in supply chains at the global level will have adverse spill-over effects on Cambodia's GVC activities. A deteriorating international trade order could also affect Cambodia's trade trajectory and export competitiveness. The following sections explore in depth the impacts of COVID-19 on Cambodia's trade and competitiveness using trade statistics analysis and a rigorous empirical method.

3. The impacts of the COVID-19 pandemic on Cambodia's export performance

Export has been a key driver of Cambodia's sustained economic growth over the past decades. Prior to the COVID-19 pandemic, export of goods and services markedly increased from a total value of USD 5,886 million in 2008 to USD 20,911 million in 2019, with an annual growth rate of 12 percent. During the same period prior to COVID-19, exports of goods grew slightly faster than service exports, with an average growth rate of 14 percent for goods versus 12 percent for services. The pandemic, however, has had adverse effects on Cambodia's exports as evidenced by a gradual decline in volume since the COVID-19 outbreak started. Total exports declined from their highest level in 2019 to USD 19,661 million in 2020 and further to USD 18,260 million in 2021. In growth terms, the export of goods and services contracted by 6 percent in 2020 and 7 percent in 2021. The decline in exports for Cambodia, however, was relatively moderate compared to average ASEAN and Least Developed Countries (LDCs) whose exports decreased by 9 percent and 10.5 percent, respectively.

Figure 1: Cambodia's Export trend 2010-2021



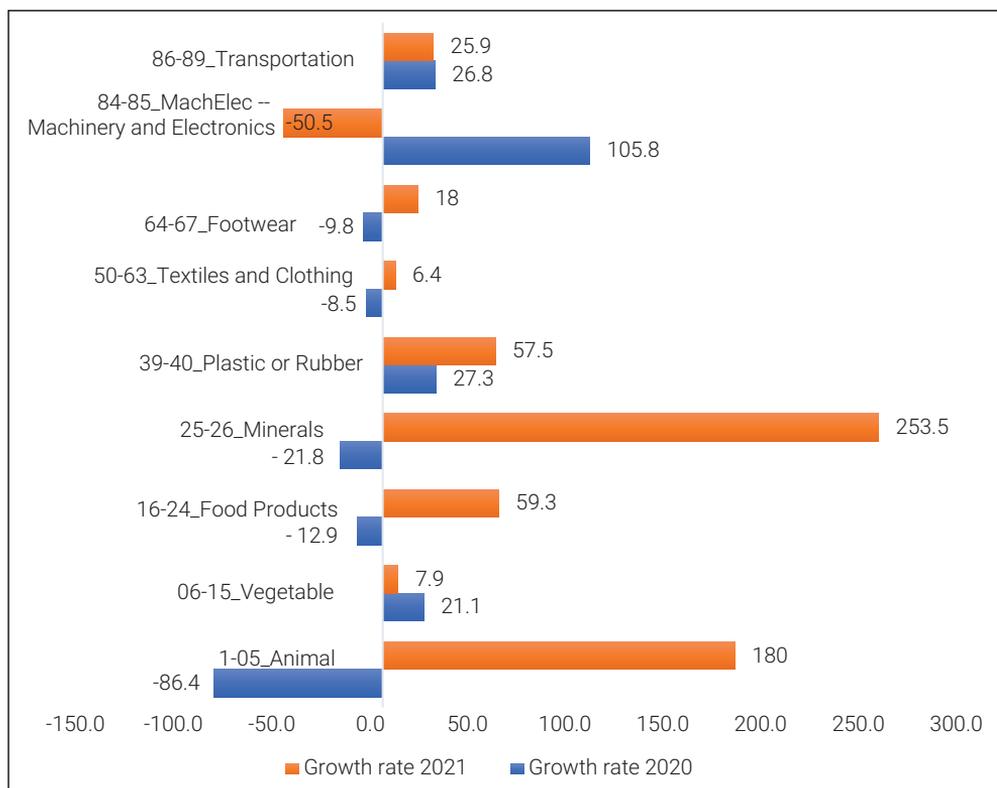
Source: Trade Map, accessed at <https://www.trademap.org/> on 14 June 2022

COVID-19 has had significant sectoral differential effects on Cambodia's exports. Merchandise exports are relatively less affected by COVID-19 with export values registering a 20 percent increase in 2020, though they contracted by 1 percent in 2021. Service trade, on the other hand, is a lot more exposed and vulnerable to pandemic shocks, because of COVID-19 related measures such as lockdowns, travel restrictions and border closures severely affecting all modes of service supplies, resulting in a drastic decline of the cross-border service trade. By December 2020 Cambodia's export of services decreased by 68 percent from USD 6,086 million in 2019. The decline continued in 2021 with export volume dropping to 689 million.

COVID-19 has differential effects on sub-sectoral merchandise exports

The pandemic had varied effects on exports of sub-sectors. As shown in Figure 2, exports of several agricultural products were hard hit in the earlier stage of the COVID-19 outbreak, but quickly recovered at the later stage. For example, exports of animals (HS01-HS05) decreased by 86.4 percent in 2020 but quickly rebounded a year later with export growth registered at 180 percent in 2021. Likewise, food products (HS16-HS24) saw their exports falling by 12.9 percent in 2020 before rising by 59 percent in 2021. Similar trends are observed in exports of textile and clothing (HS50-HS63), and footwear (HS64-HS67) with an initial decline of exports in 2020 by 8.5 percent for textile and clothing and 9.8 percent for footwear but an increase in 2021 by 6.4 percent and 18 percent, respectively. Such an export trend indicates that the prior disruption of textile, clothing and footwear production and supply chains swiftly recovered once a wide range of public health measures and restrictions were eased. Machinery and electronics (HS84-HS85) tend to have a contrasting export trend, with volume sharply increased in 2020 but plummeting in 2021. Interestingly, there are several sub-sectors including vegetables (HS6-HS15), plastic and rubber (HS39-HS40), and transportation (HS86-HS89) whose exports registered positive growth during both periods, reflecting the resilience of their production and supply chains.

Figure 2: Cambodia's annual growth rate of goods export by sub-sectors

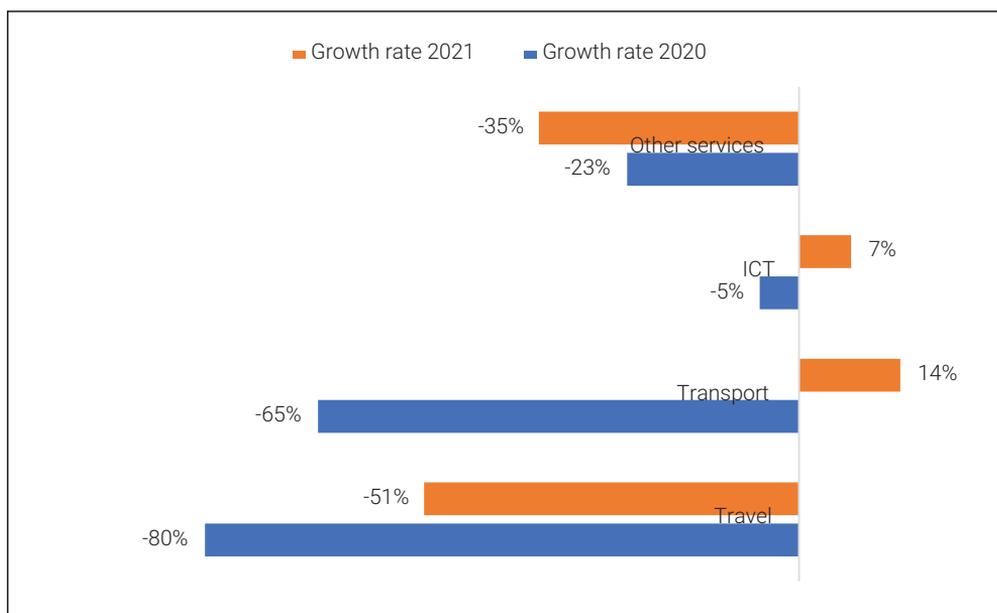


Source: Author's calculation based on trade data from Trade Map, accessed at <https://www.trademap.org/> on 14 June 2022

Most sectoral service exports are hard hit by the COVID-19 pandemic

Unlike merchandise trade where several sub-sectors are relatively resilient, almost all service sub-sectors were hit hard. The most severely affected service is the travel industry, with exports drastically declining by 80 percent in 2020. The travel export contraction continued in 2021 but the growth rate slightly improved to negative 51 percent. The collapse in the travel and tourism sector is largely the result of travel restrictions, border closures, quarantine requirements, and temporary closures or suspensions of several air transport operators, which directly and indirectly affected the movement of people and the provision of travel-related services. The downturn of travel industry exports happened in confluence with a substantial drop of tourist arrivals and revenues from tourism. Prior to COVID-19, Cambodia received 6.61 million tourists and generated revenues from tourism of USD 5.31 billion or equivalent to 19.61 percent of GDP⁶. The COVID-19 pandemic, however, has triggered an unexpected crisis in the tourism sector, with tourist arrivals in 2020 falling to 1.31 million people, 80 percent down from 2019 and with revenues dropping to USD 1.12 billion or 4.3 percent of GDP. Transport services are the second most affected sector by COVID-19, with exports decreasing by 65 percent in 2020. But unlike travel services, this service sector recovered at a faster pace in 2021, with the export registering a growth rate of 14 percent in 2021. Also having a similar trend is the export of ICT services, which were down by 5 percent in 2020 but went up by 7 percent in 2021.

