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**RCEP and Modern Services**

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**Abstract:** *In this chapter, we start with an overview of trade flows in modern services within the Regional Comprehensive Economic Partnership (RCEP) region and identify the main challenges for policymaking that have emerged in the negotiations. To give this analysis a quantitative foundation, we use a general equilibrium Poisson pseudo-maximum likelihood analysis of the gravity model to cover several scenarios, including structural adjustments that could guide future cooperation in liberalisation and the development of modern services. We then show where the opportunities for further liberalisation lie within the framework of RCEP.*

**Keywords:** RCEP; Services; Gravity

**JEL Classification:** F14; F15

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## **1. Introduction**

The Regional Comprehensive Economic Partnership (RCEP) came into force in January 2022. With 15 members in East Asia, it consolidated an existing set of trade agreements between the Association of Southeast Asian Nations (ASEAN) and its ‘+1’ partners. It became the world’s largest trade agreement with respect to its coverage of trade and gross domestic product (GDP). Its benefits have been estimated to be twice those of the Comprehensive and Progressive Agreement on Trans-Pacific Partnership (CPTPP), with a relatively small trade diversion effect (Park, Petri, and Plummer, 2021). Generally, the modelling work finds a dominant role of manufactured goods in the benefits of the agreement. In this chapter, we explore further the treatment of services in the agreement, with a focus on modern services, and we discuss the ways in which the treatment of these services in RCEP might create even greater benefits. We also contribute to the assessments of the agreement by reporting results of modelling work that is specific to services. Undeniably, the share of services in the gross national product is increasing worldwide, although two phases can be distinguished in this respect (Findlay, 2017). The first phase is when traditional services increase following the growth of agricultural production, the extraction of natural resources, and industrial production. This is often the case when countries move from the low-income to middle-income level. A second phase is when modern services, such as financial services, information technology, and telecommunications, become increasingly important and middle-income countries start building up a domestic services industry. This is often the case when countries move from the lower-middle to upper-income category (Eichengreen and Gupta, 2013). Because these ‘modern services’ are internationally tradable, expanding market access for foreign firms into the domestic market becomes an important policy issue next to market access abroad for agriculture and manufactured goods.

The development of modern services is vital for success in emerging economies. The second phase just described is usually critical because future employment opportunities and income growth depend strongly on the success of the modern services sector. This occurs not least because access to such services by international efficient service providers is essential for the growth of productivity

in a manufactured goods sector and, therefore, a foundation of further industrialisation to avoid the middle-income trap. Access to services also becomes more important over time as servicification, the increased share of services embodied in manufactured goods, becomes a driving force behind innovation in the manufacturing goods sector. Therefore, participation in global value chains (GVCs), crucial for economic development, benefits from the entry of efficient foreign providers (Miroudot and Cadestin, 2017), but also the GVC structure creates opportunities for the growth of services exports of developed economies around particular value-adding activities. Emerging markets, especially those in East Asia, are therefore naturally appealing to foreign service providers not only in terms of final consumers but also as the location of service provision in GVCs for both goods and services. Finally, modern services, and especially the use of information technology in a digital world, are an important means to start new companies and to participate in global trade with these young and small companies, which can also become exporters. We argue here that participation in the RCEP negotiations makes a number of contributions in these respects.

In contrast to traditional trade negotiations in goods that revolve around the reduction of tariffs and quantitative restrictions, access to domestic markets for services often involves a number of complex elements. One involves changing domestic regulation in these sectors, especially when this regulation has a discriminatory nature against foreign services affiliates and thus breaks the national treatment provisions. Hence, market access questions raise attention to more complicated and broader issues concerning services sector reform. Another, in the context of global and regional trade negotiations, is that the liberalisation of domestic services markets can be perceived as a bargaining chip to gain better access to agricultural products and industrial products and, thus, a stronger position in high-income markets. With respect to regional talks amongst emerging markets, opening to regional partners may involve an expectation that countries in the region that are more developed gain from such 'deep' agreements. Hence, also in regional trade agreements amongst emerging markets, access to services is seen as a bargaining chip from the perspective of countries that are relatively distant from productivity frontiers. Furthermore, there are deeper fears at the nexus of trade and

technology that the liberalisation of services trade may have adverse economic consequences and is not able to be bargained away in trade negotiations. Perhaps the most important one from the view of the less developed economies is that the increased importance of services and the strong increase in productivity in global value chains will condemn them to premature industrialisation because the incorporation of professional services will come too late for them, and they will be limited to the first generation of traditional services that will bring little added value and, therefore, income (Rodrik 2016). On top of that comes the fear that in the modern platform economy, the revenue from modern services will accrue to a few large service providers, who generally come from developed countries. Lastly, there is the information technology revolution and the move towards robotics supported by artificial intelligence (AI) and blockchain services, which can erode the comparative advantage in labour-intensive production (Rodrik 2018). As noted above, however, potential exporters in these economies have an interest in facilitating their access to international markets.

The playing field for services trade liberalisation is thus complex. With little progress in multilateral trade negotiations, much of the action takes place through regional agreements. Recently, there has been significant traction on mega-agreements involving large countries. Although stalled because of recent trade wars between the United States and China, such deals may return soon. In Asia, deeper regional integration has been initiated by the CPTPP and recently with RCEP. Although in the region there are still challenges in industrial goods protection, its importance has declined over time when compared to services, and especially regarding the effects of the bundles of technology associated with the 'Industry 4.0' revolution. But services liberalisation is much more complex, involving the harmonisation of standards for their provision or establishment of equivalence of standards. These exercises are not quantitative but qualitative in nature and require a substantial degree of knowledge and judgment. Therefore, liberalisation of services trade also puts a much stronger demand on public sector capacity and capabilities, as well as negotiating skills. In addition, differences in national regulations are usually the biggest threat to free trade in services, but cooperation mechanisms between countries to align these regulations are still not well-

developed. Hence, regional agreements often express an ambition to work together ('talks'), rather than making significant progress at the outset. Therefore, much of the success of regional agreements, including RCEP, will depend on the success of cooperation in overcoming barriers to the integration of services.

In this chapter, we discuss the current state of trade in modern services (financial services, information and communications technology (ICT), telecommunications, and professional services, such as accountancy services) in relation to the establishment of RCEP. We will start by highlighting the common challenges in the liberalisation of professional services and how they have affected negotiation in RCEP. This work begins with a descriptive overview of the development of trade flows within the region, the restrictions countries impose on it, and the extent of commitments in RCEP relative to other existing agreements. Then, the chapter will analyse what the effects of the regional agreement might be on trade in services. For this, we will use state-of-the-art econometric techniques, of which the general equilibrium Poisson pseudo-maximum likelihood (GE-PPML) gravity model is the anchor. As the main conclusion of this empirical exercise, we will argue that the region, especially the ASEAN Member States, has much to gain from further regional liberalisation of the restrictions on business services.

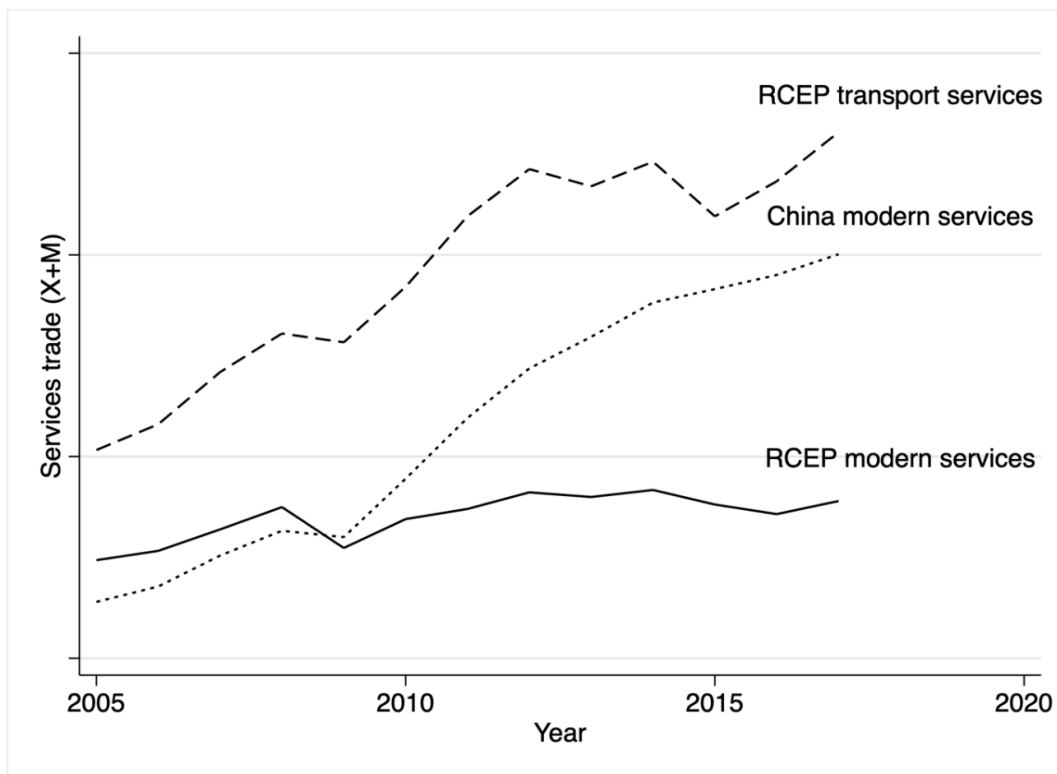
At the end of the chapter, we will discuss the global negotiating approach to services trade and the effects this may have on the ongoing development of services liberalisation in RCEP. Ultimately, RCEP will be a 'living agreement' with the work agenda to be evaluated periodically, which states targets. It is valuable to start a discussion where RCEP can play a pivotal role in supporting trade and fostering economic development. Two questions need to be answered. The first is where RCEP can make a difference and what the effect of policy interventions and enhanced collaboration would be. The second question is what this means for the organisation of RCEP and the design of policy initiatives. But first, we report some stylised facts on regional trade in modern services.

