

Exploring intra-commonwealth goods and services trade¹

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Abstract

Existing work examining the trade effect of commonwealth membership does not account for sample selection, unobserved heterogeneity and multilateral resistance in estimation, leading to biased estimates. Our analyses improve on all these fronts. Unlike earlier work, we also consider services trade and assemble a much larger sample of trading partners (242 x 242, over 1995-2010). Commonwealth membership is found to increase goods exports by 18.5-33.2% and services exports by 42.8% in our results, ceteris paribus and on average. Our analyses on the determinants of intra-commonwealth trade suggest the positive role of common language (only for goods trade) and colonial relationships as well as the negative impact of geography, thereby confirming that commonwealth member states are not natural trading partners for each other. Finally, being one of Australia, Canada or the UK is associated with 98.2% greater merchandise trade than the commonwealth average; however, a similar effect is not observed for services trade.

JEL codes: F10, F14

Key words: Commonwealth, trade, sample selection, high-dimensional fixed effects, multilateral resistance, bilateral trade costs

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1. Introduction

With one quarter of the world's governments, one third of the world's population and one fifth of global trade, the Commonwealth (CW) is a diverse community of nations sharing an inheritance of a common language, institutions and culture. It brings together a unique range of countries, comprising rich and poor, large and small, as well as island, landlocked and coastal states. The association boasts the 'Commonwealth culture' of amicable partnership, in which activities are conducted in an atmosphere of co-operation and with a shared sense of community, reflecting its members' common traditions and shared values; this culture has inspired a high level of engagement among CW members. The unique mix of characteristics and strengths permits the CW to serve as a catalyst for genuine engagement, understanding and progress at the international level.

International co-operation in trade is increasingly prevalent and notwithstanding the somewhat unclear gains from trading blocs and their implications for multilateral free trade, preferential trading agreements (PTAs) have become a prominent feature of the world trading system, which has witnessed as many as 585 trading blocs being notified to the GATT/WTO. Almost all CW nations are members of at least one PTA and many of them have signed up to several such arrangements.

The CW also has a commendable track record of north-south and south-south collaboration, which provides a sound basis for co-operation targeted specifically at expanding and building inter-country and inter-regional trading links. The clear desire and spirit of co-operation among members is reflected in numerous CW-sponsored initiatives in both regional and multilateral forums. These strengths place the organisation in a privileged position to provide support, through the joint action of its members, for furthering the attainment of their goals of expanded trade and improved welfare.

In 2013 Colombo Meeting, the Commonwealth Heads of Governments issued a standalone statement on trade where amongst others they categorically mentioned, "[W]e recognize the potential for growth in intra-Commonwealth trade and investment as well as the importance of promoting practical measures to overcome constraints to such growth." This is also now quite well-understood that trade between a group of countries can be promoted even in the absence of trade policy-induced support (as it is in the case of the Commonwealth which is not a trading bloc as such). In fact, the 2013 World Trade Report suggests that on average only about 16% of all trade that takes place within regional trading blocs is preferential in nature. The rise of global value chains and the widespread recognition of improved trade facilitation measure as determinants of increased trade flows merit the case for non-policy induced trade cooperation within the Commonwealth.

Against this background, this study assembles bilateral trade flow data on goods and services for 242 countries over 1995-2010 and uses both descriptive statistics and more sophisticated econometric techniques to understand the nature and structure of intra-CW trade, its determinants, and the trade effect of being a part of the CW. The study also discusses measures available to enhance intra-CW trade.

While there is existing literature on this subject that is reviewed in the following section, none of the other econometric studies account for the presence of zero trade flows between bilateral trading partners, unobserved heterogeneity and multilateral resistance terms (MRT) in estimation, thus leading to biased estimates. Our analyses are an improvement on all these fronts.

Moreover, the existing econometric studies only look at trade in merchandise goods. To the best of our knowledge, this is the first paper that also studies the “commonwealth” effect on services trade using a recent data set on bilateral services trade, the “trade in services database” (TSD; Francois & Pindyuk, 2013). The TSD compiles data on cross-border services flows between 251 reporting and 251 partner countries over 1981-2010 using different sources such as the OECD, Eurostat and UNSD.