Figure 3: Cambodia's annual growth rate of services exports by sub-sector



Source: Author's calculation based on trade data from Trade Map, accessed at <https://www.trademap.org/> on 14 June 2022

6 <https://www.worlddata.info/asia/cambodia/tourism.php>

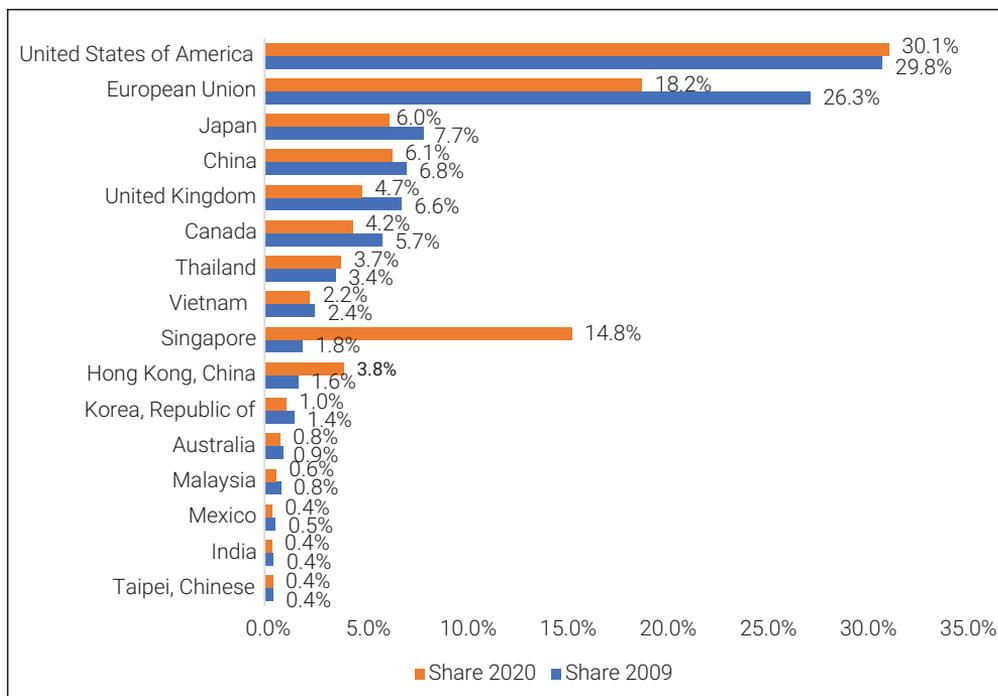
COVID-19 has had negligible geographic differential effects on trade

The pandemic seems to have no significant impact on Cambodia's geographical distribution of exports. Prior to the COVID-19 pandemic, the USA was Cambodia's largest export market, with values amounting to USD 4.41 billion or 30 percent of total exports. During the pandemic, the USA remained the top export market and its share in 2020 was the same compared to the pre-COVID period. It is important to note that in 2021 Cambodia exports amounted to 7.49 billion to the USA with top commodities being textile and clothing with values in 2021 of USD 3.11 billion (or 70 percent of exports to the USA), travel goods and handbags (USD 1.26 billion or 17 percent of exports), furniture, bedding and mattresses (USD 833 million), machinery and electronic appliances (USD 569 million), and footwear (USD 549 million).

Cambodia seems to have lost a considerable chunk of the export share in the European Union (EU) market as evidenced by a significant drop of export shares from 26.3 percent in 2019 to 18.2 percent in 2020. Although the downturn happened during the pandemic, we lack clear evidence to exclusively attribute this as a COVID-19 impact. In fact, the decrease in exports to the EU could be a consequence of a slight shift in the GSP program given by the EU to Cambodia. The EU decided to withdraw preferential market access for a handful of garments and footwear products, travel goods and the sugar sector from Cambodia on the grounds of human rights violations. The decision came into effect on 12 August 2020, and this means that exports of those products are no longer able to enjoy duty-free access to the EU market but are instead subject to tariffs applicable to any other member of the WTO. The partial withdrawal of preferential market access could potentially reduce the competitive edge of Cambodia's exports to the EU, and this could have caused the contraction of Cambodian exports to the EU. Latest trade statistics tend to attribute Cambodia's loss of export share in the EU to the partial withdrawal of preferential market access. In 2019, Cambodia exported USD 3,535 million worth of textile and clothing and USD 600 million worth of footwear to the EU. A year later, the value of exports went down by 19 percent to USD 2,873 million for textile and clothing and by 22 percent to USD 468 million for footwear. Also suffering a similar decrease are exports of travel goods and sugar, with values down from USD 138 million and USD 6.46 million, respectively in 2019 to USD 98 million and USD 0.18 million in 2020.

In contrast with the EU, Singapore imported substantially more from Cambodia during the pandemic than in the pre-COVID period, making it the third largest market for Cambodian exports. In 2020 the share of exports to Singapore was 14.8 percent, a significant increase from 1.8 percent in 2019. The increase is driven by an unprecedented jump of gold exports from USD 224 million in 2019 to USD 2,412 million in 2020. While export shares for several destinations such as Japan, China, the United Kingdom, Canada and Korea are slightly shrinking compared to the pre-COVID period, the share for Thailand, Vietnam, India and Taiwan are more or less the same for both 2019 and 2020.

Figure 4: Share of good exports by destination countries



Source: Author's calculation based on trade data from Trade Map, accessed at <https://www.trademap.org/> on 14 June 2022

4. The COVID-19 pandemic and supply chain disruption in Cambodia: evidence from the gravity model

This section empirically assesses the impact of the COVID-19 pandemic on Cambodia's GVC participation. Specifically, we follow the empirical strategy used in Hayakawa and Mukunoki (2021) and adopt a gravity model that allows us to capture the average effect of trade policies and the pandemic on bilateral trade and GVC activities (Pfafermyer, 2020; Yotov et al., 2016).

The gravity model is given as:

$$Trade_{ijt} = \text{Exp}(\beta_1 RTA_{ijt} + Z_{it}\beta_2 + Z'_{jt}\beta_3 + Z''_{ij}\beta_4 + \beta_5 Covid_{it} + \beta_6 Covid_{jt} + \epsilon_{ijt}) \quad (1)$$

Where $Trade_{ijt}$ is the trade values from a country i , which is Cambodia in this analysis, to j in time t . Z_{it} , Z'_{jt} , and Z''_{ij} are vectors of time-variant exporter and time-variant importer characteristics, and time-invariant country pairs, respectively. The time-invariant country pair characteristics include geographical distance and having common borders. GDP and multinational resistance are examples of time-variant exporter and importer characteristics. ϵ_{ijt} is a disturbance term. The RTA dummy in our model

captures all the current FTAs that are implemented in Cambodia on trade. It takes value 1 if Cambodia and its trade partner have the same FTA and zero otherwise. All key gravity variables are obtained from CEPII. To capture the effect of the COVID-19 pandemic on GVC activities, we include two variables in the gravity estimation namely the number of monthly COVID-19 infection cases in Cambodia ($Covid_{it}$) and the number of monthly COVID-19 infection cases in partner countries ($Covid_{jt}$). For the export equation, where $Trade_{ijt}$ denotes export value, $Covid_{it}$ captures the impact of the pandemic on the supply side while $Covid_{jt}$ captures the impacts on the demand side. To establish the robustness of our results, we use an alternative COVID-19 variable namely *COVID-dummy*, which takes value 1 if time t is from January 2020 onward and 0 if it is before January 2020.

In our empirical model, we use the monthly trade data at the 2-digit trade classification of products for Cambodia's bilateral trade from January 2019 to December 2020 obtained from UN Comtrade. We limit our estimation only to trade in machinery products defined as those in general machinery (HS84-85), transport equipment (HS86-89), and precision machinery sectors (HS90-92). These products are GVC-intensive goods and are often proxied to the global supply chain trade (Kimura and Obashi 2010, Hayakawa and Mukunoki 2021). $Trade_{ijt}$ denotes three different modes of trade flow namely total trade value (export plus import), export value, and import value to capture the differentiated effects of the COVID-19 pandemic on different trade flows. The UN Comtrade data consists of 81 countries with which Cambodia trades machinery products.