## 2. Trends in Regional Modern Services Trade

RCEP is the largest region striving to liberalise trade. Traditionally, it has been an origin of many manufactured products, but recently RCEP trade in modern services has been rising.

### 2.1. Modern services flows in the RCEP region

**Figure 1: Total Services Flows in the RCEP Region, 2005–2019**



Note: RCEP in this figure excludes China.

Source: Author's calculations based on the WTO TISMOS database.

Figure 1 shows modern services (ICT, financial, and business services) trade in the region from 2005 until 2019. We have added the region's trade in transport services and have isolated the modern services trade flows for China. There is a substantial increase in transport services trade in the region, very much connected to the rise of participation in GVCs. This is not only true for countries in the region itself but is also especially true for China. However, whereas the overall trade in

China in modern services has increased, for the region excluding China, such services trade has stagnated.

We dig deeper in Table 1 with the exports and imports (internally and externally) of the countries of modern services in the RCEP region. We will first look at the dynamics of each of the subsector shares to say more about the differences across services industries. For exports, we add up the exports of all the countries that participate in RCEP, which gives the sum of exports to the rest of the world and to other members of the bloc. In addition, we show the total trade between the member countries ('internal') of the trading bloc. The table shows the shares of the sectors and their dynamics from 2005 to 2019.

**Table 1: Growth in Trade Shares and Sectoral Distribution of Modern Services in Trade Flows, 2005–2019 (%)**

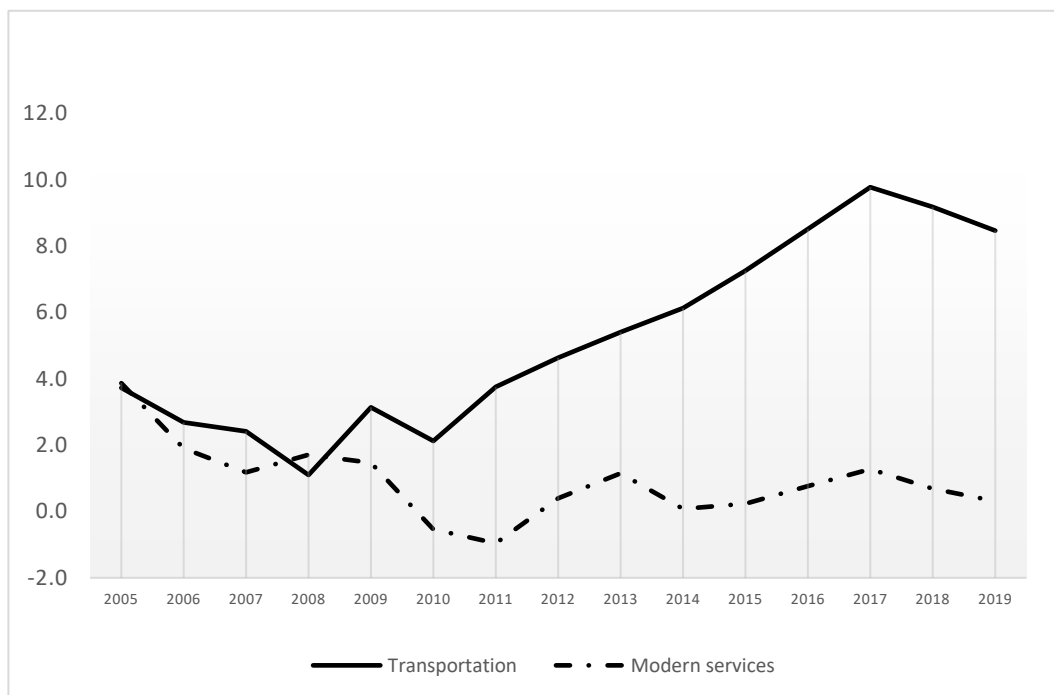
	Share 2005	Share 2019	Share growth	Value growth
Transportation				
Exports	52.7	38.1	-2.3	5.0
Imports	52.8	34.3	-3.0	4.3
Internal	61.2	41.7	-2.7	4.8
Insurance and pension				
Exports	4.2	4.2	-0.1	7.4
Imports	2.2	2.8	1.7	9.4
Internal	3.2	3.6	0.9	8.7
Other finance				
Exports	7.0	8.7	1.6	9.2
Imports	5.3	7.0	1.9	9.6
Internal	2.2	4.4	5.0	13.1
ICT				
Exports	6.3	13.9	5.9	13.8
Imports	7.9	15.5	4.9	12.9
Internal	5.3	13.6	7.0	15.2
Business services				
Exports	29.8	35.1	1.2	8.7
Imports	31.7	40.4	1.7	9.4
Internal	28.1	36.7	1.9	9.8

Note: 'Exports' and 'imports' are of services by RCEP participants and India to all countries as a share of total services trade (including between the countries themselves). 'Internal' is the service trade flow between the trade partners of RCEP +India.

Source: WTO–OECD Balanced Trade in Services dataset.

We plot more trends over the 2005–2019 period in Figure 2. Firstly, Figure 2 shows that the region’s trade surplus in transport services has increased significantly over time. As from Table 1 we know that the share of this sector has decreased significantly over the period, the conclusion can therefore be drawn that the most significant global competitive advantage of the region lies in sectors whose share in trade is declining. Figure 2 also shows that the balance in modern services trade has deteriorated at the time these sectors have become more important in the modern economy. This result serves as a ‘call to action’ that the region as a whole has not been able to create a competitive advantage in modern services, which makes a difference in the digital future in which servicification is more important.<sup>4</sup>

**Figure 2: External Trade Balance of the RCEP Countries in Transportation and Modern Services, 2005–2019 (%)**

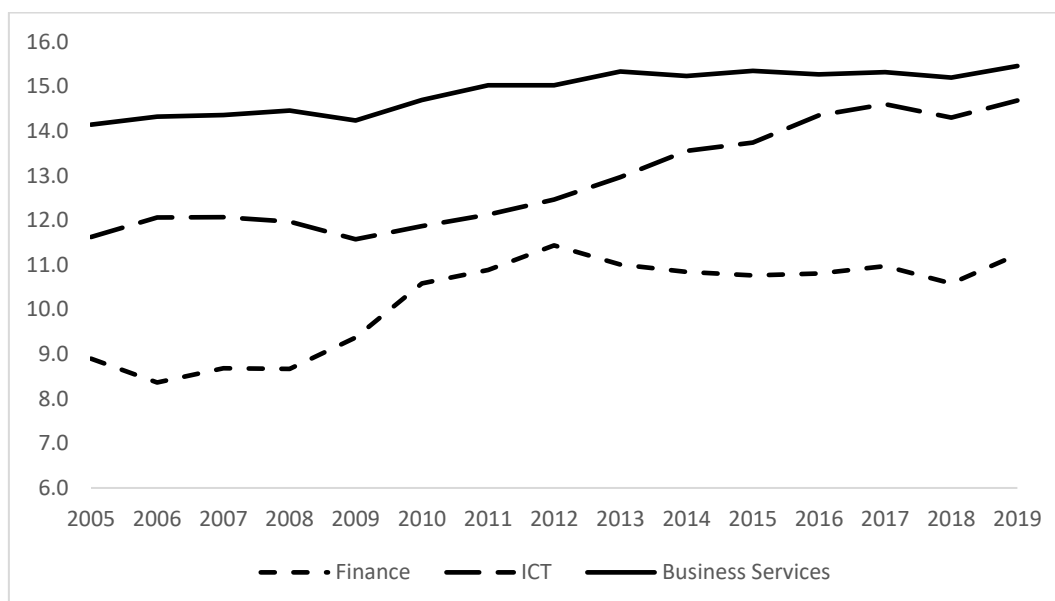


Note: The external trade balance is exports minus imports divided by total services trade.  
Source: WTO–OECD Balanced Trade in Services dataset.