In our results, commonwealth membership is found to increase goods exports by 18.5-33.2% and services exports by 42.8%, *ceteris paribus* and on average. Our analyses on the determinants of intra-CW goods and services trade suggest the positive role of common language (only for goods trade) and colonial relationships as well as the negative impact of geography (both distance and contiguity), thereby confirming that commonwealth member states are not natural trading partners for each other. Our empirical analyses also document the importance of the Asian CW region as both a source of and destination for intra-CW goods and services trade. Finally, being one of Australia, Canada and the UK is associated with 98.2% greater merchandise trade than the average within the commonwealth member states. However, a similar effect is not observed in the case of services trade.

2. Literature review

The first notable attempt to analyse the significance of a ‘Commonwealth effect’ on trade and investment was made in the late 1990s by Lundan and Jones (2001) taking data on 53 CW and 18 non-CW countries to the gravity model. Their findings suggested an overall tendency for high levels of intra-CW trade and investment, controlling for geography and policy factors such as common PTAs. The authors also noted that simple linear predictions of future trade shares showed a gradual decline in intra-CW trade in the decade ahead.

A report by Chris Milner for the Commonwealth Secretariat (2008) *inter alia* explored the determinants of intra-CW trade in merchandise goods for the year 2003. Apart from the dummy variable for being landlocked, all other standard gravity variables were statistically significant and the effect of geography, infrastructure and economic size in particular on intra-CW trade was found to be large.

Bennett et. al (2010) estimated the effect of CW membership on exports and imports separately using a larger sample of countries and years (1990-2008). They found a ‘Commonwealth effect’ of around 50 per cent for imports and around 38 per cent for exports in their fully-specified gravity estimation. In their descriptive statistics, the authors also found that the proportion of CW trade tends to be higher in countries where the overall volume of trade is lower, a finding which is consistent with ours and Lundan and Jones (2001).

Finally, more recently, ITC (2013) and Standard Chartered (2014) have explored recent trends in intra-CW trade using descriptive statistics. The ITC (2013) study finds that “commonwealth countries have experienced different performances in terms of exports over the last years. While Least developed countries (LDCs) were least affected by the 2008/2009 economic crisis, they have also benefited from the strongest recovery. However, their performance remains fragile because of their high dependence on few products many of which are exported without any value addition. Furthermore, while developing countries inside and outside the Commonwealth become more and more important as export destinations, intra-Commonwealth trade has not stepped up in the past years.”

Standard Chartered (2014) note that while the CW is not a natural trading bloc, it is again beginning to gain relevance. While CW trade is dominated by a few members, intra-CW trade is beginning to pick up and the rapid growth of the many emerging economies within the CW only bodes well for future growth.

However, none of the econometric studies accounted for the presence of zero trade flows between bilateral trading partners, unobserved heterogeneity and multilateral resistance terms (MRT) in estimation, thus leading to biased estimates. Moreover, they only studied trade in merchandise goods. Our analyses are an improvement on all these fronts.

We include importer-time and exporter-time fixed effects, which not only control for unobserved heterogeneity in estimation but also account for MRT (for instance see Anderson & van Wincoop, 2003, 2004; Baier & Bergstrand, 2007), thereby making our empirical analyses consistent with recent advancements in the estimation of structural gravity models.

Given the large size of our panel (242 countries, 16 years), the use of two high-dimensional fixed effects (HDFE) in estimation leads to computational problems. To circumvent these issues, we employ the “2WFE” estimator developed by Guimaraes and Portugal (2010) to accommodate HDFE in estimation. We also account for the existence of zero trade flows in our data by following the approach of Eaton and Kortum (2001). This makes ours the first paper to explore the CW trade effect accounting for the possibility that not all countries trade in all products and that too, for both goods and services trade. Finally, we assemble a much larger sample of bilateral trading partners (242 countries each) than in the existing literature.

3. Exploring the ‘commonwealth effect’ on trade

Our empirical analysis is conducted in the framework of the gravity model as laid down by Anderson (1979) which is based on identical consumer preferences modelled by Constant Elasticity of Substitution (CES) utility functions and with Armington assumption of preference for domestically produced goods. Following Anderson (2004), the value of exports from country i to country j can be written as follows:

$$X_{ij} = \frac{E_j Y_i}{Y} \left(\frac{T_{ij}}{P_j \pi_i} \right)^{(1-\sigma)} \dots \dots \dots (1)$$

where X_{ij} denotes the value of exports, E_j is the expenditure in the destination country j , Y_i denotes the total sales of exporter i towards all destinations, Y is the total world output, T_{ij} are the iceberg trade costs and σ is the elasticity of substitution across goods and services. P_j and Π_i , the multilateral Resistance Terms (MRTs), are the inward and outward relative resistance of a country's exports towards *all* destinations and from *all* origins. Outward multilateral resistance captures the fact that trade flows between i and j depend on trade costs across all potential markets for i 's exports; inward multilateral resistance captures the fact that bilateral trade depends on trade costs across all potential import markets too. The two indices thus summarize average trade resistance between a country and its trading partners.