We estimate Equation (1) using Pseudo-Poisson Maximum Likelihood (PPML). As suggested by Anderson and Van Wincoop (2003) and Yotov, Piermartini et al. (2016), we also include exporter-year and importer-year fixed effects as the multilateral resistance terms and introduce the country-pair fixed effects to control for the endogeneity of the RTA variable in our estimation. The results of the gravity model for Cambodia's machinery trade are reported in Table 1. Column (1) and (2) represent the result for total trade, (3) and (4) for export, and (5) and (6) for import.

Before discussing key findings on the effect of the COVID-19 pandemic on supply chains, let us examine the results for conventional variables and trade policies. Coefficient of distance is negative and significant, indicating the importance of proximity and location in machinery trade. This can be interpreted as Cambodia being more likely to supply its machinery parts and components to its partners that are located at a closer distance. The result not only supports the claim by Johnson and Noguera (2012) that proximity plays an important role in explaining production networks but also confirms a stylised fact mentioned in Baldwin (2012) that most GVC activities are a regional phenomenon. Also consistent with most gravity literature is the finding of positive association between partners' GDPs and machinery trade. The result supports the theoretical foundation of the gravity model predicting that volume of bilateral trade is attracted by the size of economic mass. Coefficient of FTA is positive and statistically

significant pointing out the importance of FTAs in enhancing machinery trade. The finding is consistent with the result in Thangavelu, Hing et al. (2022) showing that FTA and Regional Comprehensive Economic Partnership (RCEP) will further accelerate the GVC transformation of Cambodian production and export. The participation of China, Japan and Korea in RCEP framework will be significant for Cambodia as they are important connectors for regional and global value-chain activities in ASEAN and the East Asian region (Thangavelu, Hing et al. 2022).

Table 1: The Impact of the COVID-19 pandemic on Cambodia's GVC trade

	Total trade		Export		Import	
	(1)	(2)	(3)	(4)	(5)	(6)
Distance	-0.854*** (1.02e-09)		-0.612*** (0)		-0.748*** (0)	
Sharing border	-1.754*** (2.57e-09)		-3.335*** (0)		2.760*** (7.14e-11)	
GDP of partner countries	0.666*** (3.17e-09)		0.649*** (0)		0.951*** (0)	
FTA	0.927*** (2.42e-09)	1.346*** (3.34e-10)	0.534*** (0)	1.242*** (1.61e-10)	1.224*** (0)	0.398*** (1.21e-09)
COVID-19 infected cases in Cambodia	0.185*** (1.23e-09)		0.439*** (0)		1.570*** (0)	
COVID-19 infected cases in partner countries	-0.290*** (8.17e-10)		-0.299*** (0)		-0.295*** (0)	
COVID-19 dummy		-5.545*** (1.72e-09)		-2.717*** (2.56e-10)		1.234*** (4.93e-10)
Observations	1,045	1,045	1,045	1,053	1,857	1,865
R-squared	0.469	0.469	0.582	0.583	0.770	0.771
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Country-pair FE	No	Yes	No	Yes	No	Yes

Robust standard errors in parentheses

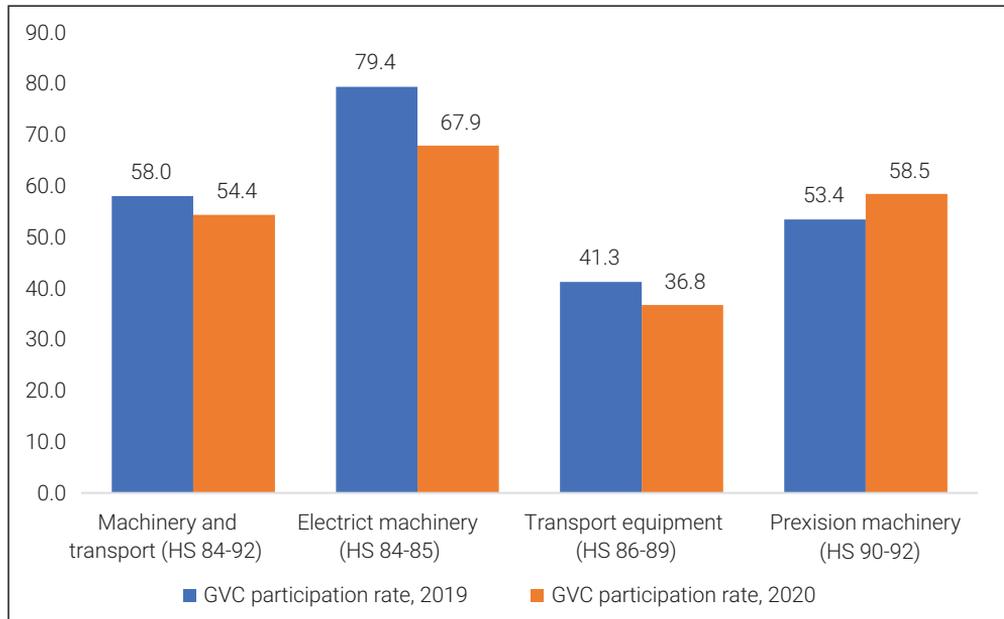
*** p<0.01, ** p<0.05, * p<0.1

Coefficients of the COVID-19 dummy are negative and statistically significant for total trade and export indicating negative shock on machinery trade and exports. However, machinery imports seem quite resilient to the pandemic shock. The result is consistent with findings in Hayakawa and Mukunoki (2021), Wuri, Widodo et al. (2022) that the pandemic caused certain disruptions in machinery supply chains at least in total trade and export terms. Evidence also points out the different effects of COVID-19

infection cases in host and partner countries on GVC trade. It appears that COVID-19 infections in partner countries adversely affect Cambodia's machinery supply chains a lot more than COVID-19 infections in its own territory, and the results are robust across different GVC proxies: total trade, export, and import. Specifically, the coefficient of COVID-19 cases in Cambodia is positive and significant whereas the coefficient of COVID-19 cases in partner countries is statistically negative. The findings suggest that Cambodia's machinery demand and supply are significantly more sensitive to the economic and health conditions in Cambodia's trading partners than the COVID-19 infections in its own territory. Despite several cases in the country, Cambodia still managed to increase its machinery trade.

To complement the above empirical evidence, we analyse the trend of Cambodia's GVC participation, which is defined as the sum of the share of the value-added embodied in third country exports and the share of foreign value-added in Cambodia's gross export. Figure 5 provides the GVC participation rate in 2019 and 2020 for machinery sub-sectors. Overall, it suggests a certain degree of disruption in Cambodia's machinery supply chains as reflected by the slight decrease in GVC participation ratio from 58 percent in 2019 to 54.4 percent in 2020. The supply shock, however, varies notably across sub-sectors. While the pandemic tends to affect electric machinery value chains the most, with GVC participation rate dropping to 67.9 percent in 2020 from 79.4 percent in 2019, Cambodia expanded GVC activities in precision machinery (HS 90-92) with the ratio rising from 53.4 percent in 2019 to 58.5 percent in 2020.

Figure 5: Cambodia's GVC participation rate in 2019 and 2020



Source: Author's calculation based on GVC index from University of International Business and Economics, accessed at <http://rigvc.uibe.edu.cn/sjzlk/sjk/9a08cef3995842fa88b7ceb1a1aec5aab.htm> on 14 June 2022

5. The impacts of COVID-19 on export competitiveness

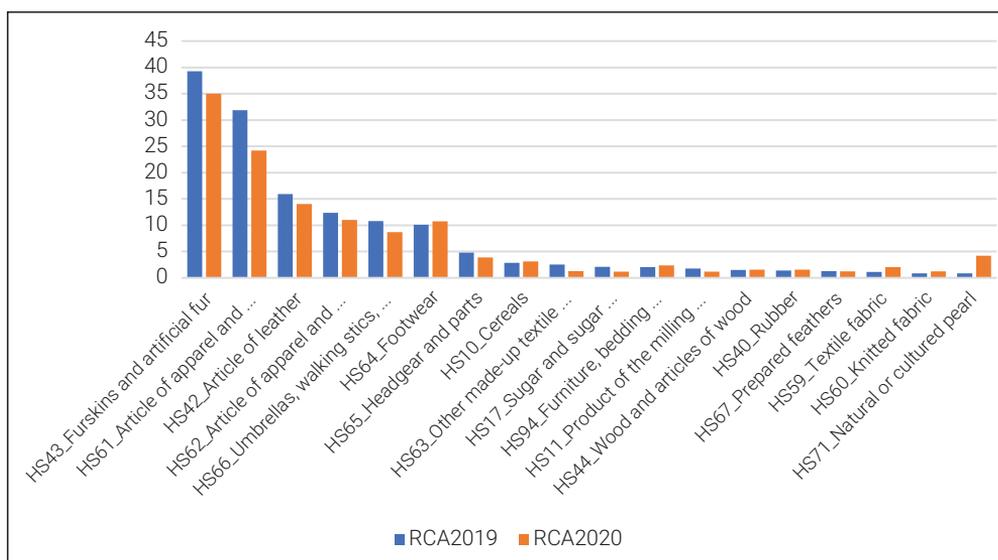
We assess change in Cambodia's export competitiveness by analysing the Revealed Comparative Advantage (RCA) for 2019 (pre-COVID) and 2020 (during COVID-19). Developed by Balassa (1965) as a measure to capture the export performance of a specific product or industry from a country, RCA is defined as the relative share of the country's export of the product to total export divided by the world's share of that same product to the world's total exports. The index's mathematical formula is specified as follows:

$$RCA = \frac{\frac{X_{Ai}}{\sum_{i \in P} X_{Ai}}}{\frac{X_{wi}}{\sum_{i \in P} X_{wi}}}$$

Where:

- P is the set of all export products,
- X_{Ai} is country A's export of product i ,
- X_{wi} is the world's export of product i ,
- $\sum_{i \in P} X_{Ai}$ is country A's total exports (of all products j in P), and
- $\sum_{i \in P} X_{wi}$ is the world's total exports (of all products j in P).