<sup>4</sup> Another way of looking at this figure is to link it to the increased participation in GVCs over the period described. Of course, this strong position is a cause of the strong growth of the transport sector and with it the export of these services. But if it is the case that modern services bring more added value, then it is also an indication that an improvement in positions within value chains is somewhat lagging behind, which is a challenge for the immediate future.



**Figure 3: Share of Trade of Modern Services by Sector in Total Professional Services Trade Within the RCEP Region (%)**



Source: WTO–OECD Balanced Trade in Services dataset.

Note: ‘Professional services’ is defined here as modern services plus transport services.

In Figure 3 we look in more detail at the dynamics of trade in modern services within the region. It is striking that there is a considerable difference between financial services and information technology on the one hand and consultancy services on the other. We observe that whilst the shares of financial services and ICT are rising strongly, that of business services (consultancy, engineering, etc.) has stagnated.

## 2.2. Individual RCEP members and modern services trade

How important is trade in modern services to individual countries in the region? Exports and imports of modern services per capita are shown in Table 2. In the first two columns of the table, Singapore is an outlier: both export and import ratios are high, reflecting its role as the regional hub. Since these are the data for modern services, that is, without transport, we may also note that there is an overall trade deficit in services for many countries in the region, with Malaysia and Thailand standing out; the Philippines is the only country with a surplus. Malaysia is interesting because the deficit in modern services goes hand in hand with high

exports per capita. China’s modern services trade is still relatively unimportant per capita. Of course, industrial trade is considerably more important for China, with digitalisation ensuring that the share of services as inputs in industrial production increases over time. Perhaps striking are the relatively large deficits for Australia and New Zealand. Trade links with the United Kingdom and the United States are robust in terms of ICT, financial services, and business services, leading to a substantial difference between exports and imports.

**Table 2: Modern Services Trade, Internal Trade Shares, and Restrictions for 2019**

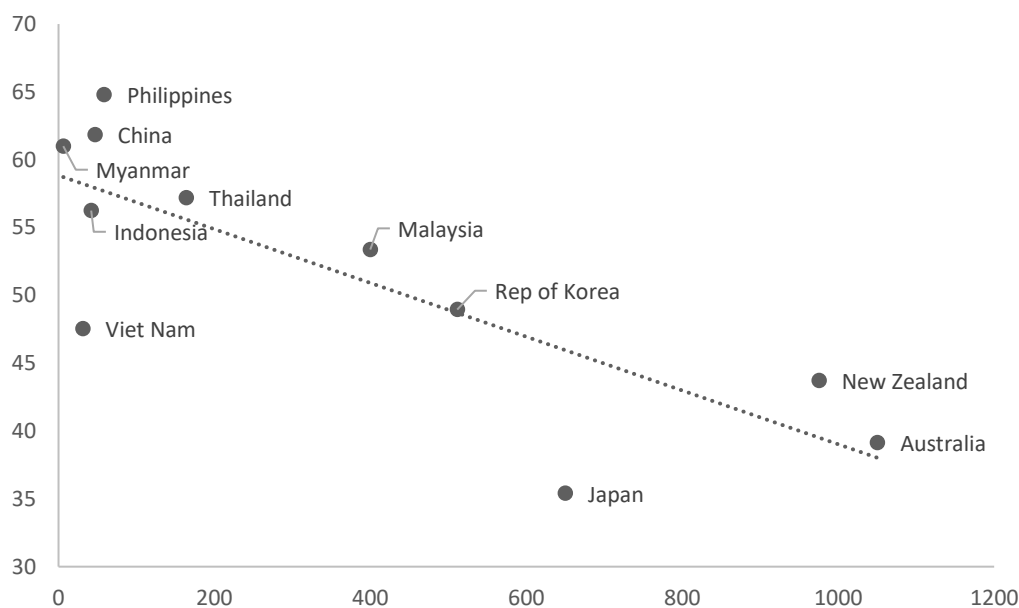
<b>Economy</b>	<b>Exports (US\$/capita)</b>	<b>Imports (US\$/capita)</b>	<b>Services Trade Restrictiveness Index</b>
Brunei			
Darussalam	135	2805	49*
Cambodia	5	8	50*
Indonesia	20	42	56
Lao PDR	3	4	49*
Malaysia	257	400	53
Myanmar	3	6	61
Philippines	123	58	65
Singapore	11360	11505	39
Thailand	102	164	57
Viet Nam	24	31	48
<i>Average</i>			
<i>ASEAN</i>	156	172	54
China, Mainland	53	47	62
Japan	386	650	35
Republic of Korea	396	511	49
Australia	639	1050	39
New Zealand	526	975	44
<i>Average</i>			
<i>Other RCEP</i>	100	127	46
India	59	22	64

\* Estimated from other sources by the authors.

Source: World Bank Services Trade Restrictiveness Index Data.

The last column provides an overview of the restrictions on modern business services, which we have averaged across sectors (knowing that there are quite a few differences in details between these sectors).<sup>5</sup> An interesting difference can be observed between ASEAN members and new RCEP members: restrictions on trade in services are higher in ASEAN countries than in countries in the region outside ASEAN, with China as an important exception. Also, compared to the global level of liberalisation of modern services, two leading global service-providing countries with relatively low trade restrictions enter the new trading bloc: Japan and Australia. Within RCEP, they could form a ‘motor’ for reform, along with Singapore.

**Figure 4: Correlation Between Modern Services Imports per Capita (US\$, Horizontal) and the STRI (Score from 100, Vertical)**



Source: World Bank Services Trade Restrictiveness Index Data and the WTO–OECD Balanced Trade in Services dataset.

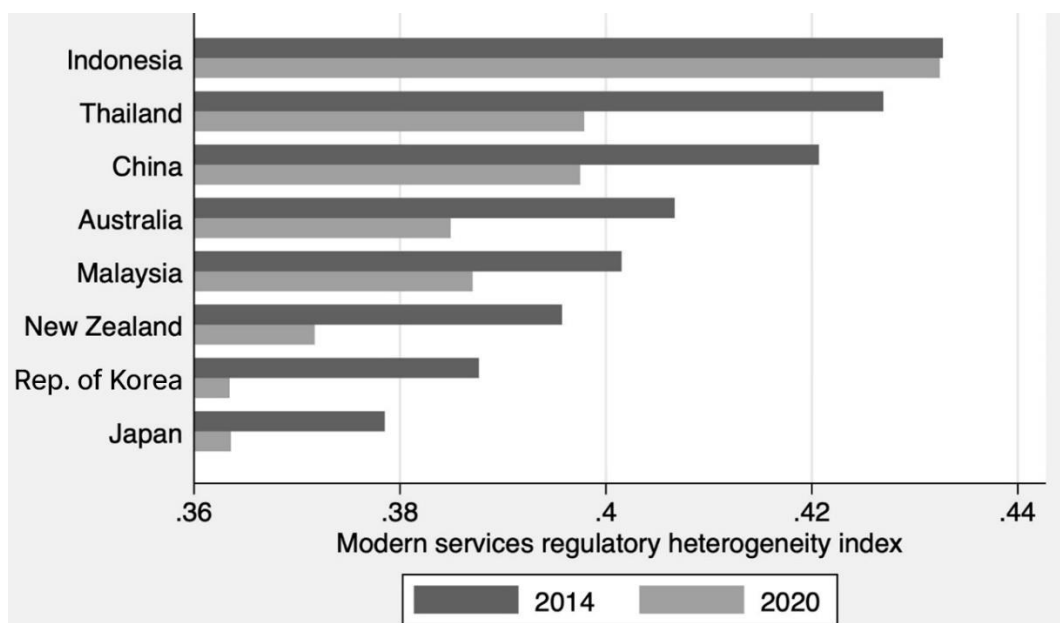
Note: Singapore is excluded from the graph.

<sup>5</sup> Our strategy has been to use the World Bank STRI estimates when available and insert the STRI from other sources when not available. We are aware that several countries have updated the STRI in recent years using individual methodologies, which is for example the case for Indonesia.