Because the MRT are difficult to construct directly as national price indices are needed (which are not available for all countries at a disaggregated level), applications of the gravity model have resorted to using dummy variables to control for them instead. Following Baier & Bergstrand (2007) we therefore use importer-time and exporter-time fixed effects to account for the MRTs.

We proxy trade costs by bilateral distance between trading partners, $\ln(\text{Dist}_{ij})$, as well as the usual gravity model controls which include dummy variables identifying whether the trading partners share a common border (Contig_{ij}), have/had a colonial relationship (Colony_{ij}), share a common language (Lang_{ij}), a common legal system (Leg_{ij}) and a common currency (Cur_{ij}).

Introducing dummy variables for membership of trade agreements (PTA_{ijt}) and membership of the commonwealth (CW_{ij}), which is our variable of interest, substituting the MRTs with the appropriate fixed effects, adding the proxies for trade costs and taking the logarithm of this transformed version of equation (1) yields the following:

$$\ln X_{ijt} = \alpha_{it} + \beta_{jt} + \beta_1 \text{CW}_{ij} + \beta_2 \text{PTA}_{ijt} + \beta_3 \ln(\text{Dist}_{ij}) + \beta_4 \text{Contig}_{ij} + \beta_5 \text{Lang}_{ij} + \beta_6 \text{Col}_{ij} + \beta_7 \text{Leg}_{ij} + \beta_8 \text{Cur}_{ij} + \varepsilon_{ijt} \dots \dots \dots (2)$$

where α_{it} and β_{jt} are the fixed effects that proxy the MRTs.

Estimation issues

Our equations can be estimated log-linearly using ordinary least squares (OLS). However, this excludes the treatment of export zeroes (as the log of zero is not defined) and the incidence of export zeroes was fairly high in our data, especially for services trade (see next section for details). Selection of the appropriate estimator in the presence of zeroes is contingent on the process generating the error term. Following Head and Mayer (2013), we found our goods and services trade data to be characterized by a constant variance to mean ratio which suggested the use of the Poisson pseudo-maximum likelihood (PPML) for inference. Unfortunately, PPML estimation with several HDFE as in our estimating equations led to non-convergence. This did not change even with the application of different work-around strategies suggested by Santos Silva and Tenreyro (2010).

Given the large size of our panel (242 countries, 16 years), the use of two high-dimensional fixed effects (HDFE) in estimation leads to computational problems. To circumvent these

issues, we use the “2WFE” approach developed by Guimaraes and Portugal (2010). This allows for estimating linear regressions model with two high-dimensional fixed effects with minimal memory requirements. Head and Mayer (2013) find the 2WFE estimator to provide identical estimates to the least squares dummy variable (Harrigan, 1996) without being subject to arbitrary limits. They also recommend the 2WFE over other estimation strategies such as double-demeaning, Bonus Vetus OLS (Baier and Bergstrand 2009) and tetrads (Head et al 2010).

Thus, we estimated our equations log-linearly using the 2WFE estimator. However, this strategy would only work at the intensive margin. To include export zeroes in the 2WFE estimation, we followed the approach of Eaton and Kortum (2001) and assumed that there was a minimum level of exports for each destination market such that when gravity-predicted exports was less than this minimum level, the observed value of exports was zero. This minimum level of exports is approximated by the minimum observed exports for each destination market ($\min X_j$).

Unlike the practice of adding an arbitrary constant to the export zeroes, this approach is more intuitive as the minimum trade flow for a specific importer would tend to reflect differences in market size, competition and trade barriers, as well as reporting and measurement issues.

Thus, the goods and services trade equations were estimated log-linearly by replacing X_{ijt} with $(X_{ijt} + \min X_j)$ to incorporate the export zeroes in the analyses. Since $\min X_j$ is the level of minimum observed exports for each destination market, data on these were already present in our data set.