Figure 6: Cambodia's RCA at HS 2-digit product in 2019 and 2020



Source: Author's calculation based on trade data from Trade Map, accessed at <https://www.trademap.org/> on 14 June 2022

Country A is said to have a revealed comparative advantage in product i if RCA is greater than 1. The higher the value of RCA, the higher its export competitiveness in the world market. Figure 6 shows RCA of Cambodia exports before and during COVID-19 at a 2-digit level. Before the pandemic, Cambodia had a comparative advantage in textile and garments, footwear, raw hides and skins, rubber and plastics, wood and wood products, and a few agricultural products including cereals, sugar and products of the milling industry. During COVID-19, these products remained competitive in the world market as RCA remains significantly greater than 1. However, the level of RCA in 2020 for most competitive sectors is smaller than in 2019, indicating a decrease in export competitiveness.

To further investigate Cambodia's dynamic comparative advantage in the context of COVID-19, we calculate RCA for the top 100 products (at 4-digit level) that Cambodia either has the comparative advantage or has high potential to be competitive in the export market. The RCA at the product level is calculated for 2019, 2020 and 2021. We also calculate the change of RCA between 2019-2020, 2020-2021 and 2019-2021 and then classify those products into four broad categories according to the extent of change in RCA as follows:

- 1) Gradual competitive loser: refers to products with RCA decreasing over time in three periods: 2019, 2020, and 2021. The categorisation is based on the difference in RCA between the two periods benchmarking with zero. For products with changes in RCA between 2019-2020, 2020-2021 and 2019-2021 in the negative, they are regarded as gradual competitive losers.
- 2) Partial competitive loser: refers to products with RCA increasing during the early stage of COVID-19 (2019-2020) but decreasing at the later stage (2020-2021) to the extent that the value of RCA in 2021 is lower than the one in the pre-COVID period (2019).
- 3) Partial competitive winner: refers to products that witness their comparative advantage decreasing in 2019-2020 but gain the competitiveness back in 2020-2021 to a level exceeding the 2019 level. Also classified as partial competitive winners are products that register positive change in RCA during 2019-2020 but register negative change in RCA in 2020-2021, with the value of RCA in 2021 remaining higher than the one in 2019.
- 4) Gradual competitive winner: refers to products with RCA increasing over time in all three periods: 2019, 2020, and 2021.

Table 2 summarises the extent of change in export comparative advantage among the top 100 products (a detailed RCA for each product is given in Table 4 in the Appendix). Sixteen of the 100 products were constantly losing depth of comparative advantage during 2019-21. Starch (HS 1108), for instance, has seen RCA declining from 7.19 in 2019 to 4.37 in 2020 and further to 3.39 in 2021. The decrease in export

comparative advantage is in part driven by continuous contraction in exports with an annual growth rate during 2017-2021 of negative 13 percent. China is the largest importer of Cambodia's starch absorbing 90 percent of total starch exports but while the Chinese total import of this product has grown at annual rate of 18 percent, Cambodia's export of starch has lost a considerable market share in the Chinese market. For apparel and textile products such as women shirts and blouses (HS 6106), T-shirts (HS 6109), clothing accessories (HS 6117), women's or girls' singlets (HS 6208), babies' garments and clothing accessories (HS 6209), and blankets and travelling rugs (HS 6301), although their export comparative advantages have gradually declined, they remain competitive (as reflected by RCA greater than 1 in 2021) and represent a considerable proportion of Cambodia's total exports. The total amount of exports⁷ in 2021 for the combined garment and textile products classified in the gradual competitive loser quadrant amounted to USD 898 million, equivalent to 5 percent of total merchandise exports.

There are 31 top export products experiencing a lesser extent of decrease in comparative advantage over the course of the pandemic with RCA plummeting in 2020 but then slightly rising in 2021 to a level below the pre-COVID level. Rice (HS 1006) and cane or beet sugar (HS 1701) are a few agricultural products that fall within this category. Our RCA analysis suggests that although they remain competitive in the export market as revealed by RCA greater than 1, the extent of their comparative advantage has decreased. From export statistics, Cambodia exported a total value of USD 423.2 million of rice in 2021. This amount, which is ranked 9th in world exports with a share of 1.6 percent, represents a 10 percentage point drop from last year. As for cane sugar, it recorded a total sum of USD 43.69 million of export in 2021, a 20 percent decline from USD 54.55 million export in 2019. In growth terms over the last five years, cane sugar export had a negative annual growth at 14 percent, reflecting gradual loss in export shares and competitiveness in the world markets. Also partially losing competitive edge are a wide range of garment and textiles products (HS 50-63) and a few footwear products (i.e. footwear with outer soles of rubber (HS 6403), umbrellas (HS 6601) and artificial flowers (HS 6702)). Like agricultural products, Cambodia's exports of these products remain competitive, and their export values account for a significant proportion of the country's total exports. The sum export of garment, textile and footwear products classified in the partial competitive loser category amounted to USD 6.35 billion in 2020, equivalent to 36 percent of total exports. The exports were significantly less than in the pre-COVID period but quickly recovered in 2021 reaching USD 7.09 billion.

It is important to note that although the decline in RCA and export competitiveness more broadly takes place during the pandemic, it cannot be exclusively attributed as a COVID-19 effect because we also observe a notable shift in trade policies in Cambodia's major trading partners that somehow affect its exports. Specifically, the

7 The sum of exports for the following products: 6106, 6109, 6117, 6208, 6209, 6217 and 6301.

EU has partially withdrawn its GSP program given to Cambodia which subsequently led to a gradual decline in export competitiveness of several garment and textile products. This implies that export competitiveness driven by low labour costs and preferential market access unilaterally given to Cambodia is gradually declining. Given that the country is on the verge of graduating from LDC status that results in significant loss of preferential market access, there is a need for Cambodia to diversify export market access through free trade agreements (FTAs) and to reshape its export competitiveness position by upgrading export products and moving up the garment and textile value chains.

Table 2: Classification of competitive loser/winner based on changes in RCA

	HS 4-digit product	No of products
1. Gradual competitive loser	- 1108; 1703; 6106; 6109; 6117; 6208; 6209; 6217 - 6301; 6405; 7602; 9113; 9404; 9507; 9603; 9616	16
2. Partial competitive loser	- 1006; 1701; 4115; 4817; 5204; 5508; 6101; 6102; 6103 - 6104; 6105; 6107; 6108; 6110; 6111; 6112; 6114; 6115 - 6203; 6204; 6206; 6207; 6211; 6212; 6302; 6305; 6306 - 6310; 6403; 6601; 6702	31
3. Partial competitive winner	- 6205; 4421; 6406; 7307; 9505; 904; 8712; 714; 7608 - 8447; 6307; 6309; 5211; 4106; 6402; 4104; 3925 - 2505; 4302; 6116; 6113; 7801; 6810	22
4. Gradual competitive winner	- 803; 812; 1102; 2006; 4114; 4201; 4203; 4412; 4908 - 5205; 5206; 5515; 5609; 6004; 6006; 7402; 8309 - 8470; 9109; 9403; 9405; 9605; 9615; 7401; 7402 - 8309; 8414; 8470; 8473; 8509; 8541	31
Total number of top export products		100

We also observe a large number of products becoming more competitive in the export market even during the pandemic. Specifically, 22 products are partial competitive winners with RCA value in 2021 higher than in the pre-COVID period. Cassava (HS 714) and pepper (HS 904) are a few agricultural products that record rising export competitiveness. Although their RCA slightly declined during the pandemic (from 1.45 and 2.89 in 2019 to 1.45 and 2.22 in 2020 for cassava and pepper, respectively), export performance recovered quickly in 2021 with RCA jumping to 8.64 for cassava and 6.31 for pepper. Also gaining a certain degree of export competitiveness are unwrought lead (HS 7801), other articles of wood (HS 4421) and entertainment articles (HS 9505). The RCA of these products are less than 1 in 2019 and 2020 but they have comparative advantage in 2021. Other products with partial competitiveness gain are bicycles, some textiles and footwear goods, sand, hides and skins, builders' wares made from plastics, and knitting machines. Bicycles emerge as one of Cambodia's main exports apart from garment, textiles and footwear with an export value of USD 630.67 million in 2021, representing 16 percent annual growth over the 2017-2021 period.