Figure 4 shows the correlation between trade in modern services per capita and the level of restrictions on trade in services (higher STRI scores are more restrictive), where we have used only the countries represented in the World Bank STRI database. Countries with a higher per capita level of services imports have lower restrictions on trade in services. In the RCEP group, there is a set of countries with relatively low income levels and low service trade imports, which have higher levels of restrictions on trade in modern services. At the other end of the spectrum, there are countries with relatively high imports of business services (and exports) in these sectors. To that extent, the graph also provides insight into the heterogeneity of the group that RCEP will form in terms of development, imports of modern services, and the restrictions on these trade flows. It also connects to the discussion on incentives for services trade negotiations later in the chapter, which are therefore divergent amongst the RCEP members.

### 2.3. Services regulatory diversity

**Figure 5: Regulatory Diversity, 2014 and 2020**



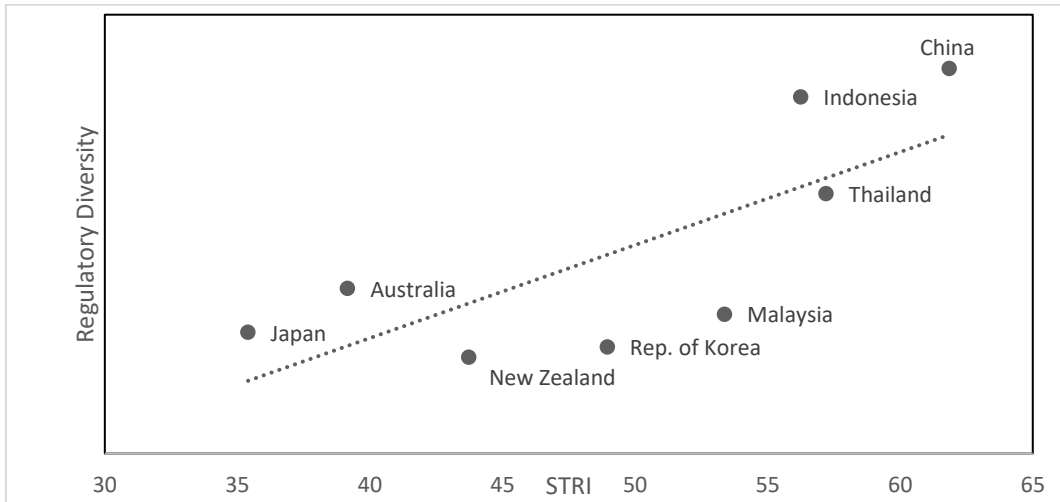
Note: The index is the unweighted average of the bilateral heterogeneity scores for the countries mentioned in the figure. The sectors included are accounting, architecture, commercial banking, engineering, telecommunications, and legal services.

Source: OECD STRI database.

Following the global debate on the liberalisation of services, we notice that much attention is paid to the heterogeneity of measures that in themselves restrict trade flows in modern services. These domestic measures and frameworks of service providers differ between countries and are the reason that many qualifications are not recognised in other countries. To identify these differences in legislation relevant to modern services provision, we have used a new Organisation for Economic Co-operation and Development (OECD) database that analyses these differences at the sectoral level. We aggregate these differences at the country level to analyse which countries differ the most in legislation regarding modern business services compared to other countries in the RCEP area. Based on the aggregation, we make an overall ranking in which Indonesia has the largest divergence and Japan the smallest compared to the members of RCEP.

Although it is interesting to look at individual countries, we focus on the overall picture in Figure 5. It appears that the ASEAN members of Indonesia, Malaysia, and Thailand, together with mainland China, stand out as having specific domestic regulations for their countries and may not have gone through the process of standardisation often initiated by multilateral institutions such as the World Trade Organization (WTO) and the OECD. On the other side of the spectrum, we see that Japan and New Zealand have low heterogeneity with the rest of the group. This implies a significant split between countries, and in order for standardising domestic regulation to not be a significant barrier in intra-RCEP services trade requires substantial adjustment, especially by the ASEAN Member States.

**Figure 6: Correlation Between Regulatory Diversity and the STRI**



Source: World Bank for the STRI and the OECD for regulatory diversity (author calculations).

To say more about potential leadership issues in shaping standardisation, and therefore increasing regional trade in services, it is interesting to analyse how regulatory heterogeneity in the region is related to the overall level of restrictions. In Figure 6, we can observe a positive correlation between the two, signalling that those countries with low heterogeneity in the region also have low restrictions.<sup>6</sup> The countries that have low levels of restrictions can also play a catalysing role in harmonising and standardising domestic services regulation. Thus, although Japan may be a reluctant reformer in the context of groups that include China and the Republic of Korea (hereafter, Korea), it seems well placed to play a leadership role in harmonising domestic regulation in modern services.

#### **2.4. Servicification and services in value chains**

When discussing international trade in services, it is important to realise that many services are traded as embodied in manufactured goods. The underlying process is servicification, a term used to indicate that the input of services becomes

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<sup>6</sup> To some extent, it may be that there is a mechanical correlation between the overall level of restrictions and diversity of regulation. Countries with lower levels of restrictions also have less opportunity to have diverging regulation.

more critical in the value-added structure of manufactured goods. Many services are used as inputs in manufactured goods. Therefore, studies that analyse services trade flows and only consider cross-border flows (heavily) underestimate the overall importance of services in global trade. In addition, there is a second underestimation of services in international trade related to servicification – the input of services is essential for international trade itself. The most obvious example is transport, a service that functions as an input in the value-added of manufactured goods. Moreover, services often enter manufacturing goods trade digitally, for example, ICT services that support software that make manufacturing goods like cars work properly.

Although the previous section shows that cross-border trade in services is important for countries in the RCEP region, services trade through GVCs as inputs in manufactured goods may potentially be even more important. Roelfsema, Findlay, and Ye (2021) show the increased importance of servicification in trade between emerging markets from Asia and developed economies in Europe and North America. Moreover, they show that servicification is becoming more important in trade between emerging markets, especially in Asia. These results also help resolve the puzzle of the gaps between the observed importance of services in the domestic economy and the stable share of cross-border services trade in international trade over GDP. Industrialisation and, thus, trade in manufactures may be a dominant force for GDP growth, and participation in GVCs is important from a global trade perspective. Following this reasoning, only taking account of cross-border final services trade especially underestimates the importance of modern services through servicification. The paper observes that the increased input of services in manufacturing output makes them grow in tandem with industrialisation or may even outpace it.

Findlay and Roelfsema (2021) then show that restrictions on services trade may have significant consequences for participation in GVCs. If it becomes more challenging to import services, the logic is that this potentially reduces the productivity of the manufactured goods sectors and therefore reduces the ability to participate in GVCs. The analysis shows that countries in Asia with high restrictions on commercial services have difficulty participating in GVCs because in that

situation, the opportunity to create value through servicification, enabling higher productivity levels, is reduced. This is especially the case with respect to forward participation in GVCs and, therefore, to upgrading positions within value chains.

Anticipating discussion on services trade negotiation in Section 4, concerning servicification, two issues are worth considering. The first is the discussion of the definition of rules of origin requirements for free trade in manufactured goods in the RCEP agreement. So far, the implicit view of rules of origin mainly has to do with intermediate goods in manufactured exports. A crucial component of the RCEP trade deal is the reduction in origin restriction rules. However, as services are increasingly important due to the servicification of manufactured goods, the liberalisation of rules of origin requirements within the region may have a substantial effect on services trade diversion, as it becomes more attractive to source services from RCEP members (for example, Singapore, but also China) when compared to countries outside the agreement, such as India. The other side of the coin is that when trade diversion is harmful because it increases the services inputs by relatively inefficient producers of services, this may have a detrimental effect on productivity in manufacturing industries and, therefore, on the participation in GVCs relative to regions in which efficient service providers dominate. One way to avoid this outcome is to multilateralise commitments for foreign investment in services (Mode 3) by businesses based in other RCEP members so that non-member providers can benefit from the rules of origin liberalisation within the regional agreements. Consideration of these issues is even more important in the context of the near-shoring forces unleashed by COVID-19.

The second component when discussing servicification in the context of regional trade agreements is regulatory coherence. This is also related to the challenges of liberalising Mode 3. When entering trade negotiations, one of the challenges is that there is little coherence between the regulation of cross-border trade and the regulation dealing with investment policies and competition. It may well be that focusing on the former does not include progress in the latter. For example, suppose foreign direct investment is heavily restricted because of state-owned companies' dominance in the service industry, for example, in banking and telecommunications. In that case, such industry structures will not only limit the



benefits of servicification but also the ability of countries to participate in services trade negotiations.

