

## Dr. ROOPALI FULZELE

Assistant Professor, Department of Management  
School of Business Studies, Sharda University

Dr. Roopali Fulzele is a passionate faculty and researcher, having evenly blended experience in corporates and academia. She is extensively involved in international collaboration activities for the enhancement of students as well as faculties. She also has rich experience in organizing as well as delivering sessions in many MDPs, FDP and workshops on Yoga and Meditation for different organizations and sections of Society. As a trainer, she loves to deliver training on Personality Development, Soft Skills, Time Management, etc.



## Prof. ANSHUL MATHUR

Assistant Professor, Department of Management  
School of Business Studies, Sharda University

Prof. Anshul Mathur is an Assistant Professor in the Department of General Management at School of Business Studies, Sharda University. Prior to this, he was associated with IMS Noida and Jaipuria Institute of Management Noida. His primary areas of teaching include Strategic Management, Creativity and Innovation, Entrepreneurship, Business Research Methods, and Business Models. His primary areas of research include Business Model Innovation and Platform Businesses.

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**EMERGING DYNAMICS IN BUSINESS, INNOVATION AND TECHNOLOGY**

# EMERGING DYNAMICS IN BUSINESS, INNOVATION AND TECHNOLOGY



**Dr. ROOPALI FULZELE**  
**Prof. ANSHUL MATHUR**

# Emerging Dynamics in Business, Innovation and Technology

**Edited By**

*Dr. Roopali Fulzele*

*Prof. Anshul Mathur*



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# **Preface**

The combination of business, innovation and technology in today's time has brought the new growth and shape to worldwide business. Today, every business is seeking for speed, easy adoption and agility when involving in the development of new product, processes, services, strategies, etc. By leading with emerging dynamics in business, innovation and technology helps companies in minimizing operation costs, acquiring customer loyalty, revenue generation, achieving competitive edge as well as remaining tough in disruptive times also. Many organizations are now undergoing through a lot of transformation because of emerging dynamics in business, innovation and technology. Emerging technologies and innovations are bringing the digital transformation in every business, processes, and governance. Hence, this book focuses on providing insights on the emerging dynamics in business, innovation and technology of the multidisciplinary areas such as finance, marketing, business management, human resources, healthcare system, education, architecture, legal aspects, etc. Through this book, readers will acquire the knowledge, skills, and competencies in order to prepare themselves for the competitive and emerging business environment in different sectors.

# Acknowledgements

A practice which brings mindfulness and gives happiness is 'Gratitude'. Writing an acknowledgment is that lovely practice of Gratitude, and we are happy to have the opportunity of doing so here.

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**Dr. Roopali Fulzele**

**Prof. Anshul Mathur**

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# CHAPTER-16

## TRADE AND FOREIGN DIRECT INVESTMENT IN THE COMMONWEALTH: SCALE, DRIVERS AND CHALLENGES

**<sup>1</sup>Dr. KHANINDRA CH. DAS**

<sup>1</sup>Assistant Professor,  
Birla Institute of Management Technology, Greater Noida, India

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### **ABSTRACT**

*The (British) Commonwealth was an important global network in the mid of twentieth century. Mutual trust brought together the Commonwealth economic network in the early post-war period. However, competence trust within the network gradually eroded from the mid of the twentieth century (Robertson and Singleton, 2001). The Commonwealth members were subsequently drawn into alternative networks coordinated by other leading powers such as the USA and China. This chapter discusses various facets of Commonwealth trade and foreign direct investment and the determinants of trade integration within the Commonwealth member countries including the role of connectivity and institutional quality.*

**Keywords:** *Economy, Investment, Commonwealth, Foreign Direct Investment, Trade*

## **16.1 INTRODUCTION**

The economic might of the Commonwealth eroded since then. During 1950 and 1970, the share of United Kingdom (UK) in world exports almost halved from 12.32% to 6.67%. By the year 2000, the share stood at 5.32%. However, the share of the Commonwealth (53 members) in the world trade has remained fairly stable in the last couple of decades. While share of the Commonwealth in world exports remained above 15% during 2000-2018 (Figure 1), the group's share in World imports declined marginally from 15.63% to 13.12% during the same period (Figure-16.2).

However, there is considerable regional variation. African Commonwealth countries improved its share in world exports from 0.84% to 1.29%, Asia from 4.51% to 6.21%, Pacific from 1.23% to 1.38% during 2000-2018. On the contrary, there has been decline in the share of European and the Caribbean and Americas. For European members, the share declined from 5.47% to 3.72%. For the Caribbean and Americans, the share declined from 3.83% to 2.52%. In the import front, the share of African, Asian, and Pacific members in world imports improved marginally. However, the share of European and the Caribbean and Americas declined by approximately 2% during 2000-2018.

The importance of Commonwealth as an economic network is assuming significance once again. This is in the backdrop of the challenges of multilateral trading system, retreat of USA from global economic issues, and the rise of China's influence across Asia, Africa, parts of Europe and Americas. Resurgence of the Commonwealth can provide an alternative network to its member countries for trade and economic expansion. However, there are many challenges in its resurgence. This chapter discusses various facets of Commonwealth trade and foreign direct investment and the determinants of trade integration within the Commonwealth member countries including the role of connectivity and institutional quality.

## **16.2 THE COMMONWEALTH AND INTERNATIONAL TRADE**

The Commonwealth members are spread across Europe, Asia, Africa, Caribbean and Americas, and the Pacific. Out of the 53 member countries (full list is provided in the appendix of the Chapter) African region contains the greatest number of countries (19), followed by Caribbean and Americas (13), Pacific (11), Asia (7), and Europe (3). However, in terms of exports, Asian and European region contributes the most to the Commonwealth exports. Major exporters of the Commonwealth include UK, India, Canada, Singapore, Malaysia, Australia, South Africa, Pakistan, Bangladesh, Nigeria, New Zealand, Sri Lanka, Kenya, Malta, Ghana, among others.

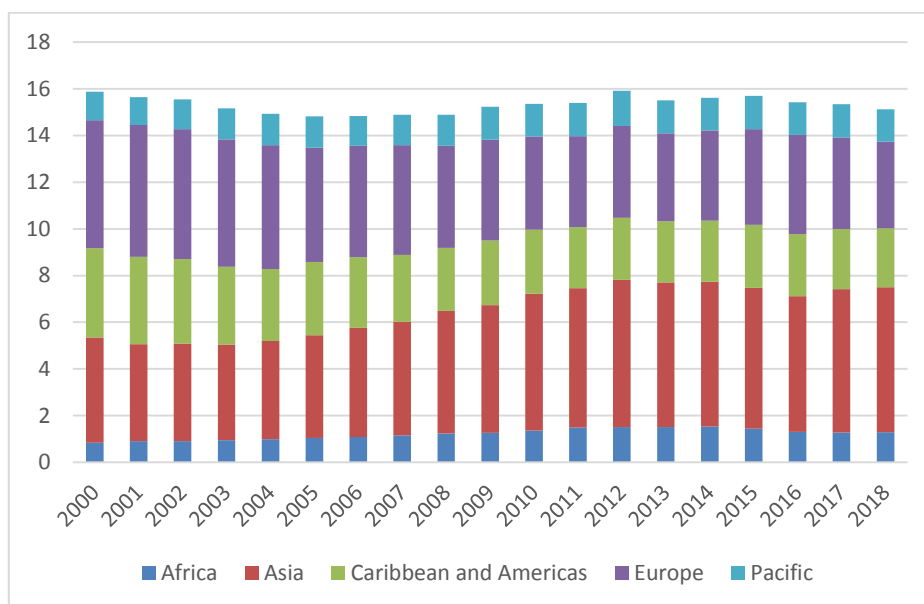
In terms of share in world exports in 2018, Asian members contributed 6.21% of world exports followed by Europe (3.72%). Caribbean and Americas contributed 2.52%,

the Pacific members contributed 1.38%, and African members contributed 1.29%. In 2018, more than half of the Commonwealth (28 members) had export value less than \$5 billion of which twelve countries had export value less than US\$ 1 billion. There were 7 countries with export value in the range of \$5-\$10 billion, 9 countries in the range of \$10-\$50 billion, 3 countries in the range of \$50-\$100 billion, and 5 countries in the range of \$200-\$500 billion. UK had the highest export value with \$686.86 billion in 2018. Overall, export value of the 53 Commonwealth countries (C-53) amounted to USD 2,928 billion in 2018 i.e. 15.11% of total world exports (Figure-16.1).