There is considerable improvement in export comparative advantage in several products during the pandemic. Among them are bananas (HS 803), fruits and nuts (HS 812), cereal flour made from corn (HS 1102), and vegetables (HS 2006) whose RCA has been rising significantly over the past three years especially during the 2021 period (more details of RCA per year are given in Table 4 in the Appendix). For example, RCA for bananas increased from 4.03 in 2019 to 13.76 in 2021. Having similar comparative advantage dynamics are fruits and nuts, and vegetables with RCA jumping from 0.01 and 6.77, respectively, in 2019 to 7.8 and 18.5 in 2021. It is worth noting that the rise of export performance for these agricultural products is largely driven by growing demands for Cambodia's produce in China. In 2021, Cambodia exported a total of USD 168.29 million of bananas to the world and the amount represents a 60 percentage point increase from 2020. About 99.7 percent of these banana exports went to the Chinese market⁸. The same trend is seen for exports of fruits and nuts, as well as vegetables with 99.6 percent of Cambodia's USD 1.63 million fruit and nuts exports and 74.8 percent of USD 52.47 vegetable exports going to China. Cambodia and China have recently signed a bilateral FTA on top of existing economic cooperation frameworks i.e. ASEAN China FTA and RCEP with a view to strengthen mutual trade and investment. Such a deepening trade relation is expected to further enhance the export competitiveness of Cambodia's agricultural products especially those that already have comparative advantage.

Export competitiveness for hides, leather and skins has picked up rapidly in recent years. For example, articles of apparel and clothing accessories (HS 4203) and saddlery and harnesses (HS 4201) have gained stronger comparative advantage as reflected by a significant increase in RCA from 2.36 (for articles of apparel and clothing accessories) and 4.34 (for saddlery and harnesses) in 2019 to 2.53 and 20.75, respectively, in 2021. Several machinery and transport products also record rising export competitiveness. Calculating machines and pocket-size machines with calculating functions (HS 8470) and electro-mechanical domestic appliances (HS 8509) are among the emerging products that became more competitive in the export market with RCA progressively increasing from 2.21 and 1.40, respectively, in 2019 to 3.18 and 3.14 in 2021. Other products such as liquid elevators (HS 8414) and machinery parts and accessories (HS 8473) have not yet revealed comparative advantage but their RCA has gradually increased close to the unity value. Other machinery and transport products that are not within the top 100 export products but fall within gradual competitive winners include ball or roller bearings (HS 8482), electric motors and generators (HS 8501), electrical transformers (HS 8504), electrical ignition or starting equipment (HS 8511), electric instantaneous or storage water heaters (HS 8516), telephone sets (HS 8517), electrical apparatus for switching or protecting electrical circuits (HS 8536) and insulated wire or cable (HS 8544). Majority of these exports are machinery parts and components going to several countries in East and Southeast Asia. For example, in 2021 Cambodia

⁸ Cambodia's banana export account for 19.6 percent of world banana export into China.

exported USD 96.99 million of machinery parts and accessories (HS 8473) of which 63.8 percent went to Thailand and 32.9 percent to China. Similarly, export of air and vacuum pumps (HS 8414) was recorded at USD 59.68 million with 39.6 percent of the value shipping to China, 16.7 percent to Thailand, and 8.6 percent and 3.7 percent to Japan and Korea, respectively. Also growing rapidly is the export of insulated wire or cable (HS 8544) with an export sum of USD 425.4 million in 2021, a 34 percentage point growth from last year. About 40 percent of this amount shipped to the USA, 26.3 percent to Japan, 22 percent to Thailand, and 7.7 percent to Korea. Cambodia's growing export and comparative advantage in machinery and transport products signify its increasing participation in regional machinery production networks.

The preceding analysis confirms the recent evidence in Obashi (2022) indicating an improvement in competitiveness (proxied by empirical comparative advantage) in (a) computers, electronics, and optics and (b) transport equipment, which reflects an increasingly diversifying structure of production toward machinery parts and components to supply to regional machinery production networks. This is also indicative of increasing participation in parts-and-components activities in regional GVCs. Another similar finding about the dynamic comparative advantage of Cambodia's machinery export is articulated in Thangavelu, Hing et al. (2022). The study argued that Cambodia is gradually improving its export competitiveness in higher value-added GVC activities and RCEP will accelerate the GVC transformation of Cambodia for greater competitiveness in parts-and-components activities in the region.

6. Conclusion and policy recommendations

6.1. Concluding remarks

In this paper, we carefully analysed Cambodia's export performance and assessed the extent to which the pandemic affects Cambodia's export structure, GVC activities and dynamic comparative advantage. Our preceding analysis suggests that Cambodia's trade is adversely affected by the COVID-19 pandemic with total exports in goods and services contracting by 6 percent in 2020 and a further 7 percent in 2021. The effect, however, varies notably across different sectors. Service exports especially transport and travel sectors are hard hit as indicated by a drastic decline in exports. The rate of decline was as much as 68 percent in 2020. Despite some easing of restrictions such as a lift of the travel ban or relaxation of cross border movement of services and people since mid-2021, service export recovery is still very slow. For merchandise exports, COVID-19 has differential effects on sub-sectors. Several commodities such as animal products, food products, textile and clothing, footwear and minerals saw their exports declining in the earlier stage of the COVID-19 outbreak, but they then recovered quickly at the later stage. We also observe that exports of vegetables, transportation equipment, plastics and rubber and certain machinery products are quite resilient during the pandemic with export values rising in 2020 and 2021.

Our empirical analysis using a gravity model found that the pandemic disrupted Cambodia's machinery supply chains as reflected by a negative and statistically significant coefficient of the COVID-19 variable in our estimation. The finding also points out the different effects of COVID-19 infection cases in host and partner countries on GVC trade. More precisely, Cambodia's machinery demand and supply are significantly more sensitive to the economic and health conditions in Cambodia's trading partners than the COVID-19 infection in its own territory.

Our results from RCA analysis show a mixed story about Cambodia's export competitiveness. A dozen top export products including some agricultural produce and several garment, textile and footwear products are losing competitiveness with their RCA gradually declining during the pandemic. This implies that the export competitiveness driven by low labour costs and the preferential market access unilaterally given to Cambodia is gradually declining and might not be sustained in the long run. Given that the country is on the verge of graduating from LDC status, there is a need for Cambodia to diversify export market access through free trade agreements (FTAs) and to reshape its export competitiveness position by upgrading export products and moving up the garment and textile value chains.

We also observe a large number of products becoming more competitive in the export market during the pandemic. Cassava (HS 714), pepper (HS 904), banana (HS 803), fruits and nuts (HS 812), cereal flour from corn (HS 1102), and vegetables (HS 2006) are some agricultural products that record rising export competitiveness. Several machinery products such as calculating machines and pocket-size data recording with calculating functions (HS 8470), electro-mechanical domestic appliances (HS 8509), liquid elevators (HS 8414), machinery parts and accessories (HS 8473), electric motors and generators (HS 8501), electrical transformers (HS 8504), electrical ignition or starting equipment (HS 8511), electric instantaneous or storage water heaters (HS 8516), telephone sets (HS 8517), electrical apparatus for switching or protecting electrical circuits (HS 8536) and insulated wire or cable (HS 8544) are gaining more competitiveness with their RCA progressively increasing. The improvement in the competitiveness of electronic machinery and transport equipment not only reflects a more diversifying structure of production away from garment, textile and footwear but also indicates Cambodia's increasing participation in machinery regional supply chains. An improvement in competitiveness and increasing supply of machinery parts and components marks a promising entry point for Cambodia to develop higher value-added GVC activities driven by dynamic and resilient machinery regional production networks.

6.2. Policy recommendations

Because COVID-19 has dragged Cambodia's economy into a recession and pulled many people into poverty, boosting economic recovery in an evolving economic environment with high uncertainty is the highest priority for the Royal Government of Cambodia. Hence in December 2021, the government launched the "The Strategic

Framework and Programmes for Economic Recovery in the Context of Living with COVID-19 in a New Normal 2021-2023", aimed to restore and bolster Cambodia's economic growth back to its potential rate, and strengthen resilience for sustainable and inclusive socio-economic development in the long run. Promoting trade and regional economic cooperation is one of core objectives set out in the Framework as a means to speed up recovery. The following discussion highlights why trade is crucial for economic resilience, and then provides policy considerations for developing the right fundamental conditions to promote trade.