### **3. Services Trade Potential in RCEP**

Recently, there have been substantial improvements to the gravity model, which allow it to be used much better to analyse counterfactuals and, therefore, to analyse policy scenarios (Anderson et al., 2018; Benz and Jaax, 2022; Yotov et al., 2016; Santos Silva and Tenreyro, 2006). The first improvement was the use of PPML estimation, which alleviates the problems of zero trade between countries as well as heteroskedasticity. In practice, these are two substantial problems for gravity estimations. The addition, connecting the estimations to general equilibrium outcomes, allows for connecting the predicted direct trade outcomes to the economic outcomes whilst taking into consideration the changes in prices and the centrality of countries in global trade. It therefore allows analysis of how different scenarios of trade liberalisation would result in changes in trade in commercial services and in national income. With respect to these scenarios, we are particularly interested in efforts that reduce services trade restrictions and improve regional opportunities for trade in modern services. Due to limitations in space and excellent treatment elsewhere, we will not discuss the ‘ins and outs’ of the model and instead refer to Kumar and Shepherd (2019) for an analysis of intermediate and final goods trade, Brakman, Garretsen, and Kohl (2018) for trade in value added and, more specifically, a recent paper by Benz and Jaax (2022) on trade in services using more or less the same empirical strategy as we do although not concentrating on global flows of trade and not specifying RCEP countries.

To find the likely effects of regional liberalisation of modern services, we introduce several modifications to Benz and Jaax (2022). First, we run the baseline regression to obtain the estimates for the elasticity of trade flows to changes in the STRI levels. Then, we simulate the effects of reductions in restrictions on trade flows in a general equilibrium context. The main benefit of the general equilibrium approach is that we calculate in a structured model the effects of reductions in trade restrictions on price levels for services, and therefore also demand levels,

generating income effects. The last step is then to study how the simulated liberalisation affects welfare levels.

When moving from the gravity estimates to general equilibrium, the difference with other GE-PPML analyses, such as that by Brakman, Garretsen, and Kohl (2018), is that we consider a partial system of trade in services only whilst assuming trade in goods stays unchanged (instead of analysing trade in both goods and services). The increase (or decrease) in national income in the general equilibrium is, therefore, not only related to the share of the increase of service trade itself but also related to the size of the service industry relative to a country's total economic size. RCEP includes trade in goods, so our estimates on national income changes are likely to be a lower bound compared to the total effects from RCEP, and it is also likely that there will be synergies in the trade of goods *and* services. But our approach allows us to isolate the quantitative effects that can be attributed to modern services as well as transport services.

The main goal of the baseline regression is to find the elasticity of bilateral trade flows to changes in trade restrictions. More details of the results of this stage are presented in Appendix 1. We then calculate the general equilibria effects if the STRIs between RCEP countries reduce to 30% of the level of their national STRIs. It is not that we think RCEP will reduce restrictions by 70%. Instead, we are interested in a scenario where RCEP will converge to the situation in the European Economic Area (EEA) where the STRI against member states is on average about 30% compared to the STRI against non-EEA countries (as in OECD data). We are also interested in how the effects of this change are distributed over the member states. This last step also informs us about the political economy components of moving forward in RCEP by highlighting countries that have a strong interest (according to changes in GDP) in reducing barriers. We can also highlight within-country incentives for each of the firms and consumers by splitting the general equilibrium price effects and income effects.

**Table 3: General Equilibrium Effects of a 70% STRI Reduction in RCEP**

	Services price effect	Services income effect	Change in GDP
Brunei Darussalam	3.31	8.15	1.52
Cambodia	3.16	5.25	1.05
Indonesia	-4.05	1.89	0.5
Lao PDR	5.82	8.39	0.9
Malaysia	-1.05	2.51	1.02
Myanmar	-0.43	3.54	1.29
Philippines	1.56	1.47	0.44
Singapore	3.1	1.21	0.93
Thailand	-1.38	1.51	0.43
Viet Nam	0.02	2.15	0.59
<b><i>Non-ASEAN Members</i></b>			
China, Mainland	-1.97	0.57	0.17
Japan	1.63	0.03	0.01
Republic of Korea	1.4	0.52	0.2
Australia	1	0.52	0.27
New Zealand	1.5	1.56	0.63

Note: Service-related real income also takes into consideration the change in the price level of service imports.

Source: Data sources of the GE-PPML analysis.

The general equilibrium effect is complex. To illustrate, consider the price effects for Indonesia and Singapore: they are opposite. The reason is that the reduction in restrictions will increase foreign supply in Indonesia, which lowers the price level. Because Indonesia is not a prominent exporter of services, lower restrictions do not substantially increase the demand for Indonesian services. On the contrary, we see that because Singapore is a significant exporter of services, a reduction in restrictions on trade in services in the region increases the demand for its services, which can raise the price level. Also, Singapore already started from a relatively low level of restrictions, so further reducing them might not have substantial price lowering effects due to higher imports.

Another interesting case amongst the non-ASEAN members is that of New Zealand. As can be seen in the simulation, lowering restrictions in RCEP increases the price levels of services, in turn increasing the income from services. Because

the service industry is relatively important in New Zealand (for example, compared to Australia), reducing barriers to trade in modern services has a substantial effect on GDP in the country. The same argument applies to Singapore. Although overall reductions in barriers to trade in services increase the price level, they have relatively little effect on services income (which is already quite high). However, because services play such an important role in income baskets and in the generation of GDP, the overall effect on GDP is substantial.

On the contrary, for China, significant reductions in restrictions strongly affect the price level given the relatively small size of the domestic services industry. However, this has only a minimal effect on GDP. It is also interesting to observe that Japan and Korea have little to gain from reducing restrictions on trade in services within the region. From a political economy perspective, this may imply a reduction in potential leadership incentives from those countries, putting the ball in New Zealand and Australia's corners amongst the non-ASEAN members.

#### **4. Opportunities in RCEP Modern Services Negotiations**

Over the last 15 years, there have been two reasons why the international coordination of services regulation and trade restrictions has become increasingly important (Antràs, 2020). The first is that the structural transformation of economic activity has significantly increased the share of services in consumption. As a result, world trade in services has also risen dramatically and, in recent years, digitisation has also contributed to this change. Trade in services is not constrained by tariffs but mainly by differences in national legislation. Services are also commonly offered by branches abroad, which is even more important in relation to investment policy than in relation to industrial products. Thus, the link between direct investment and regulation has given national treatment a prominent role in international law. Another reason for the increasing importance of services regulation is the increasing importance of GVCs in international trade. With the increase in outsourcing, there has been a shift from spot transactions to contractual relationships. Such contractual relations are especially important in services trade. Since it is impossible to capture all relevant contingencies in those contracts, which

makes them imperfect, companies' behaviour should be governed by rules of conduct and dispute resolution so as to organise the GVCs efficiently. In that case, to capture the benefits of GVCs, building regional institutions is necessary to create a predictable regime.

#### **4.1. Shifting models**

Services can be provided across borders in several different modes, depending on whether consumers or producers relocate, the scope for cross-border transactions, and the movement of people. The mix of these modes depends on a number of variables, including the business strategy, policy restrictions, and technology. Exporting firms often make use of all modes. For example, an exporter of educational services may host international students at its home campus whilst also setting up campuses offshore to which its staff also transit, whilst engaging online with students offshore in various locations. From this perspective, the modes are complementary not substitutes. In Appendix 2 we document the distribution of modern services trade over the modes. Striking is the extent of use of Mode 3, especially by most economies for both exports and imports, and also the extent of the use of Mode 1 by emerging economies (at pre-COVID-19 times).

However, some degree of substitution may be undertaken between modes, leading to less-than-efficient bundles of service provision because of the distortions introduced by trade restrictions. Generally, cross-border transactions are less restricted than other modes, and so our expectation is that the levels of cross-border trade will be higher than otherwise. That outcome, however, has triggered a series of related concerns about data management.

Another driver of shifts in the modes of supply is technological change. Digital technology has facilitated the scope to undertake services transactions at a distance, rather than face to face. The weight of cross-border transactions has also increased for this reason.

Finally, whilst the services trade literature tends to focus on the four modes of supply already mentioned, there is another, as evident in our discussion of servicification. This involves the embodiment of services with goods, which is sometimes also referred to as the fifth mode of supply (Antimiani and Cernat, 2018). In this case, the use of this mode also depends on the three drivers listed

above. For example, the differences in degrees of restriction applied to goods compared to services will affect the interest in providing consumers with goods with services embodied or sold separately where that is feasible.

Let us take the following example, which highlights the impact of the development of GVCs and their influence on these choices. If services are provided as inputs in manufactured goods used for exports, often foreign service affiliates (banks, management consultants, and accountants) play a prominent role in the provision of services to industry. But we also know that restrictions on foreign entry through Mode 3 are often severe. With the current wave of digitalisation, modern services may be provided more prominently through Mode 1, as cross-border supply that does not involve foreign direct investments in foreign establishments. However, when there is an increased cross-border supply of financial services, the fine-tuning of such services in GVCs, the movement of natural persons may become more important. This then feeds into the liberalisation of Mode 4, which often involves travel permits and temporary residence for specialist services plus accreditation. The bottom line is that when GVCs become more important in shaping global trade, and services become more important in those global value chains, it shifts the relative importance of the types of trade restrictions over the modes that should be prioritised in trade negotiations – and often in unanticipated directions.