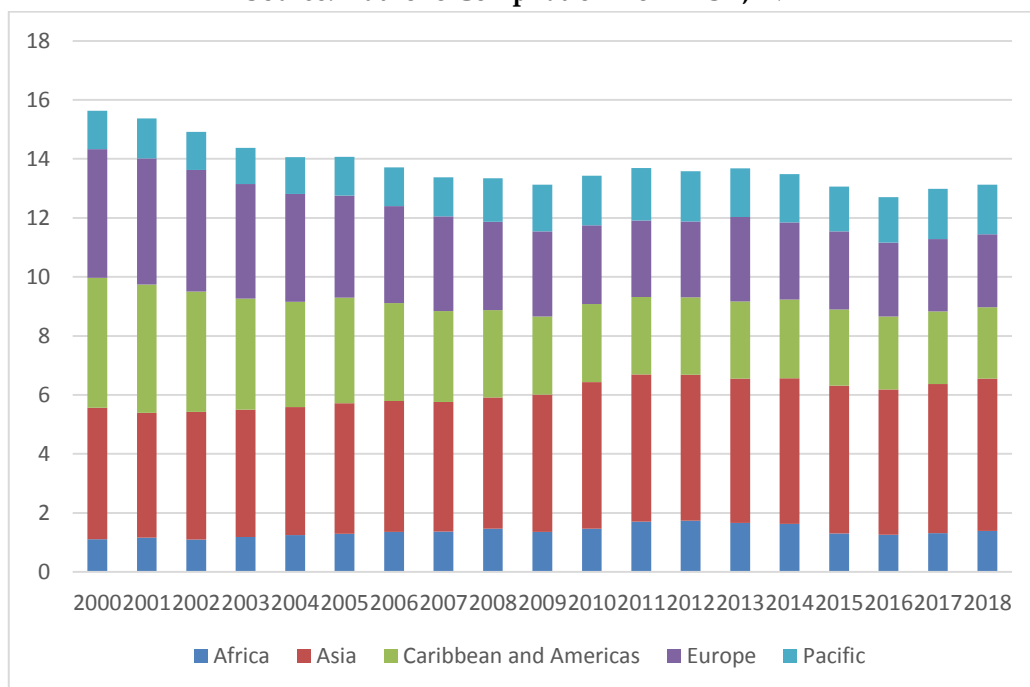
When it comes to imports, similar pattern prevails (Figure-16.2). In 2018, the share of Asian members in world imports was 5.16% followed by Europe (2.48%), Caribbean and Americas (2.42%), Pacific (1.67%), and Africa (1.39). However, the import share of the Commonwealth declined from 15.63% to 13.12% during 2000-2018.

The trade performance of Asian members improved considerably during the past two decades. Its share in world exports rose from 4.51% in 2000 to 6.21% in 2018, whereas the share of Asian members in world imports went up from 4.45% to 5.16% during the same period. There is an improvement for African members as well. The export share went up from 0.84% to 1.29% and import share from 1.11% to 1.39% during 2000-2018. However, its share remains considerably lower given that there are 19 countries from the region that are member of the Commonwealth group. The Pacific members also experienced marginal improvement in their share, an increase in export share from 1.23% to 1.38%.

However, the two regions of Europe and the Caribbean and Americas experienced deterioration in their share of world trade (both exports and imports) during the past two decades. While the share of European members in world exports fell from 5.47% to 3.72% during 2000-2018, the contribution of Caribbean and Americas declined from 3.83% to 2.52% during the same period. In the import front, the share of European members fell from 4.36% to 2.48% of world imports. This was primarily driven by UK as its share in world imports fell from 4.31% in 2000 to 2.43% in 2018. UK will need to reverse this downward trend to be able to anchor the Commonwealth economic network.



**Figure 16.1** Share of the Commonwealth (and sub-group of countries) in world exports  
 Source: Author's Compilation from DOT, IMF



**Figure 16.2** Share of the Commonwealth (and sub-group of countries) in world imports  
 Source: author's compilation from DOT, IMF

### **16.3 EXPORT ITEMS**

There is significant heterogeneity in the export basket of the Commonwealth members. Major export and import items of 21 Commonwealth countries analysed in this Chapter are listed in Table-16.1. While UK, Malta, Singapore and Malaysia export high value industrial goods e.g. electrical machinery and equipment (HS 85), machinery and mechanical appliances (HS 84); there are other countries (e.g. Kenya, Ghana, Sri Lanka, Nigeria) that rely heavily on exports of primary commodities such as plantation crops in the form of tea, coffee, spices, cocoa and cotton (HS 09, HS 18, HS 52). Similarly, it is worth noting that several members of the Commonwealth depend on exports of natural resource based and mineral products either in processed or unprocessed form (HS 26, HS 27, HS 71, HS 73, HS74). In the intermediate stage, there are countries that export labour intensive manufactured products (e.g., Sri Lanka, Pakistan) such as apparel and clothing accessories (HS 61, HS 62) and textile products (HS 63). However, several member countries depend on imported cereals (HS 10) and pharmaceutical products (HS 30), many of which are from Africa. On the other hand, several Commonwealth countries are exporters of pharmaceutical products. Many of the Commonwealth member countries such as UK, Canada, India, South Africa, and Tanzania have become exporters of vehicles (HS 87) and have formed production network linkages.

The degree of two-way trade across product categories varies from country to country albeit the low-income countries are more into one-way trade and into the primary products. These countries will need to focus on moving up the value chain and diversify the export basket from primary commodities to avoid volatility in export earnings. Further, increasing intra-Commonwealth trade itself will bring significant benefits to the group members as they have diverse product portfolio. Therefore, it is imperative to look into the constraints and challenges in intra-Commonwealth trade flows.