Why is trade crucial for economic resilience?

Before the pandemic, trade was widely perceived as a powerful medium to achieve high sustainable economic growth. Openness to trade affects growth by: allowing a country to exploit its comparative advantages and thereby enhance the efficiency of resource allocation, facilitating acquisition of foreign technology and knowledge and thus raising productivity, and attracting more investment, stimulating competition, and improving efficiency and competitiveness. A widespread shift to a more liberal policy paradigm indisputably demonstrates why trade matters for growth and development. During the pandemic, global demand and supply were disrupted causing a significant slowdown in trade and supply chains. However, statistics show that global trade has bounced back relatively quickly, suggesting that trade helps mitigate the shock and can accelerate economic recovery after shocks and disruptions. A rebound of exports help maintain the dynamics of production and other associated commercial activities while a recovery of imports can provide necessary inputs to the domestic economy (WTO and WB 2021). The speed of recovery of trade in the services sector such as travel, transportation and logistics, finance and telecommunication can determine economic recovery prospects (WTO and WB 2021). Another central feature of trade in supporting economic recovery is digital trade or e-commerce, which is growing rapidly even during the pandemic. Worldwide, the pandemic has seen people increasingly turning to e-commerce platforms to order goods and services. Such rapid digital transformation not only lowers production and distribution costs and improves productivity of firms but also provides opportunities for businesses including SMEs to connect and reach more customers across the globe (OECD 2019, UNCTAD 2022). Given that economies and consumers are becoming more digitalised, digital trade will be key in mitigating the economic slowdown and speed up recovery.

There is growing evidence supporting the claim that trade can help drive economic recovery. WTO and WB (2021) indicates that GDP recovery has been faster in countries with strong pre-existing trade linkages compared to countries with fewer COVID cases. Moreover, countries more integrated in GVCs did better in terms of maintaining trade and have better economic recovery than less integrated countries. Furthermore, diversification of the production and export structure is an important determinant of the ability of countries to prepare for, cope with and recover from shocks (WTO and WB 2021). Similarly, Thangavelu, Urata et al. (2022) asserted that

mega regional trade agreements like RCEP are important for East Asia and ASEAN regional recovery in the post-pandemic era and to move the region to the next stage of inclusive and sustainable growth in regionalism and regional and global production value chain activities.

What are the policy priorities to promote trade for economic recovery?

Because trade is a key driver of economic recovery, it is critical for Cambodia to restore and build broad-based and resilient trade in the 'new normal' context. The following are proposed important policy considerations for developing the trade sector:

- 1) ***Broaden and deepen regional economic partnership.*** There is a need for Cambodia, especially in the context of complex and evolving international trade order influenced by policy uncertainty and rising geopolitical rivalry between the USA and China, to broaden and deepen regional economic cooperation and maximise its benefits for economic recovery. Currently, Cambodia is a member of several regional free trade agreements such as ASEAN, ASEAN plus one framework and RCEP, and it recently signed a bilateral FTA with China and Korea. All these agreements provide Cambodia with a dynamic framework for structural reforms and further trade liberalisation. As the country is on the verge of graduating from LDC status in the coming years which would lead to significant loss of preferential market access given under the GSP program, it should consider forging bilateral FTAs with a broader range of potential partners. Cambodia should also monitor the progress of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTTP) and be open to participation in the CPTTP if the opportunity arises. The economic rationale behind broadening regional economic partnerships is that mega FTAs like RCEP can not only reduce policy risks and support the integrity of the rules-based trading system—an important and necessary conditions for trade to prosper—but can also provide a platform for deeper liberalisation, integration in resilient regional production networks and structural transformation of the Cambodian economy (Kimura 2021, Thangavelu, Hing et al. 2022). The latest study by Thangavelu, Hing et al. (2022) provides clear-cut evidence that RCEP will increase Cambodia's exports by 9.4-18 percent, which translates to a 2-3.8 percent increase in GDP and 3.2-6.2 percent growth in employment. RCEP is also likely to accelerate the intensity and integration of Cambodia into regional GVCs and foster structural transformation and diversification of Cambodia's exports as well as allow members to utilise technical assistance and economic cooperation to build domestic capacity that will be resilient against external shocks such as the pandemic (Thangavelu, Urata et al. 2022, Thangavelu, Hing et al. 2022).
- 2) ***Intensifying integration in global value chains.*** There are several reasons why GVCs matter for economic growth and economic recovery. The most important

rationale relates to the economic significance of GVCs. The dominant thinking is that participating in GVCs is a fundamental element in modern development policy that offers a wide range of economic benefits especially in terms of increasing trade and investment and enhancing greater competitiveness and growth. Evidence suggests that countries with faster economic growth and higher incomes are strongly associated with higher GVC participation (Cattaneo, Gereffi et al. 2013, Gereffi and Sturgeon 2013, Saito, Ruta et al. 2013). GVCs also enhance industrial productivity, thus leading to improvement in the performance of the private sector through supplying intermediate goods and services (Cattaneo, Gereffi et al. 2013, De Backer, De Lombaerde et al. 2018). Key to industrial and economic upgrading is the acquisition of new technology and knowledge to enhance supply competence. Finally, there is general agreement that GVCs have become a transformational force in the global economy, and are an increasingly important area in international trade, investment and economic development. Currently, Cambodia is part of supply chains in a few manufacturing sectors. Garments, textiles and footwear (GTF) are the most established GVC activities that have been contributing to the country's industrial development and economic growth for the last two decades. However, GTF manufacturing, which is primarily based on low labour costs and preferential market access, provides low value-added output. Given rising labour costs in the domestic economy and erosion of preferential market access due to potential graduation from LDC status, there is a need for Cambodia to move up GTF value chains. In fact, the government has recently launched the "Cambodia Garment, Footwear and Travel Goods Sector Development Strategy 2022-2027" aimed at achieving resilient and high value-added production of GTF. This strategy put forward several measures including, *inter alia*, strengthening human resources and upgrading skills to increase productivity; promoting domestic and foreign investment in high value-added activities; promoting investment in industries that support GTF value chains; and enhancing market diversification for GTF products. Therefore, intensifying integration of and moving up value chains will be significant for Cambodia to further develop its trade sector for economic recovery and resilience.

The preceding analysis indicates a prospect for Cambodia's firmly integrating in electronic and machinery supply chains. The rise of electronic and machinery exports which were mostly destined for East and Southeast Asian economies is associated with improvement in comparative advantage. RCEP together with the bilateral FTA with China and Korea will provide a more dynamic platform for Cambodia to accelerate and intensify participation in high value-added GVC activities. The key policy recommendations to achieve this are:

- Maintaining progressive market-based reforms aligned with deeper regional and bilateral economic cooperation frameworks.

- Improving GVC linkages such as logistics and transportation and infrastructure together with increasing domestic businesses to support GVC activities. In this digital age, it is also important to develop information, communication and telecommunication (ITC) to efficiently facilitate coordination and transaction with key value chain actors.
- Moving up value chains not only requires a competent and skilled labour force but also higher technological capacity of domestic economies. Therefore, it is critical to improve the skills of the labour force and promote the adoption of higher technology. It is also crucial to improve the efficiency of the labour market through flexible labour market regulations and regular dialogue between the government, private sector and educational institutions.
- A well-functioning and efficient special economic zone (SEZ) is key to attracting GVC activities. Recent evidence indicates that SEZs are losing their attractiveness in higher value-added activities to create linkages to regional GVCs (Thangavelu, Leng et al. 2021) and it is therefore important and necessary to upgrade SEZs and increase their linkages to GVC activities.
- Evidence also suggests that science, technology and innovation (STI) are important enablers for the integration of manufacturers in global supply chains (UNCTAD 2020). It is, therefore, critical for Cambodia to establish a sound and conducive environment for STI and streamline the supply process in the global value chains.

3) **Promoting digital trade.** Digital technology has progressed rapidly and is significantly increasing the scale, scope and speed of trade. We have seen a remarkable growth of digital platforms where firms including SMEs bring their products and services to a larger number of digitally connected customers across the globe. The COVID-19 crisis has given a boost to the global transformation to a digital economy. We observe a shift not only in digital trade and business model but also in consumption habits where more people turn to digital platforms for sales and ordering goods and services (UNCTAD 2020). Highly relevant in the context of COVID-19 is that countries with a greater shift to digitalisation and digital trade have faster economic recovery (WTO and WB 2021). For firms, digital adoption can enhance their dynamic capacities and help them better cope with the crisis (Guo, Yang et al. 2020).