These aspects of the delivery of services complicate the negotiations with respect to barriers to trade. From a business perspective, there would be an interest we expect in taking a sectoral (cross-modal) rather than a (uni)modal view of the negotiations. One of the advantages of RCEP is that its approach to commitments on trade in services facilitates the application of business strategy, as explained in the next section.

#### **4.2. The rise of negative listing**

Traditionally, negotiations in the General Agreement on Trade in Services (GATS) are based on positive listing, which involves making specific liberalisation commitments, often in exchange for concessions from partner countries. In many regional trade agreements, this positive listing process is copied. However, the negative-list approach (where all services are considered to be liberalised unless

otherwise indicated through schedules of non-conforming measures) has been on the rise recently, and most regional trade agreements opt for this negotiating strategy. Made simple, negative listing means all things not listed in the agreement are supposed to be liberalised, which effectively means that service regulation adheres to national treatment to not discriminate between domestic and foreign service providers. A key change in RCEP is the adoption of (or transition by China, Cambodia, the Lao PDR, Myanmar, New Zealand, the Philippines, Thailand, and Viet Nam within six years to) a negative list.

It should be noted that a negative listing approach to trade liberalisation does not necessarily mean that the outcome of the negotiations will be more liberal. Under a negative list approach, countries can specify which sectors they did not want to have been included in the agreement and reserve the right to discriminatory regulation. Also, compared to positive listing, which only allows exemptions based on national treatment and most-favoured-nation descriptions, negative listing opens the door to broader exemptions in terms of services trade liberalisation. But the overall assessment is that whilst considering the potentially restrictive nature of negative listing in many negotiations, the outcomes are more liberal than positive listings.

A negative listing approach makes it easier to accommodate business interests in the agreement. In some ways, the negative list approach is a substitute for what might be presented as a modal approach to making commitments (which we noted above). Automatically, in the negative list, cross-border modes are covered unless otherwise stated. This applies to services (and to all members once the transition is completed – support for capacity building will be important in that process). Also important to note is that commitments on investment in RCEP are also on a negative list, so effectively there will be a joint negative list for all modes.

Concerning RCEP services trade talks and the move towards negative listings, three sensitivities need to be considered. First, the incentive to have accurate information about current legislation to properly inform other countries about market access is more profound for negative listing. Consequently, this puts a more considerable burden on less developed countries in the region to create a transparent overview of the current legislation. Some countries may not feel confident with

their overview of the impact of services liberalisation, which could hinder the negotiating process.

The second issue is that in less developed countries, there is only rudimentary regulation in some sectors that are important from a market access perspective. If positive listing were the approach to services trade negotiations, it would allow countries to regulate industries before moving into trade negotiations properly. However, with negative listing, sectors must be liberalised without domestic regulation to protect national interests. Hence, the outcome of services trade negotiations may be unstable in such unregulated markets and, therefore, places countries with lower levels of development both economically and institutionally ‘on the back foot’.

The third upcoming sensitivity for modern services is that negative listing imperfectly considers technological advances that shape industry structures and merge industries. A benefit of negative listing is that new forms of services that emerge from technological change are traded with the expectation of no restrictions. However, at the same time, if commitments are made under negative listing, it is challenging to reintroduce regulation when technological development prompts consideration of stricter regulation of specific industries, due for example to unforeseen outcomes in privacy concerns. Such new legislation may be blocked because of its potentially discriminatory nature and is, therefore, not in accordance with national treatment. But because it is difficult to foresee which industries may arise in the new digital world (Facebook, now Meta, just announced a virtual world, as a case in point), the application of negative listing in periods of rapid technological advancement is challenging.

Given the diversity amongst the membership of RCEP, however, these drivers of regulation will be a topic of common interest, and perhaps other members will have more experience of the issue than others. One of the assets of RCEP is its institutional arrangements for cooperation on topics such as this (Armstrong and Drysdale, 2022). Chapters on economic cooperation (15) and institutional arrangements (18) can be mobilised to arrange dialogues on these questions and facilitate a common understanding of motivations for any necessary adjustments to schedules. The progress on cooperation that supports institution-building is linked



to commitments on market access, since the latter (and expectations about progress) adds pressure for participation in the former. So, the two elements are both important. A major focus of those dialogues is likely to be regulatory divergence, which we examine in the next section.

### **4.3. Divergent national service regulation**

The treatment of national regulation has been at the centre of the debate on international trade since the creation of the WTO in 1995 when, at its creation, many subjects were extended compared to the GATT. The central issue became how to create a level playing field for companies. To illustrate, suppose that there are major differences in national legislation, and this national legislation affects the costs of companies. In that case, even if there is free access to each other's markets, competitiveness differs. This aspect also plays a significant role in trade in services. For example, if there are substantial differences in the regulation of banks and, as a result, operating costs differ between banks but there are rights to provide services in each other's markets, then such differences in national legislation have a far-reaching impact on competitiveness. Francois and Hoekman (2010) argue that such instances of legislative differences behind national borders are the most problematic aspect of liberalising services. It is, therefore, often very difficult to assess how the liberalisation of services will work if there is no prior harmonisation of national policies. As a result, as we have seen, countries in the past often have reverted to a positive list approach of liberalisation where only services included in the mandate are released. Negative lists eventually emerge, but reluctantly so. Besides, a commitment to market entry still needs to be implemented, and it is sometimes felt that when the negotiating gloves are finally put down, national governments still have many opportunities to frustrate trade in services in practice. The instruments available are fundamentally different from a tariff applied at the border, with a much higher level of transparency.<sup>7</sup>

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<sup>7</sup> Lamy (2017) gives another reason why behind the border differences in legislation are costly. Although the research literature tends to focus on bilateral trade situations, it is relevant for multinational companies to operate in more than two and even more than 50 countries. If all those countries have different standards, the costs for multinational companies increase enormously, which makes international business, despite all its potential economies of scale, less competitive than local businesses.

Legislation behind national borders is also crucial for trade in services in another way. In many cases, the establishment of branches abroad is necessary for the provision of services due to agency concerns. That is, the most important mode of international trade is not to offer services across borders but to set up services through foreign direct investment (Mode 3). Staiger and Sykes (2016) argue that this mode of providing international services gives national governments many opportunities to hinder competition. An example is the imposition of a requirement for the majority of ownership in residents' hands or that nationals be in control, as is often the case with air transport and professional services. Alternatively, some services might be designated as 'vital infrastructure', in which there can be no foreign majority stakes in national establishments. Such requirements substantially restrict the scope of market access. Thus, there are often many opportunities for the effective restriction of competition, such as the ownership of real estate and participation in public tenders.

In addition, exporting countries are less able to rely on incentives to help their companies enter other markets effectively, which is possible to a limited degree with state subsidies in industrial products and is also applied quite extensively. In other words, the instruments available to national governments to make negotiations within the WTO in the field of industrial products effective are lacking as a bargaining chip or as a threat in the negotiations on the liberalisation of services. As a result, liberalisation within GATS lags far behind that in the WTO, and sectoral bilateral negotiations on trade in services are often prolonged.

However, there are often good reasons why countries have different levels of legislation in terms of, for example, the environment and intellectual property. Differences in income (and the opportunity costs of systems of regulatory design and operation), culture, and history mean that heterogeneity in legislation is desirable as well as understandable. As a result, there is a trade-off between, on the one hand, harmonising legislation between countries to reduce costs for multinational companies and, on the other hand, providing respect for heterogeneity of policy preferences between countries. For example, in the RCEP region, with significant cultural differences and income differences, this continues to be an important issue, which was resolved in part by providing options for economies to

agree on common goals related to economic integration but to move on different schedules and pathways yet with an endpoint (Armstrong and Drysdale, 2022).

As noted, RCEP offers its own institutional arrangements to support work on resolving impediments to integration related to regulatory divergences. The agreement lays out an important set of principles for the operation of regulatory systems in services, which is aligned with the recent outcome of negotiations under WTO auspices on services domestic regulation. The question remains, however, about the organisation of activities to implement these principles in this context. There is recently increasing attention on various structures called information platforms or value chain councils, which are designed to make progress towards the recognition of divergences in regulatory systems and the development of systems for their alignment. Findlay and Hoekman (2021) present an example of these councils and discuss how they might operate and who might participate. RCEP provides a forum for testing and refining models of this type.