**Table-16.1: Top Ten Items of Export and Import (2018)**

<b>Country</b>	<b>Major Export items (HS code)</b>	<b>Major Import items (HS code)</b>
UK	84, 87, 71, 27, 30, 85, 88, 90, 39, 29	84, 87, 27, 85, 71, 30, 90, 39, 61, 73
India	27, 71, 84, 87, 29, 30, 85, 72, 52, 62	27, 71, 85, 84, 29, 39, 72, 15, 90, 28
Canada	27, 87, 84, 99, 71, 44, 39, 85, 88, 76	87, 84, 85, 27, 39, 90, 30, 73, 99, 94
Singapore	85, 84, 27, 99, 90, 71, 29, 39, 33, 30	85, 27, 84, 71, 90, 88, 39, 29, 87, 38
Malaysia	85, 27, 84, 15, 90, 39, 40, 29, 38, 76	85, 27, 84, 39, 72, 87, 90, 71, 29, 88
Australia	27, 26, 99, 71, 02, 84, 10, 76, 85, 90	84, 27, 87, 85, 90, 30, 99, 71, 39, 94
South Africa	71, 26, 87, 27, 72, 84, 08, 76, 85, 39	27, 84, 85, 99, 87, 39, 30, 90, 38, 29
Pakistan	63, 52, 61, 62, 10, 42, 17, 27, 22, 25	27, 84, 85, 72, 29, 87, 39, 15, 12, 52

Bangladesh	..	..
Nigeria	27, 89, 18, 12, 08, 31, 24, 41, 76, 39	27, 84, 89, 87, 85, 39, 10, 03, 73, 72
New Zealand	04, 02, 44, 08, 22, 99, 19, 84, 03, 21	87, 84, 27, 85, 39, 90, 30, 94, 88, 73
Sri Lanka #	61, 62, 09, 40, 27, 85, 89, 71, 03, 84	27, 84, 87, 85, 60, 72, 71, 39, 10, 52
Kenya	09, 06, 27, 07, 08, 62, 26, 24, 30, 61	27, 84, 87, 85, 72, 10, 39, 15, 30, 48
Malta	27, 85, 30, 03, 84, 95, 49, 88, 90, 39	27, 85, 84, 88, 89, 30, 87, 39, 03, 48
Ghana	71, 27, 18, 08, 26, 39, 44, 15, 16, 76	87, 84, 85, 10, 39, 73, 72, 25, 15, 30
Cyprus	89, 27, 30, 85, 04, 73, 88, 84, 99, 29	89, 27, 87, 84, 85, 30, 39, 73, 22, 72
Tanzania	85, 84, 94, 73, 87, 39, 25, 95, 23, 03	27, 84, 87, 85, 39, 72, 73, 30, 38, 15
Mozambique	27, 76, 26, 24, 71, 17, 03, 08, 49, 85	27, 84, 76, 87, 10, 85, 28, 30, 15, 39
Bahamas ##	39, 27, 03, 29, 84, 89, 25, 82, 86, 85	..
Cameroon #	27, 18, 44, 52, 76, 40, 08, 34, 09, 28	27, 10, 84, 85, 87, 30, 25, 03, 39, 72
Namibia	71, 74, 89, 26, 03, 01, 79, 87, 22, 84	74, 27, 89, 84, 87, 85, 26, 71, 73, 39

Source: author's compilation from UN Comtrade using HS (2012) AG2 classification

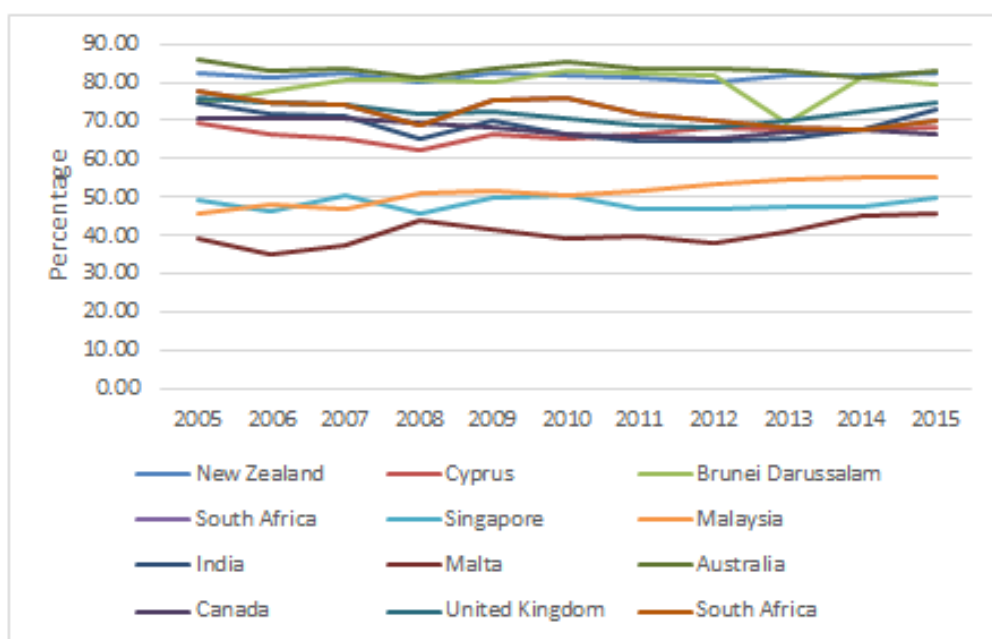
#2017, ## 2015, .. no data

#### **16.4 TRADE IN VALUE ADDED**

The degree of two-way trade of the Commonwealth members differs from country to country. The phenomenon of two-way trade is prevalent as countries rely on imported inputs for production at home. However, the degree of reliance on imported inputs and the domestic value added in gross exports of Commonwealth members differ significantly (Figure-16.3). Among the major exporters from the group, in 2015, Australia has highest proportion of domestic value added in gross exports (83.14%) followed by New Zealand (82.61%). Whereas, there are countries with lower domestic value added in exports that includes Malta (45.66%), Singapore (50.01%), Malaysia (55.42%) and Canada (66.67%). Although very low domestic value added may not be beneficial for domestic industry and workers, but a very high domestic value added may not facilitate country's integration with global production network. According to an estimate, 50% of global trade comes from global value chains (World Bank, 2020). However, since global financial crisis of 2008, global value chain related exports growth has stagnated due to various reasons including reversal of trade reforms. The Commonwealth countries will need to evaluate the global value chain strategy comprehensively to boost manufacturing and exports from its turf.

Factors impacting global value chain participation are beyond the scope of this paper. However, significant positive association has been found between value chain participation and the summary indicators of infrastructure development and trade facilitation performance (Shepherd, 2016).

The small island developing countries represent a significant portion of the Commonwealth. Huge diversity exists in terms of level of development, trade, FDI receipt of these countries. The economy of these countries depends on agriculture, fishing, tourism and other services. Small island developing countries also face a greater risk of marginalization from the global economy than many other developing countries due to small size, remoteness from large markets, and high economic vulnerability to economic and natural shocks beyond domestic control (Boto and Biasca, 2012). The small island developing countries with tiny export market participation are not part of subsequent discussions in this Chapter. For trade and development related aspects of small island developing countries, the reader may refer to Rao and Takirua (2010), Boto and Biasca (2012), Chen et al. (2014), Kumar and Shepherd (2019).



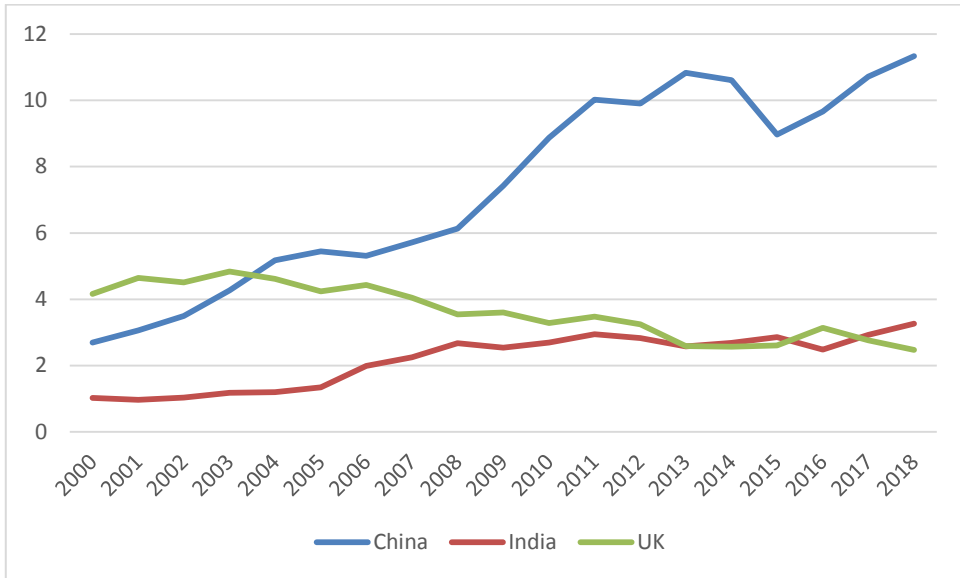
**Figure-16.3: Domestic value added in gross exports (2005-2015)**  
**Source: Author’s compilation from TiVa (December 2018), OECD**  
**Note: all source industry, exporting industry: manufacturing**

### **16.5 ROLE OF UK, INDIA, CHINA IN THE COMMONWEALTH TRADE**

Among the 53 Commonwealth members, UK and India are the two leading exporters with 2018 total export value of US\$687bn and US\$494bn respectively. China’s exports (US\$1,871 billion) to the world in the same year is almost three times higher than that of UK and four times higher than that of India. How well are the Commonwealth members integrated with UK and India vis a vis China is examined in this section.