Digital trade in Cambodia has gained huge momentum indicated by an increase in scale and scope of trade. Some e-commerce start-ups have seen an increase of more than 150 percent in online grocery sales since the outbreak of COVID-19 (UNCTAD 2020). In terms of market size, the Ministry of Commerce estimates that the market value of e-commerce in 2021 was around USD 970 million, a 19 percent increase from last year and the value is projected to reach USD 1.78 billion in 2025. Despite this notable progress, Cambodia's digital trade is still under development and the institutional and digital trade policy

framework is still at the nascent stage. There is, therefore, a need to build a vibrant digital trade ecosystem. As put forward in the E-commerce Strategy and Cambodia Digital Economy and Society Policy Framework (2021-2035), developing digital trade relies on strengthening and increasing investment in digital and telecommunications infrastructure, establishing a conducive and enabling regulatory framework for digital policies, developing digital skills and entrepreneurship to engage in digital trade, digitalising trade facilitation and logistics, and developing digitally enabled services including payment systems. Because e-commerce heavily depends on the reliability of firms' IT resources and telecommunication networks, building reliability and confidence in digital systems to protect consumers is essential for the development of e-commerce. This rests on a strong legal framework especially on data protection and privacy, cybercrime, ethical e-commerce use and effective cybersecurity management.

- 4) **Key success factors.** The key policy suggestions discussed above are broadly consistent with the existing development paradigm that advocates for liberal trade and investment regimes, enhanced connectivity with international markets, investing in education and skills of the workforce to thrive and seize benefits from GVCs, and leveraging digital transformation for trade and economic recovery. Success requires strong policy coherence, effective public and private institutions, and an unprecedented level of coordination and cooperation among ministries and between government, private sector and educational institutions. Also crucial are political and economic stability, a robust favourable business climate, and ecosystems conducive to human capital and technological development. Finally, it is important for Cambodia to create leading domestic companies in key GVC activities that will provide key linkages to regional and global activities.

Appendix

Figure 7: Quarterly growth rate for goods export and services exports

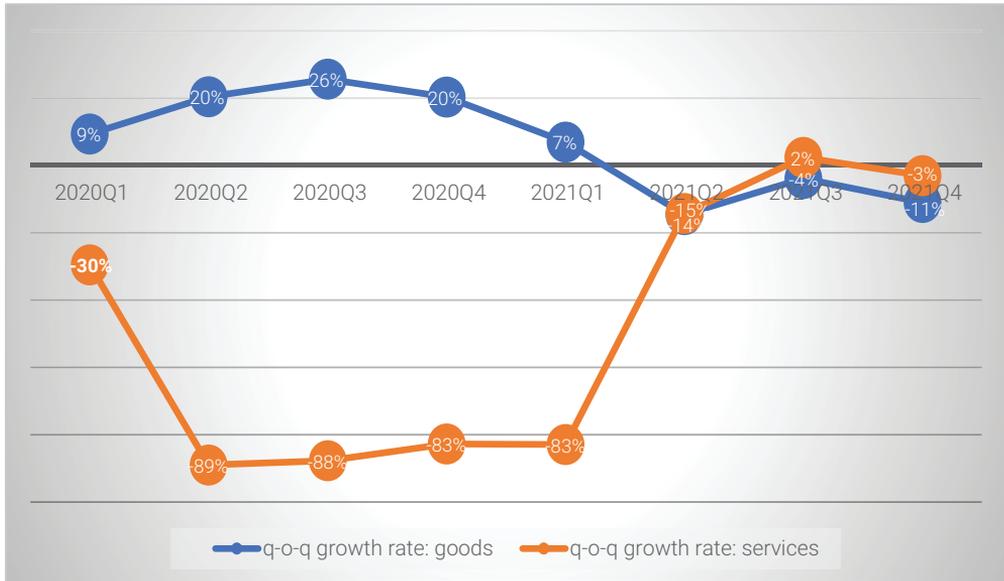


Figure 8: Quarterly growth rate of service exports by sub-sector

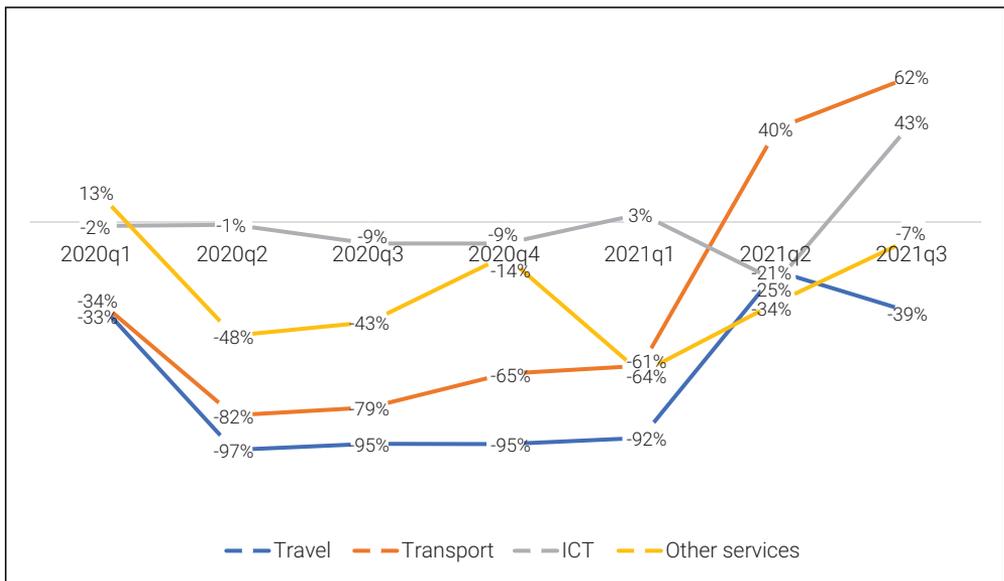


Table 3: RCA dynamic change by sector

section	RCA2019	RCA2020	RCA2021	Change in RCA2019-2020	Change in RCA2020-2021	Change in RCA2019-2021
2. Partial competitive loser						
50-63_Textiles and Garment	12.70	9.72	11.83	-2.98	2.11	-0.87
3. Partial competitive winner						
06-15_Vegetable	1.05	0.94	1.11	-0.10	0.17	0.06
16-24_Food Products	0.32	0.22	0.32	-0.10	0.10	0.00
25-26_Minerals	0.03	0.02	0.03	-0.01	0.02	0.00
27_Fuels	0.00	0.00	0.00	0.00	0.00	0.00
64-67_Footwear	9.41	7.78	10.01	-1.64	2.24	0.60
84-85_MachElec -	0.45	0.74	0.47	0.30	-0.28	0.02
4. Constant competitive winner						
1-05_Animal	0.95	0.97	0.99	0.02	0.02	0.04
28-38_Chemicals	0.02	0.02	0.05	0.00	0.03	0.03
39-40_Plastic or	0.70	0.73	1.02	0.03	0.28	0.31
86-89_Transporta	0.27	0.34	0.46	0.06	0.12	0.19

Table 4: RCA dynamic change by 4-digit product

HS Code	Product label	RCA2019	RCA2020	RCA2021	Change 2019-20	Change 2020-21	Change 2019-21
1. Gradual competitive loser							
1108	Starches	7.19	4.37	3.91	-2.82	-0.47	-3.28
1703	Molasses resulting from the extraction or refining of sugar	13.69	6.06	5.44	-7.62	-0.63	-8.25
6106	Women's or girls' blouses, shirts and shirt-blouses	22.03	14.86	11.98	-7.18	-2.87	-10.05
6109	T-shirts, singlets and other vests, knitted or crocheted	24.01	17.45	17.09	-6.55	-0.36	-6.92
6117	Made-up clothing accessories	3.29	2.83	1.57	-0.46	-1.25	-1.71
6208	Women's or girls' singlets and other vests	29.09	23.42	22.85	-5.67	-0.57	-6.25
6209	Babies' garments and clothing accessories	20.60	17.40	16.58	-3.20	-0.82	-4.02
6217	Made-up clothing accessories and parts of garments	1.81	1.78	1.38	-0.03	-0.40	-0.43
6301	Blankets and travelling rugs of all types of textile materials	3.51	3.22	2.88	-0.29	-0.33	-0.63