#### **4.4. Servicification, GVCs, and trade policy**

GVCs and servicification enter the discussion on optimal trade policy at various levels. First, it should be mentioned that trade policy analysis by including GVCs has only recently begun to grow rapidly in the trade literature. So far, there is limited explicit treatment of the role of services in the nexus of GVCs and trade policy. To start with potential mechanisms, the most straightforward one is to consider services traded across borders or supplied by foreign affiliates as inputs in GVCs through backward and forward participation. Second, services themselves may enter in full-service value chains that are increasingly important in global trade. Hence, instead of thinking of services as inputs in manufactured goods only, they may also be important as inputs in other services. The input of ICT services, for example, in financial services, is a case in point. In the modern economy and especially in emerging markets, financial companies are evolving into technology firms. Then, the third level is servicification, where services are embodied in manufactured goods traded in GVCs.

To understand the services trade policy issues connected to the treatment of GVCs, it is wise to first review the effective tariff theory that has been around since its introduction by Max Corden in the 1960s. If final goods are produced with

imported inputs, having high tariffs on final goods and low ones on inputs (resulting in tariff escalation), value-added increases in domestic value chains. Then move the argument forward by considering that in the modern economy, services often are an important input in final production. Therefore, in manufactured products or services, high levels of restriction on imported services or on foreign service affiliates whilst applying liberal trade regimes for final goods and services would work against generating domestic value added. Stated differently, when services become more critical in the process of producing manufactured goods through servicification, liberalising trade in goods puts pressure on restrictions on trade in services because the liberalisation of such goods reduces profit margins due to ‘tariff de-escalation’. Thus, the effective tariff argument works against the restrictions on services trade that are used as inputs.

The same process is relevant within value chains for services. As we noted above, the rapidly growing area of services exports in the region are those related to ICT. As the experience of other developing economies has illustrated, there is scope for all members of RCEP to participate in value chains for modern services (World Bank, 2021). Competitiveness at each point in the chain depends on access to the outputs of earlier steps and to the services, such as telecommunications, that facilitate the operation of these services value chains. The scope to add value in this way is a factor in the reduction of restrictions applied to these inputs. RCEP provides a vehicle for making relevant commitments, thereby capturing these opportunities.

#### **4.5. Digital transactions**

The treatment of data flows is critical to the delivery of modern services. These services contribute to the performance of the GVCs of other goods and services and are themselves produced in that context. The chains involve the collection, aggregation, storage, processing, and application of data. These activities can be located in different economies, leading to significant movements of data across borders. The extent of these transactions is likely to increase with the application of the next round of communications technology (5G), which will facilitate people-to-people and people-to-machine interactions. It will accelerate the implementation of Baldwin’s ‘third unbundling’. All RCEP members have interests

in these developments, not only the higher income economies but also those at earlier stages of development, where there is evidence of rapid growth of ICT services exports. The processes of the third unbundling will create even more opportunities.

RCEP includes a chapter on data. It refers to cybersecurity, consumer protection, and data privacy. Members commit to protecting personal data and refrain from imposing customs duties on digital transmission (conditional on continuing WTO Ministerial support for doing so). Armstrong and Drysdale (2002) observe that whilst the chapter also apparently prohibits members from imposing barriers on cross-border data flows, there are various ‘carve-outs’ for doing so. Those more critical of the agreement often benchmark it against the CPTPP, and report that whilst many aspects are similar, the treatment of the location of computing facilities and the cross-border transfer of data is ‘weaker’ (Leblond, 2020). Hufbauer and Hogan (2021) also stress the differences from the CPTPP and say that RCEP ‘does little’ (p.5) to limit government intervention in digital markets. However, the structure of the agreement is important. These items are covered in the text, and the circumstances in which they might not be applied are specified. In fact, for example, the text on the location of computing facilities is ‘almost a mirror’ (Leblond, 2020) of that in the CPTPP. But there is the addition of a reference to public policy and to security interests as reasons for diverging from this text. The CPTPP also refers to restrictions based on legitimate public policy interests but includes the expectation that such measures will not be more restrictive than necessary. The only major item not included in RCEP is the treatment of source code. Also, whilst the dispute settlement provisions do not apply to the relevant chapter, the novelty, complexity, and diverse experiences of the members help build the case for the application of the cooperation mechanisms in the agreement as a way of extending commitments in this area instead. Overall, therefore, RCEP has a structure relevant to the treatment of digital transactions, which provides for the scope over time to raise the level of commitment.

There are important complementarities of digital services with telecommunications. Provisions in that area in trade agreements (not including RCEP) and in the GATS are reviewed by Monteiro (2021). According to that

framework, the RCEP Annex on Telecommunications contains many features of the GATS, such as references to access to networks, competitive safeguards, treatment by major suppliers, interconnection, independent regulatory bodies, universal service, scarce resources, and transparency. But it goes further to refer to flexibility in approaches to regulation, number portability, resale, co-location, roaming, access to specific assets including cables, and also flexibility in the choice of technology. The cooperation provisions of the agreement are also relevant to the alignment of standards in this sector.

## **5. Conclusions**

This study has discussed the implications of regional integration in Asia and specific developments around RCEP as far as modern services are concerned. First, we presented some facts based on data on trade in modern services. Here it emerged that transport services are still very dominant. However, information technology and financial services are also emerging regionally in terms of bilateral trade in modern services. However, these modern services are still hard to establish as a competitive advantage for the region.

The question is to what extent the lack of competitiveness (Singapore being an exception) is due to underlying comparative advantages, or whether it may also be related to trade-restrictive measures and substantial differences in national legislation in the area of service provision. The data show that restrictions on trade in services in the region are still high compared to other countries and, indeed, in some new member states joining ASEAN through RCEP. This level of restrictiveness is combined with a high degree of legislative heterogeneity in the region, which contributes to the fact that regional integration in modern services is complex, and there are still many battles to be fought.

Such steps are often taken on the initiative of a handful of member states, and it is difficult to judge which of them should lead the way. Leading also has to do with the incentives that different countries have to make RCEP a success in modern service delivery. To get to the bottom of this, we have carried out an econometric analysis looking at the welfare effects of lowering restrictions within the region at

the country level. A general conclusion is that these welfare gains and the mechanisms by which they are achieved differ significantly between member countries. The gains are particularly significant for established service exporters, such as Singapore and to a lesser extent Australia and New Zealand, as well as some other ASEAN members. Large new member states such as Korea, Japan, and China have relatively less to gain from freer trade in the region.

We have also analysed the most important policy questions regarding the regional integration of modern services. Here, we have reviewed the shift in trade flows in terms of how services are exported, including via various modes of supply and the relationships between them. We have also reviewed the shift from positive to negative listing and the increasing importance of participation in global value chains, and how this can be stimulated through regional integration. We have paid particular attention to negative listing, in part because we argue that it helps respond to business interests in trade negotiations. It is also important because lower-income countries in the region will find it challenging to prepare appropriately for these negotiations and ensure that consumers' interests are protected. There also appears to be a role for regional solidarity here, not only for consultation but also financially through structural adjustment and digitalisation support. RCEP has an excellent architecture for managing issues in digital transactions, we argue, which are relatively more important for modern services. We have also discussed options for responding to divergent national regulation, including through the application of RCEP institutional arrangements.