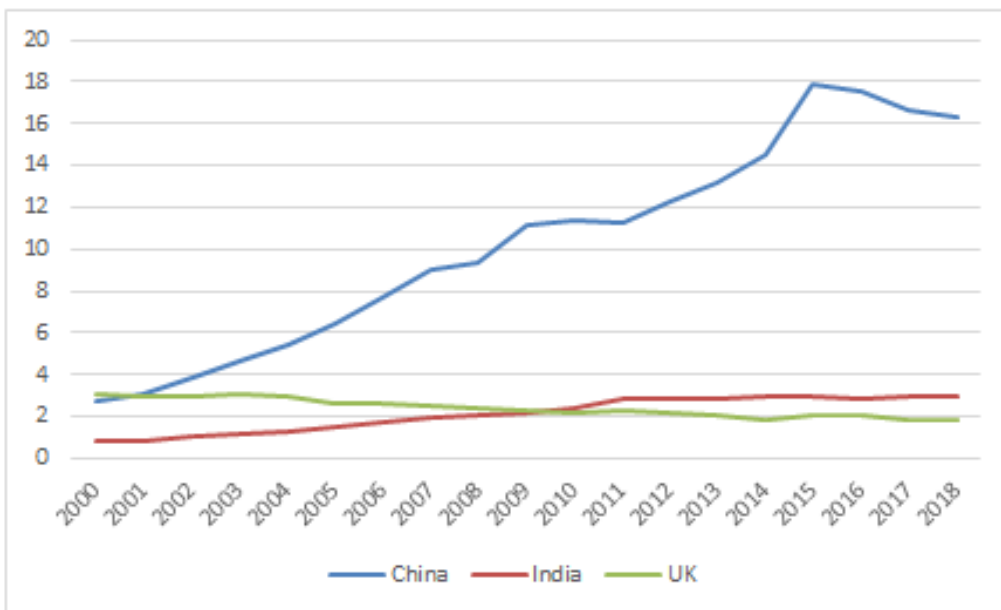
UK lost the centre stage of Commonwealth trade several years back. UK accounted for 4.16% of exports of other Commonwealth members in 2000 (Figure-16.4). By 2004, Commonwealth members' exports to China exceeded their exports to UK. Undoubtedly, the Commonwealth has ceded the centre stage to China in the trade front. By 2018, 11.33% of Commonwealth members' exports (US\$331.64bn/US\$2,927.80bn) were destined to China as opposed to 2.47% to UK. In recent times, the exports destined to UK is even lower than that to India. In 2018, 3.27% of Commonwealth exports were destined to India as opposed to 2.47% to UK.



**Figure-16.4: China, India and UK's share in total exports of the Commonwealth nations**  
**Source: author's compilation from DOT, IMF. Note: total export of Commonwealth members is in f.o.b., export to China (i.e. import of China) is in c.i.f.**

In 2000, 3.12 % of imports of Commonwealth members originated from UK as against 2.71% from China (Figure-16.5). In the import front too, UK was left behind by China as early as in 2001 i.e. the year when China became the member of World Trade Organization. Imports from China surged rapidly and reached 16.29% in 2018 (US\$417.75bn/US\$2,564.18bn). Commonwealth members' imports from UK dropped below 2% of their total imports in 2014 and stayed at 1.88% in 2018. India, on the other hand gained some share. Commonwealth members' imports from India increased consistently from 0.79% of their total imports in 2000 to 3% in 2017. Since 2010, Commonwealth members' import from India exceed that from UK.

While UK's importance as trading partner of the Commonwealth nations fell, India's importance in both imports and exports of the Commonwealth nations has risen. Therefore, India as a Commonwealth member could play a major role in strengthening intra-Commonwealth trade by increasing the volume of trade and investment within members of the group in the coming decade or so. However, India's role will be significantly challenged by China as there is handsome gap in the manufacturing competitiveness, financial firepower and business environment between the two countries.



**Figure-16.5: China, India and UK's share in total imports of the Commonwealth nations**

**Source: author's compilation from DOT, IMF. Note: total import of Commonwealth members is in C.I.F., import from China (i.e., export of China) is in F.O.B.**

In Table-16.2, the major export destination and import source of top 21 Commonwealth countries (i.e. in terms of export value in 2018) are presented. There is quite a lot of diversity in terms of export destination. In eight cases the top export destination is another member of the Commonwealth. When it comes to top import source, China unequivocally dominates the scene. This is an area where the Commonwealth need to work upon to improve intra-Commonwealth trade and economic integration. Increasing economic weight of the Commonwealth will be instrumental in keeping up its relevance.

**Table-16.2: Major trade partner of the Commonwealth (21 members) in 2018**

Country	Top export destination	Export value (US\$ bn)	Top import source	Import Value (US\$ bn)
UK	United States	65.36	Germany	91.63
India	United States	51.61	China	73.76
Canada	United States	337.81	United States	249.14
Singapore	China	50.62	China	49.67
Malaysia	Singapore	34.44	China	43.34
Australia	China	86.96	China	58.85
South Africa	China	8.69	China	18.14
Pakistan	United States	3.74	China	14.21
Bangladesh	Germany	4.43	China	13.14
Nigeria	India	19.89	China	8.51
New Zealand	China	9.57	China	8.63
Sri Lanka	United States	3.03	China	4.20
Kenya	Uganda	0.61	China	3.66
Malta	Germany	0.49	Italy	1.61
Ghana	India	3.67	China	2.27
Cyprus	Libya	0.45	Greece	1.87
Tanzania	South Africa	0.74	China	1.76
Mozambique	India	1.44	South Africa	1.77
Bahamas	Namibia	1.01	United States	3.25
Cameroon	China	0.75	China	1.09
Namibia	United Kingdom	1.49	South Africa	3.78