6405	Footwear with outer soles of rubber or plastics	7.11	5.10	2.63	-2.01	-2.47	-4.48
7602	Waste and scrap, of aluminium	1.81	1.55	1.29	-0.26	-0.26	-0.52
9113	Watch straps, watch bands and watch bracelets	1.57	1.12	0.90	-0.45	-0.22	-0.67
9404	Mattress supports	3.51	3.05	0.91	-0.46	-2.14	-2.61
9507	Fishing rods, fish-hooks	1.09	0.99	0.86	-0.10	-0.13	-0.23
9603	Brooms, brushes	1.26	1.15	1.10	-0.11	-0.06	-0.17
9616	Scent sprays and similar toilet sprays	2.15	0.96	0.57	-1.19	-0.38	-1.58
2. Partial competitive loser							
1006	Rice	20.07	16.66	18.29	-3.40	1.63	-1.77
1701	Cane or beet sugar	3.07	1.75	1.95	-1.32	0.21	-1.12
4115	Composition leather	3.25	7.94	1.62	4.69	-6.32	-1.63
4817	Envelopes, letter cards	2.49	1.42	1.71	-1.07	0.29	-0.78
5204	Cotton sewing thread	15.51	0.53	2.66	-14.98	2.13	-12.85
5508	Sewing thread of man-made staple fibres	6.91	8.15	2.91	1.24	-5.24	-4.00
6101	Men's or boys' overcoats, car coats	58.53	49.90	57.76	-8.64	7.86	-0.77
6102	Women's or girls' overcoats,	42.02	30.33	32.02	-11.69	1.69	-10.00
6103	Men's or boys' suits, ensembles, jackets, blazers	57.31	34.42	38.03	-22.89	3.61	-19.28
6104	Women's or girls' suits, ensembles,	38.66	27.08	29.76	-11.58	2.68	-8.90
6105	Men's or boys' shirts,	17.11	12.40	14.19	-4.72	1.79	-2.93
6107	Men's or boys' underpants, briefs, nightshirts,	35.72	32.62	33.35	-3.10	0.73	-2.37
6108	Women's or girls' slips, petticoats	38.02	33.63	34.28	-4.39	0.65	-3.74
6110	Jerseys, pullovers, cardigans, waistcoats	25.16	21.81	23.30	-3.36	1.49	-1.86
6111	Babies' garments and clothing accessories	63.74	46.27	54.12	-17.47	7.85	-9.62
6112	Track-suits, ski-suits and swimwear	33.89	28.00	31.11	-5.89	3.11	-2.78
6114	Special garments for professional	12.27	7.86	9.67	-4.41	1.81	-2.60
6115	Pantyhose, tights, stockings, socks	2.43	1.53	1.87	-0.91	0.34	-0.57

6203	Men's or boys' suits, ensembles	12.60	9.73	11.95	-2.87	2.23	-0.65
6204	Women's or girls' suits, ensembles	14.37	12.12	12.37	-2.25	0.24	-2.00
6206	Women's or girls' blouses, shirts and shirt-blouses	9.39	7.27	7.66	-2.13	0.39	-1.74
6207	Men's or boys' singlets and other vests	18.21	11.51	14.77	-6.70	3.26	-3.44
6211	Tracksuits, ski suits, swimwear and other garments	7.31	7.78	6.51	0.47	-1.27	-0.80
6212	Brassieres, girdles, corsets, braces	9.63	8.97	9.00	-0.66	0.03	-0.64
6302	Bed linen, table linen, toilet linen	2.25	1.48	1.84	-0.78	0.36	-0.41
6305	Sacks and bags	5.92	4.35	4.64	-1.57	0.28	-1.29
6306	Tarpaulins, awnings and sunblinds	2.00	1.59	1.81	-0.40	0.22	-0.19
6310	Used or new rags, scrap twine, cordage, rope	5.85	3.59	4.11	-2.26	0.51	-1.74
6403	Footwear with outer soles of rubber	12.33	7.84	9.34	-4.49	1.50	-3.00
6601	Umbrellas and sun umbrellas	11.10	12.07	10.04	0.97	-2.03	-1.06
6702	Artificial flowers, foliage and fruit	1.46	1.08	1.19	-0.38	0.11	-0.27
3. Partial competitive winner							
6205	Men's or boys' shirts	12.43	10.78	13.50	-1.65	2.72	1.07
4421	Other articles of wood, n.e.s.	0.01	0.00	1.58	-0.01	1.58	1.57
6406	Parts of footwear	2.92	2.29	3.01	-0.63	0.72	0.09
7307	Tube or pipe fittings	0.67	0.58	1.00	-0.08	0.42	0.34
9505	Festival, carnival or other entertainment articles	0.72	2.30	1.85	1.58	-0.44	1.14
904	Pepper of the genus Piper	2.89	2.22	6.31	-0.67	4.09	3.42
8712	Bicycles and other cycles	54.00	48.38	56.68	-5.62	8.30	2.68
714	Roots and tubers of manioc	1.45	1.41	8.64	-0.04	7.23	7.19
7608	Aluminium tubes and pipes	5.62	3.94	6.18	-1.68	2.24	0.56
8447	Knitting machines, stitch-bonding machines	0.44	2.67	0.71	2.23	-1.97	0.27
6307	Made-up articles of textile materials	2.50	0.86	3.73	-1.64	2.87	1.23
6309	Worn clothing and clothing accessories	0.61	1.07	0.81	0.46	-0.26	0.20

5211	Woven fabrics of cotton	0.13	1.41	0.55	1.27	-0.85	0.42
4106	Tanned or crust hides and skins of goats	1.47	6.37	2.37	4.90	-4.00	0.90
6402	Footwear with outer soles	9.28	8.42	11.29	-0.85	2.87	2.02
4104	Tanned or crust hides and skins of bovine	3.90	3.29	5.12	-0.61	1.83	1.22
3925	Builders' ware of plastics, n.e.s.	14.90	13.13	17.64	-1.78	4.52	2.74
2505	Natural sands of all kinds	1.94	0.51	3.71	-1.42	3.19	1.77
4302	Tanned or dressed furskins	252.81	222.27	376.52	-30.55	154.26	123.71
6116	Gloves, mittens and mitts, knitted or crocheted	7.36	5.20	8.32	-2.16	3.12	0.96
6113	Garments, knitted or crocheted,	32.05	31.45	63.02	-0.60	31.57	30.97
7801	Unwrought lead	0.24	0.20	1.73	-0.05	1.53	1.49
4. Gradual competitive winner							
803	Bananas	4.03	7.19	13.76	3.16	6.57	9.73
812	Fruit and nuts	0.00	4.31	7.80	4.31	3.50	7.80
1102	Cereal flours (excluding wheat or meslin)	1.31	2.38	3.59	1.07	1.20	2.28
2006	Vegetables, fruit, nuts, fruit-peel	6.77	8.90	18.50	2.13	9.60	11.73
4114	Chamois leather	0.57	2.34	2.53	1.76	0.19	1.96
4201	Saddlery and harness	3.03	5.27	20.75	2.24	15.48	17.72
4203	Articles of apparel and clothing accessories	2.36	2.54	4.34	0.18	1.80	1.98
4412	Plywood, veneered panel and similar laminated wood	9.81	11.71	14.74	1.89	3.03	4.92
4908	Transfers "decalcomanias"	1.11	1.11	2.69	0.00	1.58	1.59
5205	Cotton yarn other than sewing thread	0.00	0.35	0.53	0.35	0.18	0.53
5206	Cotton yarn containing predominantly	0.05	0.05	0.76	0.00	0.70	0.71
5515	Woven fabrics containing predominantly	1.00	1.47	1.59	0.46	0.12	0.59
5609	Articles of yarn, strip	1.17	1.49	3.09	0.32	1.60	1.92
6004	Knitted or crocheted fabrics	3.80	4.37	5.92	0.58	1.54	2.12
6006	Fabrics, knitted or crocheted	22.89	23.94	41.81	1.05	17.86	18.92
7402	Copper	2.15	2.65	2.86	0.51	0.20	0.71

8309	Stoppers, caps and lids	0.71	0.82	1.15	0.11	0.32	0.43
8470	Calculating machines and pocket-size	2.21	2.41	3.18	0.20	0.77	0.97
9109	Clock movements, complete and assembled	0.75	1.77	11.18	1.02	9.41	10.43
9403	Furniture and parts thereof	0.23	0.85	1.36	0.62	0.51	1.13
9405	Lamps and lighting fittings	4.80	5.66	7.85	0.86	2.19	3.05
9605	Travel sets for personal toilet	5.76	10.12	13.35	4.37	3.22	7.59
9615	Combs, hair-slides and the like	0.19	0.30	1.64	0.11	1.34	1.45
6810	Cement, concrete or artificial stone	0.02	0.19	1.32	0.18	1.13	1.30
7401	Copper mattes	22.89	23.94	41.81	1.05	17.86	18.92
7402	Copper	2.15	2.65	2.86	0.51	0.20	0.71
8309	Stoppers, caps, lids	0.71	0.82	1.15	0.11	0.32	0.43
8414	Pumps; liquid elevators	0.31	0.44	0.78	0.13	0.34	0.47
8470	Calculating machines and pocket-size data recording	0.00	0.27	0.96	0.27	0.69	0.96
8473	Machinery; parts and accessories	0.46	0.67	0.68	0.21	0.01	0.22
8509	Electro-mechanical domestic appliances	1.40	2.06	3.14	0.67	1.08	1.74
8541	Diodes, transistors, similar semiconductor devices;	0.26	1.20	2.13	0.94	0.93	1.87

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