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## Appendix 1

**Table A-1: PPML Estimates for Gravity Equations of Professional Service Sectors, 2016**

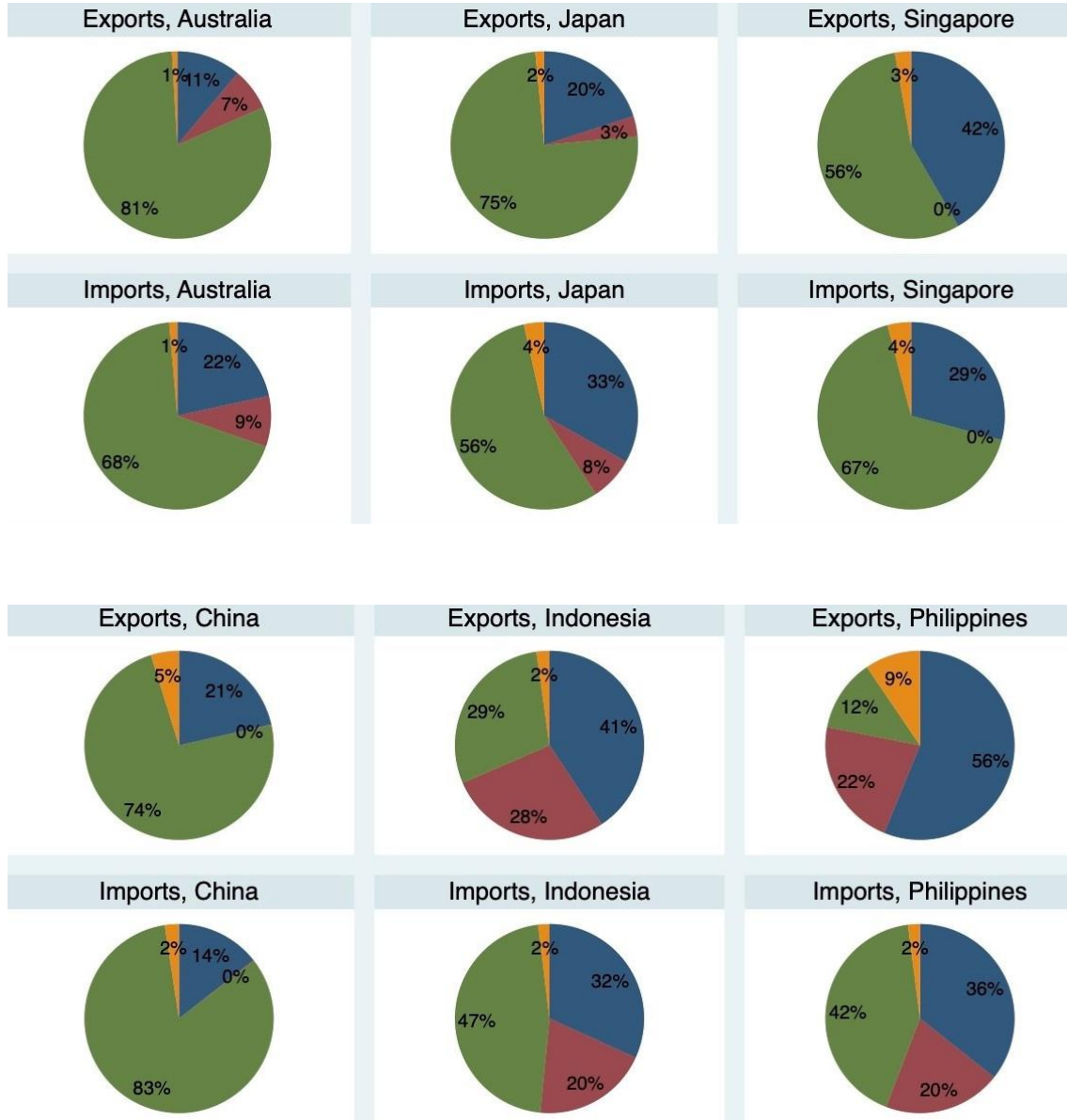
Type of Services	(1) Transportation	(2) ICT	(3) Business	(4) Finance	(5) All Four
ln(Distance)	-0.108** (0.0508)	-0.376*** (0.0600)	-0.152** (0.0669)	-0.211** (0.0929)	- 0.190*** (0.0542)
Bordering	0.656*** (0.104)	0.203 (0.144)	0.389** (0.175)	0.223 (0.238)	0.438*** (0.137)
Common Language	0.744*** (0.0851)	0.804*** (0.122)	0.798*** (0.147)	1.131*** (0.143)	0.842*** (0.113)
Common Legal Origin	-0.0963 (0.0775)	0.00977 (0.0954)	0.136 (0.116)	-0.0120 (0.139)	0.0208 (0.0938)
Political Tie	0.540*** (0.115)	0.0869 (0.174)	0.304 (0.221)	0.561*** (0.199)	0.397** (0.157)
Having RTA	0.152* (0.0907)	0.210 (0.143)	0.128 (0.134)	-0.0432 (0.154)	0.118 (0.109)
Both in EEA	-0.0744 (0.174)	-0.558** (0.257)	-0.514* (0.288)	-0.634* (0.360)	-0.583** (0.246)
Both in ASEAN	-0.536*** (0.208)	-0.281 (0.273)	-1.434*** (0.322)	0.182 (0.335)	0.810*** (0.247)
Intl. Trade of Service	-2.269*** (0.113)	-3.122*** (0.162)	-2.825*** (0.146)	2.593*** (0.224)	2.563*** (0.131)
Intl x STRI	-4.018*** (0.265)	-4.076*** (0.413)	-2.712*** (0.332)	4.448*** (0.438)	4.195*** (0.388)
Constant	11.05*** (0.466)	13.98*** (0.603)	12.58*** (0.724)	12.66*** (0.739)	13.75*** (0.551)
Observations	5,184	5,184	5,184	5,184	5,184
Importer FE	YES	YES	YES	YES	YES
Exporter FE	YES	YES	YES	YES	YES

Robust standard errors are in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

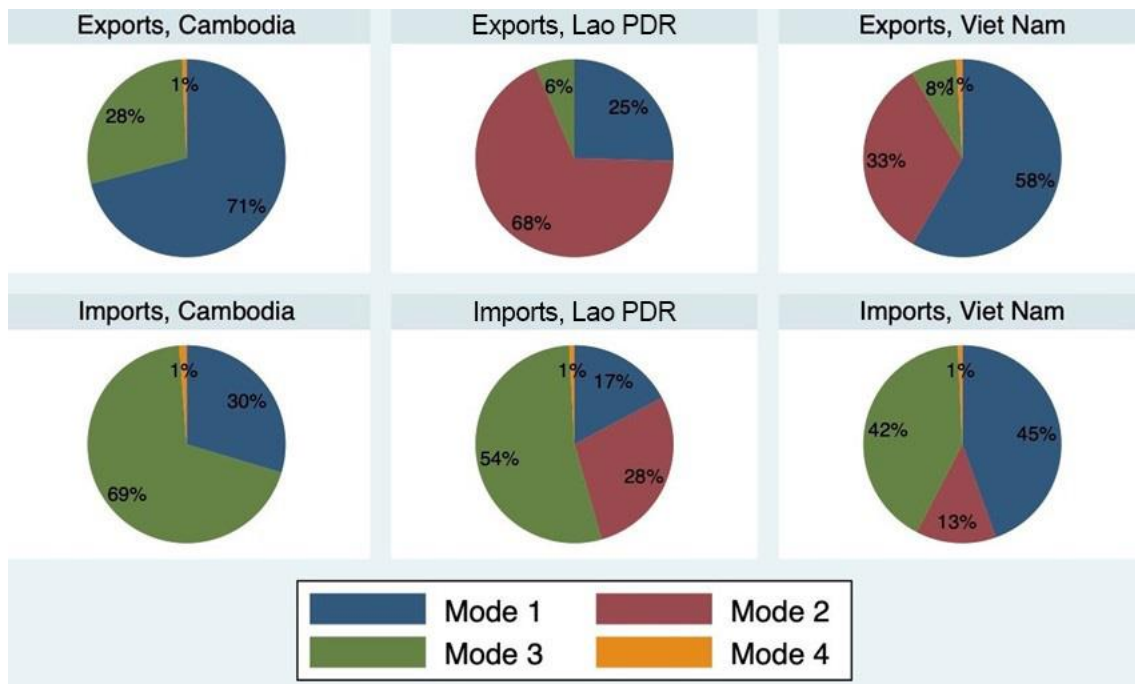
In Table A-1, on top are the traditional gravity model variables, such as distance, border effects, and cultural variables – we include importer and exporter fixed effects (i.e. to control for the so-called multilateral resistance term, which is now the standard approach in gravity estimates), so we do not include bilateral GDP data. After that, we include several dummies for trade agreements in general, within the European Union and for ASEAN. Our key variable of interest is the STRI index, which is obtained from the World Bank database and the imputed indices for missing countries. Data on the STRI are country-specific and are not country pair-specific (although we do adjust the WTO–World Bank STRI for intra-EEA trade using the differences in the national STRI and intra-EEA STRI indices from the OECD database). Given this nature, the model would be unidentified when country-fixed effects are present. Therefore, we follow the same approach as in Benz and Jaax (2022) and include *domestic* trade in services in the gravity model. The idea is that internal trade in services in a country itself is not subject to trade restrictions; therefore, intuitively, the impact of service trade restrictions can be disentangled effectively by contrasting domestic trade with international trade. Therefore, in the regression, we use the interaction of the STRI and the dummy for ‘international trade’ (1 if trade is between two countries, 0 for domestic trade), instead of the STRI itself. Domestic trade in services is derived by subtracting total service exports (WTO–BATIS) from the gross output of services in the national account, from the United Nations or the Asian Development Bank. Distance for internal trade is obtained from CEPII’s estimates. These results show that, interestingly, the ASEAN dummy is negative in most industries, signalling that its members trade less than with the other countries in the data set. What is crucial for this outcome is the significant negative effects of the STRI variable interacted with international sectoral trade in services (in contrast to trade within country borders). There is a significant negative effect for increased restrictions on bilateral trade flows.

## Appendix 2

Figure A-1: Modern Services Flows by Direction and Mode of Supply



**Figure A-1: (continued)**



Source: WTO TISMOS database.

## ERIA Discussion Paper Series

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