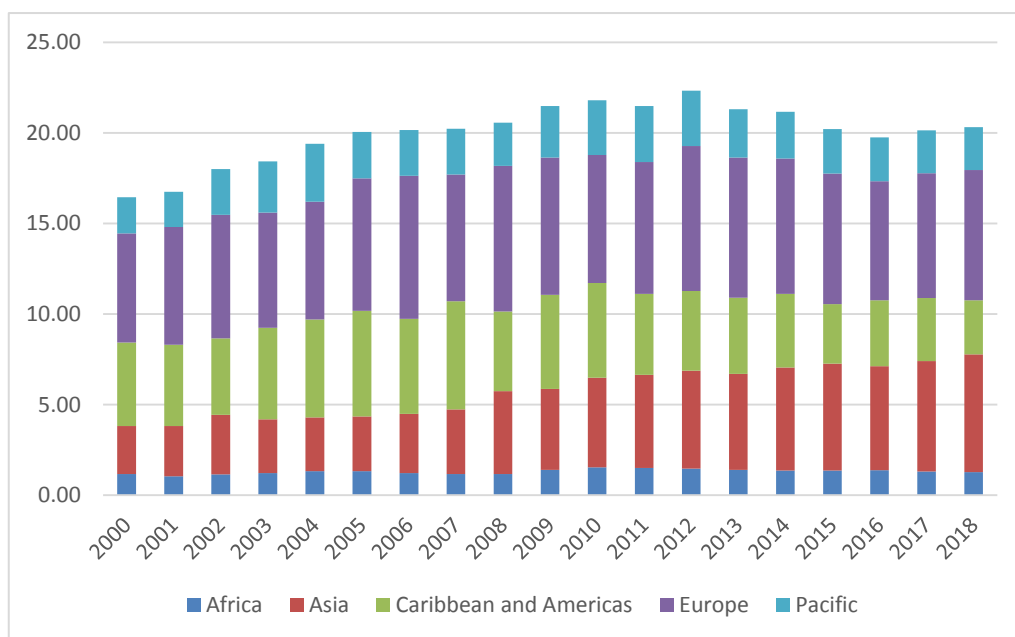
**Source: Author's compilation from DOT, IMF**

## **16.6 THE COMMONWEALTH AS FDI DESTINATION**

Unlike trade, foreign direct investment (FDI) stock in the Commonwealth member countries as percentage of world stock has moved up from 16.44% in 2000 to 20.32 % in 2018. However, there has been a little stagnation in the recent years. Figure-16.6 depicts the share of different sub-group of countries.

The improvement in FDI share of the Commonwealth is primarily due to gains made by Asian member countries as their share went up considerably from 2.64% in 2000 to 6.5% in 2018. The share of European member countries has improved marginally from 6.03% in 2000 to 7.19% in 2018. The share of pacific member countries has remained staggered at 2.38% in 2018. The share of African member countries did not register

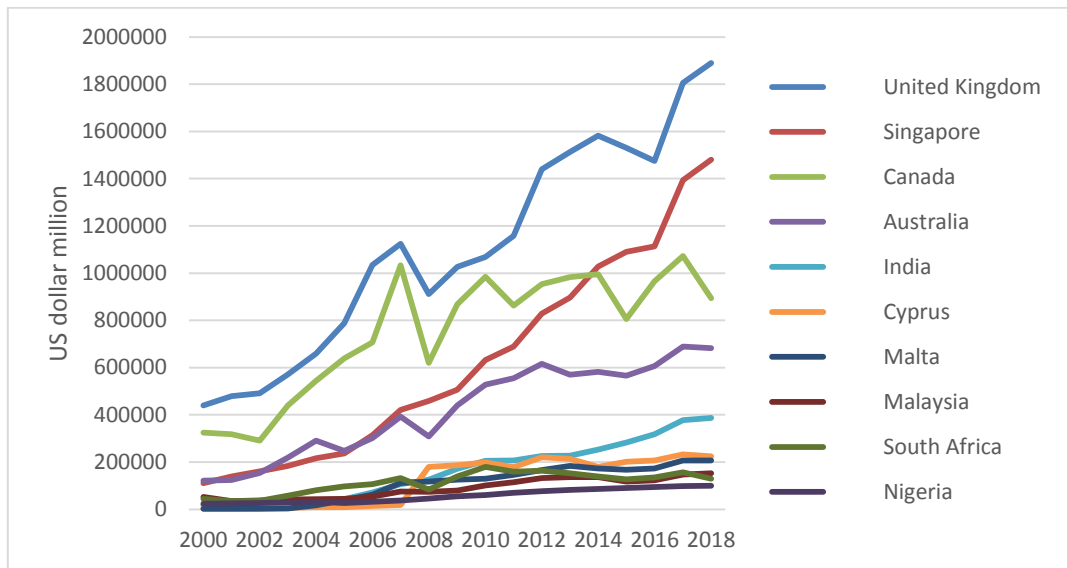
substantial improvement over the two decades and its share stood at 1.27% in 2018. However, the share of Caribbean and American members has declined from 4.61% in 2000 to 2.98% in 2018.



**Figure-16.6: FDI stock in the Commonwealth as percentage of world (2000-2018)**

**Source: author’s compilation from UNCTAD Stat**

In terms of the dollar value of FDI stock (in 2018), UK (\$1,890 bn) leads the tally followed by Singapore (\$1,481 bn), Canada (\$894 bn), Australia (\$683 bn), India (\$386 bn), Cyprus (\$224 bn), Malta (\$207 bn), Malaysia (\$153 bn), South Africa (\$129 bn) and Nigeria (\$100 bn). While the developed countries such as UK, Canada and Australia have experienced continued increase in FDI stock; there are emerging countries such as India, Malaysia and Nigeria that have significantly improved FDI stock in their respective economies over the past two decades (Figure-16.7).



**Figure-16.7: FDI Stock in the Commonwealth (Top-10 Receiving Countries)**  
**Source: author's compilation from UNCTAD Stat**

Nevertheless, many of the Commonwealth member countries receive FDI which is substantially higher relative to the size of the economy. FDI stock as percentage of GDP (2018) is astronomically high in Malta (1,443%), Cyprus (920%) and Singapore (426%). Mozambique (279%), Seychelles (193%), St. Kitts and Nevis (178%), Bahamas (173%), St. Vincent and Grenadines (167%), Barbados (150%), Belize (114%), Jamaica (107%), Tonga (102%) and Guyana (100%) have higher FDI stock relatively to GDP. While some of these countries serve as offshore financial centre and channel investment into other economies, the others rely more on foreign capital for trade and commerce.

Another noteworthy feature relating to FDI is that some of the Commonwealth members, other than the developed counterparts, have started emerging as source country of FDI. These emerging countries include South Africa (US\$238 bn), India (US\$166 bn) and Malaysia (US\$119 bn). In terms of world share, these three countries account for 1.69% of world outward FDI stock in 2018. When it comes to developed counterparts, the share in 2018 (% of world outward FDI stock) remains taller for UK (5.48%), Canada (4.28%), Singapore (3.30%) and Australia (1.59%). In terms of the dollar value the contribution of UK remains the highest (\$1,697 bn) followed by Canada (\$1,325 bn), Singapore (\$1,021 bn) and Australia (\$491 bn).

## **16.7 A COMMONWEALTH OF DIVERSITY**

The Commonwealth members are quite diverse in terms of economic development and in many other parameters. The group contains three out of the top ten economies in terms of size of GDP.<sup>14</sup> The Commonwealth also includes some of the smallest economies with annual GDP below US\$200 billion (Kiribati, Nauru and Tuvalu) in 2018. Significant variation exists with respect to size of population, per capita income, industrialization, resource availability, technological and innovation capability, among others. In the geographical front too, the members are spread across continents.

Economic integration of such a diverse set of countries could be challenged not only by distance, as known in traditional economic models, but also by connectivity and institutions of various sorts that can influence economic exchanges by reducing the barriers to trade.

The global economic architecture has evolved quite a lot in the past three decades. While the Washington Consensus and the formation of World Trade Organization spurred trade, investment and economic growth in many countries, the proliferation of regional trade blocks helped several countries to improve their economic position at the world stage. Notably, China has become a leading trading country in the world. However, the Commonwealth lacked in forging members to enhance economic integration within the member countries. Below we examine the trade flow within the Commonwealth members and its determinants.

## **16.8 DETERMINANTS OF TRADE FLOW**

Empirical analysis of the determinants of intra-Commonwealth trade flows is carried out using augmented gravity model. The gravity model is a standard tool to examine bilateral trade flows. The use of the model can be found not only in explaining trade flows but also in foreign direct investment, migration etc. (see Zwinkels, 2010 for a discussion of issues).

The theoretical gravity model (Anderson and Van Wincoop, 2003) is stated as follows:

$$\text{Log } X_{ij} = \text{log } Y_i + \text{log } Y_j - \text{log } Y + (1-\sigma) [\text{log } \tau_{ij} - \text{log } \Pi_i - \text{log } P_j]$$

Where  $\Pi_i$  and  $P_j$  are outward multilateral resistance and inward multilateral resistance respectively. The former captures the fact that exports from origin  $i$  to destination  $j$  depend on trade costs across all possible export markets. The latter captures

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<sup>14</sup> These three countries are UK, India and Canada. In 2018, their GDP at current US dollar stood at US\$ 2.83tn (UK), 2.73tn (India) and 1.71tn (Canada) respectively.

the dependence of imports into country  $i$  from country  $j$  on trade costs across all possible exporting countries. The  $\tau_{ij}$  is the trade cost function.

$$\text{Log } \tau_{ij} = b_1 \text{ log distance}_{ij} + b_2 \text{ contig} + b_3 \text{ comlang\_off} + b_4 \text{ colony} + \dots$$

Estimation of theoretical gravity model with fixed effects (by exporter and importer) can be done in the following manner:

$$\text{Log } X_{ij} = C + F_i + F_j + (1 - \sigma) [\text{log } \tau_{ij}]$$

Where  $C = -\log Y$

$$F_i = \log Y_i - \log \Pi_i$$

$$F_j = \log Y_j - \log P_j$$

$$\text{log } \tau_{ij} = b_1 \text{ log distance}_{ij} + b_2 \text{ contig}_{ij} + b_3 \text{ comlang\_off}_{ij} + b_4 \text{ colony}_{ij} + \dots$$

Trade cost between a pair of countries is impacted by geographical distance, contiguity, common official language and colonial relationship between country pair. These gravity variables are self-explanatory. For instance, countries sharing land border (contiguity) can arguably trade efficiently using road transport.

Distance, in the classic case, captures the impact of all frictions to trade between country pair. However, trade cost can be impacted by additional factors that varies at the bilateral level. In this Chapter the impact of variables such as bilateral connectivity, institution and regulatory quality that create friction is analysed. Accordingly, these variables are included in the gravity model. There is considerable variation across country-pairs in terms of connectivity, institutional and regulatory quality. Such variation bodes well for identifying the impact of these variables on trade flows within the Commonwealth.

Institution as a trade affecting variable has not found explicit mention in the traditional gravity models. Rather institution is expected to impact trade cost indirectly albeit in a multitude of ways. Belloc (2006) noted that it is hard to explain trade patterns without accounting for institutions explicitly. Further, it has been suggested that institutional difference could be a source of competitive advantage in international trade (Levchenko, 2007). Levchenko (2007) found evidence of institutional content of trade using data on US imports. Institutional sources of comparative advantage thus contend to be as important as traditional sources of comparative advantage such as resource endowments (Nann and Trefler, 2014). However, the effect of institution on trade flows has been documented scantily. With the availability of longitudinal data, the impact of institutional quality on trade flows is worth examining. In a recent study, it is shown that institutions in the exporting country could affect trade flows, in particular, China was

found to import more meat products from countries with qualitatively better institutions (Hasiner and Yu, 2018). Similarly, Importer's institution could impact trade flows as it has a bearing on enforcing contracts and trade costs. In the context of the Commonwealth, it is found that government effectiveness triggers an increase in exports from the Commonwealth during 1996-2013 (Khorana and Martínez-Zarzoso, 2019). However, inclusion of many institutional dimensions in the empirical analysis may have yielded some bias in the results.

In addition to institution, the maritime transport contends be the important determinant of seaborne trade flows. However, due to lack of data it is not surprising to see that maritime connectivity has found limited mention in empirical research on trade flows. In a study of bilateral maritime trade flows into four destination countries (Brazil, Chile, New Zealand and USA), about a quarter of the effect of distance on seaborne trade flows was found to be due to maritime trade costs (Bertho et al., 2016). Therefore, the impact of maritime connectivity on trade is worth examining independently of distance. As connectivity is a pertinent issue for most of the Commonwealth countries its role in intra-Commonwealth trade needs examination.

Accordingly, the liner shipping bilateral connectivity index (lsbci) is used to represent physical/maritime connectivity between a country pair to examine the impact on intra-Commonwealth trade. The index measures a country pair's integration into global liner shipping networks. The lsbci is a unit free index between 0 and 1. It is simple average of the normalized values across five dimensions namely i) the number of trans-shipments required to get from country i and j, ii) the number of direct connections common to both country i and j, iii) the number of common connections by country pair with one trans-shipment iv) the level of competition on services that connect country i to country j, and v) the size of the largest ship on the weakest route connecting country i to country j. it may be recalled that apart from physical factors, policy barriers on either end of the route jointly affect maritime connectivity at the country pair level. There can be port usage costs, cargo reservations, operation of liner conferences, and restriction on commercial presence of foreign maritime companies.

Trade facilitation has been variously measured in past studies. Port efficiency, customs and regulatory environment, use of information technology is some of the indicators representing trade facilitation. Using logistic performance index published by the World Bank, Narayanan et al. (2016) shows through simulation exercise that trade facilitation to the level of a benchmark country would lead to gains in terms of welfare, GDP, employment and trade mainly within the Commonwealth member countries. However, trade facilitation encompasses several aspects. Estimating the impact of



individual dimensions of hard and soft infrastructure and connectivity is required to get an idea about the benefits and cost involved in taking specific trade facilitation measures.

The final model to be estimated after inclusion of full sets of origin, destination (and time) fixed effects take the following form.

**Bilateral trade flows between i and j:**

$$\ln(\text{export}_{ij}) = \alpha + \beta_1 \text{dist}_{ij} + \beta_2 \text{iq}_{ij} + \beta_3 \text{lsbci}_{ij} + \beta_4 \text{contig}_{ij} + \beta_5 \text{comlang}_{ij} + \beta_5 \text{colony}_{ij} + \theta_i + \delta_j + \varepsilon_{ij}$$

The origin and destination fixed effects capture any unobserved country heterogeneity such as legal system, political system etc.

The variables capturing institutional and regulatory quality are bi-lateralised i.e., country scores are combined to obtain a score of institutional (or regulatory) quality that varies at the country pair level. Institutional quality is a composite measure (following Xu et al., 2019), which is constructed using the six dimensions of World Governance Indicators (WGI) developed by World Bank (see Kaufmann et al., 2010 for methodology and analytical issues).<sup>15</sup> The governance “indices are highly correlated with each other such that it is very difficult to use them all in a single equation” (see Globerman and Shapiro, 2002; p. 1902). Therefore, using them in the single model (as in Khorana and Martínez-Zarzoso, 2019) could lead to serious multicollinearity problems. The bi-lateralised institutional and regulatory variables are iq\_ij and rq\_ij respectively. The variable (iq\_ij) is created as the product of two dummy variables, one for exporter’s institutional quality (iq\_i) and the other for importer’s institutional quality (iq\_j). The dummy has a value 1 if institutional quality score is non negative and zero if negative. The dummy for regulatory quality was created in the similar manner. Note that the product of the two dummies is used rather than the product of standard normal scores to avoid positive bi-lateralised scores arising out of two negative scores at the country pair level. It may be noted that the standard normal scores of institutional regulatory qualities were both negative and positive (ranged approximately between -2.5 to 2.5).<sup>16</sup> The estimate of an individual dimension of governance (say regulatory quality) is in units of a standard normal distribution. The bi-lateralised dummy for institutional (iq\_ij) and regulatory (rq\_ij) quality takes value 1 if both countries of a country pair have non-negative institutional (or regulatory) quality score.

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<sup>15</sup> The six dimensions are control of corruption, rule of law, regulatory quality, government effectiveness, political stability and absence of violence, voice and accountability.

<sup>16</sup> Alternatively, difference in the institutional quality scores at the country pair level was used. The results were qualitatively similar.

Countries which are geographically tiny and trades insignificant amount of goods are excluded from the analysis. The empirical analysis is carried out on a sample of 21 Commonwealth members (as in Table-16.1). The sample excludes those countries with annual export value lesser than USD 7 billion (approx.) in 2018. As per this filter Namibia is the smallest country in terms of export value worth US\$6.9 billion in 2018.<sup>17</sup> The criterion also leaves out the landlocked countries from the analysis. When it comes to regional representation, there are 8 countries from Africa, 6 from Asia, 2 from Caribbean and Americas, 3 from Europe and 2 from the Pacific. These 21 countries had a combined export value of US\$ 2,861 billion in 2018, which amounts to 14.77% of total world exports and 97.72% of Commonwealth exports. On the other hand, intra-Commonwealth exports within the 53 members (US\$457.11) accounted for 2.36% of world exports in 2018. It may be noted that the share of 53 Commonwealth countries in world exports was 15.11% in 2018 (Figure-16.1). Further, the sample of 21 Commonwealth countries contributed 93.02% of intra-Commonwealth exports in 2018. The excluded Commonwealth countries contributed merely 0.34% of world merchandise exports and 6.98% of exports within the group. Therefore, the omission of smaller countries does not alter trade dynamics within the Commonwealth significantly. However, the case of these smaller economies needs separate examination as they have differing strengths and weaknesses.

## **16.9 RESULTS AND DISCUSSION**

The descriptive statistics of the variables are presented in Table-16.4. The value of bilateral exports within the Commonwealth varies quite substantially between 50.51 billion (exp(10.83)) to mere \$1 (exp(-13.82)) in any given year within the study period. The standard normal score of institutional quality ( $iq_i$ ,  $iq_j$ ) is used in the OLS models. The average values of  $iq_i$  and  $iq_j$  are positive i.e. 0.31 and 0.29 respectively. On the other hand, bi-lateralised institutional quality ( $iq_{ij}$ ,  $rq_{ij}$ ) is used in the fixed effects estimation. The bi-lateralised institutional quality ( $iq_{ij}$ ) variable has mean of 0.31, which indicates that 31% of the observations have non-negative institutional quality score at the country pair level. Similarly, the mean of bi-lateralised regulatory quality ( $rq_{ij}$ ) suggests that 28% of observations have non-negative regulatory quality score at the country pair level. The other important bilateral variable is the liner shipping bilateral connectivity index. The average value is 0.33. There is considerable variability in  $lscbi$  and it ranged between 0.82 and 0.12. The dummy variable  $contig$  is having mean of 0.04. This indicates that only 4% of the observations belong to contiguous countries.

The results of the gravity model estimation as well as the impact of institutional and regulatory quality are reported in Table-16.5. The OLS estimates of the gravity model

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<sup>17</sup> Less than half of the Commonwealth members (25 countries) had export value over US\$5 billion in 2018.

are reported in column 1-2. The estimates with fixed effects are reported in column 3-6. The estimates presented in Table-16.5 is based on trade flows during 2002-2018, as the variables capturing institutional and regulatory quality are available at annual frequency since the year 2002.

Significant and correctly signed variables are distance and GDP of exporter and importer. This is expected as per the predictions of the gravity model. In addition, institutional quality has positive and significant impact on exports in both OLS and fixed effects estimation. The impact bi-lateralised regulatory quality is positive but not statistically significant. The multilateral resistance variables are not consistently significant.

The results of the augmented gravity model after inclusion of liner shipping bilateral connectivity index, apart from institutional and regulatory quality, are reported in Table-16.6. We did not report the impact of lsbc in Table-16.5 to avoid loss of observations pertaining to 2002-2005. The liner shipping bilateral connectivity index is available from 2006, which is why the estimates presented in Table-16.6 is based on trade flows during 2006-2018.

Distance and GDP of exporter and importer remain significant and correctly signed. However, after the inclusion of lsbc, the significance level of institutional quality drops below conventional limits in the fixed effects models although the sign remains positive.

The impact of liner shipping connectivity is highly significant and trade enhancing. It is also quantitatively the most important variable in explaining bilateral trade flows within the Commonwealth. This suggests that a part of the impact of distance in the standard gravity models is due to bilateral connectivity. This is evident from the lower size of the coefficient of distance in Table-16.6 than in Table-16.5. Therefore, policy to enhance liner shipping connectivity is expected to give a boost to the trade among the Commonwealth countries. The results suggest that connectivity takes away the significant impact of institutional quality and reduces the negative impact of distance. The result suggests that physical connectivity, in particular the maritime connectivity, remains an important factor in intra-Commonwealth trade.

**Table-16.3: Variable Description**

<b>Variable</b>	<b>Description</b>	<b>Data sources</b>	<b>Expected impact</b>
Ln_export	Exports of country i to country j (in ln)	DOT, IMF	(Explained variable)
Ln_Gdp_i	Gdp of country i	WDI	Positive
Ln_Gdp_j	Gdp of country j	WDI	Positive
Ln_dist	Distance between country i and j (in ln)	CEPII	Negative
Iq_i	Institutional quality in exporting country	WGI	Positive
Iq_j	Institutional quality in importing country	WGI	Positive
Iq_ij	Bilateralised institutional quality between country i and j	WGI	Positive
Rq_ij	Bilateralised regulatory quality between country i and j	WGI	Positive
Lsbci	Liner shipping bilateral connectivity index	UNCTAD	Positive
Contig	Dummy for contiguity	CEPII	Positive
Comlang_off	Dummy for common official language	CEPII	Positive
Colony	Dummy for colonial link	CEPII	Positive

**Source: author's compilation**

**Table-16. 4: Descriptive Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Observations</b>
Ln_export	3.10	3.54	10.83	-13.82	6633
Ln_Gdp_i	25.40	1.78	28.76	21.91	6619
Ln_Gdp_j	25.36	1.80	28.76	21.91	8818
Ln_dist	8.79	0.71	9.86	5.75	6633
Iq_i	0.31	0.97	1.86	-1.27	6633
Iq_j	0.29	0.98	1.86	-1.27	6633
Iq_ij	0.31	0.46	1	0	6633
Rq_ij	0.28	0.45	1	0	6633
Lsbci	0.33	0.10	0.82	0.12	5137
Contig	0.04	0.20	1	0	6633
Comlang_off	0.59	0.49	1	0	6633
Colony	0.09	0.29	1	0	6633

**Source: author's compilation**

Table-16.5: Gravity Model Estimation (2002-2018)

Dependent variable: ln(exports)

	OLS (1)	OLS (2)	With fixed effects (3)	With fixed effects (4)	With fixed effects (5)	With fixed effects (6)
Gdp_i	1.243*** (0.050)	1.204*** (0.052)	-	-		
Gdp_j	0.958*** (0.050)	0.970*** (0.050)	-	-		
Ln_dist	-1.056*** (0.157)	-1.391*** (0.149)	-1.509*** (0.172)	-1.437*** (0.135)	-1.424*** (0.133)	-1.427*** (0.135)
Iq_i		0.583*** (0.114)				
Iq_j		0.266** (0.105)				
Iq_ij					0.606** (0.292)	
Rq_ij						0.205 (0.249)
Lsbci	-	-	-	-	-	-
Contig	1.377* (0.774)	1.225* (0.715)	-	0.518 (0.708)	0.390 (0.716)	0.495 (0.710)
Comlang_off	-0.128 (0.216)	-0.257 (0.211)	-	-0.622* (0.350)	-0.595 (0.360)	-0.610* (0.353)
Colony	0.392 (0.282)	-0.047 (0.272)	-	0.496 (0.683)	0.459 (0.655)	0.483 (0.685)
Constant	- 43.503*** (2.070)	- 39.993*** (2.149)	21.871*** (1.701)	21.768*** (1.380)	21.127*** (1.431)	21.496*** (1.436)
N	6604	6604	6633	6633	6633	6633
F	185.51***	161.66***	57.45***	59.35***	59.42***	57.59***
R <sup>2</sup>	0.63	0.65	0.74	0.74	0.75	0.74

\*\*\*<0.01, \*\*<0.05, \*<0.10. Figures in the parentheses represent cluster (clustered by distance) robust standard errors. Origin and destination fixed-effects are included in all the fixed effects models but not reported.

Table-16.6: Gravity Model Estimation (2006-2018)

Dependent variable: ln(exports)

	OLS (1)	OLS (2)	With fixed effects (3)	With fixed effects (4)	With fixed effects (5)	With fixed effects (6)
Gdp_i	1.112*** (0.061)	1.103*** (0.061)	-	-	-	-
Gdp_j	0.827*** (0.061)	0.873*** (0.059)	-	-	-	-
Ln_dist	-0.703*** (0.163)	-0.991*** (0.170)	-1.283*** (0.189)	-1.231*** (0.159)	-1.241*** (0.158)	-1.230*** (0.159)
Iq_i		0.485*** (0.111)				
Iq_j		0.117 (0.103)				
Iq_ij					0.378 (0.325)	-
Rq_ij					-	0.088 (0.261)
Lsbci	8.470*** (1.157)	7.127*** (1.128)	5.115*** (1.760)	4.716*** (1.756)	4.332** (1.759)	4.613** (1.794)
Contig	1.483* (0.785)	1.380* (0.765)		0.515 (0.698)	0.434 (0.708)	0.508 (0.700)
Comlang_off	-0.239 (0.194)	-0.323* (0.194)		-0.606 (0.404)	-0.598 (0.410)	-0.603 (0.406)
Colony	-0.139 (0.317)	-0.385 (0.311)		0.335 (0.738)	0.323 (0.701)	0.331 (0.740)
Constant	- 42.803*** (2.240)	- 40.879*** (2.311)	18.052*** (2.128)	18.263*** (1.990)	18.170*** (1.990)	18.219*** (1.994)
N	5108	5108	5137	5137	5137	5137
F	175.65***	152.02***	44.60***	45.54***	45.37***	44.59***
R <sup>2</sup>	0.67	0.68	0.75	0.75	0.75	0.75

\*\*\*<0.01, \*\*<0.05, \*<0.10. Figures in the parentheses represent cluster (clustered by distance) robust standard errors. Origin and destination fixed-effects are included in all the fixed effects models but not reported.

## **16.10 CONCLUSION AND IMPLICATIONS**

This chapter highlights the distinct changes in international trade and, to a limited extent, foreign direct investment in the Commonwealth countries. Some of the distinct patterns are listed here. Firstly, the share of the Commonwealth in world exports remained stable during the past two decades although UK's share has reduced. However, the group's share in world imports experienced marginal decline over the past two decades. Notable improvements from the Asian regional members could be seen in the trade front.

Secondly, there is significant diversity in the export and import basket of the Commonwealth members ranging from primary products to high technology manufactured products. Thus, there is significant scope to improve intra-Commonwealth trade.

Thirdly, there is prevalence of two-way trade within industries. Further, significant variation exists in the global value chain participation of the members. The Commonwealth members are expected to benefit significantly by following global value chain strategy.

Fourthly, China has taken the centre stage and emerged as the most important trading partner of many of the Commonwealth members. UK's role as trade partner of rest of the Commonwealth has fallen. The rise of India as one of the major trading partners of the Commonwealth is noteworthy. The emergence of India could enhance intra-Commonwealth trade if connectivity and conducive trade governance practices are put in place.

Fifthly, despite stagnation in recent years, Commonwealth members hold significant share of FDI stock. The role of Asian members can be noted in attracting significant amount of FDI. In addition, a few developing countries from the Commonwealth have become source of FDI.

Finally, trade flows within the Commonwealth have been driven not only by economic gravity but also by connectivity and institutional quality. The empirical examination suggests that connectivity has positive and significant impact on trade flows within the Commonwealth member countries. In particular, the liner shipping connectivity could boost trade flows within the Commonwealth significantly. The institutional (and regulatory) quality variables indicate to its positive impact on trade flows within the Commonwealth member countries. As institutions could facilitate stable trading environment, the Commonwealth countries will need to improve institutional and regulatory quality to benefit from international trade. The improvement in physical connectivity coupled with better institutional and regulatory quality is expected to revive

Commonwealth trade flows. As there can be no substitute for better physical connectivity, policy and investment must be geared towards it. However, soft infrastructure such as better institution and governance can complement trade. Removal of barriers to liner shipping, and welcoming of investment from both domestic and foreign investors in the port and infrastructure building could improve liner shipping connectivity and trade flows within the Commonwealth.

The case of Small Island and landlocked countries are beyond the scope of this chapter. The smaller economies were intentionally excluded from the sample as it increases in the number of country pairs with zero trade values. This limitation could be overcome with suitable sample selection bias correction methodology, which is left for upcoming research.

Nevertheless, intra-Commonwealth trade and foreign direct investment can bring significant benefits to the group members. It will also enhance economic integration and effectiveness of the Commonwealth. Therefore, it is imperative to address the constraints and challenges in intra-Commonwealth trade and investment flows. These challenges vary from country to country. However, improving connectivity will be a necessary condition. Further, improving institutional quality will complement connectivity in reducing the negative impact of distance and in improving economic exchanges within the Commonwealth. However, developing members must focus on moving up the value chain and diversify the export basket from primary commodities to avoid volatility in export earnings.

Institutional quality encompasses several aspects including regulatory connectivity. Improvement in the institutional dimension is expected to improve trade and investment receipt as it facilitates international business. Commonwealth members must emphasize on establishing better institutional connectivity so that the overall connectivity within the Commonwealth can be improved for better economic gains of its members. Better cooperation in areas like port and infrastructure development, technology cooperation and upgradation, regional trade agreements with adequate safeguards for vulnerable countries, and conducive and mutually beneficial rules and regulation on investment and trade will be some of the steps in right direction.

Increasing economic might will be crucial in recovering some of the lost grounds of the Commonwealth. Members of the Commonwealth will need to improve physical connectivity and institutional quality as trade, and foreign direct investment, responds favourably to both the measures albeit the magnitude may differ.



## **APPENDIX**

### **Commonwealth Members:**

**Africa:** Botswana, Cameroon, Gambia, Ghana, Kenya, Eswatini, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Seychelles, Sierra Leone, South Africa, Uganda, Tanzania, Zambia

**Asia:** Bangladesh, Brunei Darussalam, India, Malaysia, Pakistan, Singapore, Sri Lanka

**Caribbean and Americas:** Antigua and Barbuda, Bahamas, Barbados, Belize, Canada, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Kitts and Nevis, St. Vincent and Grenadines, Trinidad and Tobago

**Europe:** Cyprus, Malta, United Kingdom

**Pacific:** Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

**Institutional quality measurement: (see Xu et al., 2019)**

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