4. Data

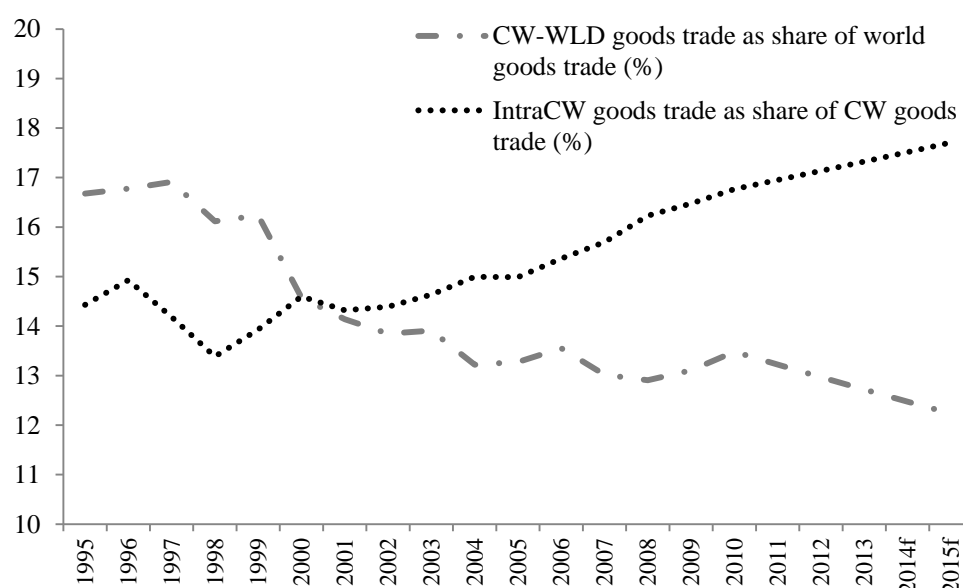
To explore the commonwealth effect on trade, we assemble a database of bilateral trade in goods and services between 242 countries over 1995-2010, including the 53 countries of the CW. Data on bilateral goods trade are taken from UN Comtrade, that on bilateral services trade are taken from Francois & Pindyuk (2013) and data on standard gravity controls are taken from CEPII. The dummy variable on PTA membership is constructed using information from the WTO’s RTA-IS database.

Summary statistics are provided in Annex Table 1. The full sample has more than 100,000 observations but export value is positive for only 77.5% of these for goods trade and 57.1% for services trade. Of the full sample, 32430 observations (30.8%) include at least one country from the CW, while 2626 observations (2.5%) are on intra-CW trade. Of these 2626 observations on intra-CW trade, 89% report positive goods trade and 69.7% report positive services trade. Thus, both CW and non-CW countries in our data report a significant number of zero trade flows for both goods and services.

4.1 Trade in goods

Trade amongst CW countries (forecast⁴ at \$575.8 bn in 2015) is becoming an important part of the CW's total merchandise trade (forecast at \$3.25 tr in 2015; see Figure 1). Commonwealth merchandise trade with the world as a share of global merchandise trade fell from 16.7% in 1995 to 13.5% in 2010 (and projected to fall further to 12.2% in 2015), even though world merchandise trade grew from \$4.6 trillion (tr) in 1995 to \$16.4 tr in 2010 (and projected to rise further to \$26.6 tr in 2015). At the same time, intra-commonwealth merchandise trade as a share of commonwealth merchandise trade with the world increased from 14.4% in 1995 to 16.8% in 2010 (and is projected to rise further to 17.7% in 2015), though the share of intra-commonwealth merchandise trade in world merchandise trade remains stagnant at 2.2%. **Note that “average” in all these figures denotes the average of imports and exports.**

Figure 1: World, commonwealth and intra-CW average goods trade over time



Source: UN Comtrade; own calculations

The top ten CW trading countries globally accounted for 94.7% of the CW's trade with the world in 2010, revealing a highly skewed distribution (see Figure 2). In fact, just the top two countries, UK and Canada, contributed more than half of the CW's average trade with the world. The geographical distribution of the CW's average goods trade with the world also reveals the much greater importance of India over time; the comparatively lesser importance of the UK and Canada; and the emergence of Nigeria and Pakistan in the list of top ten CW trading nations in 2010.

⁴ The forecasts made in this study for goods trade fit exponential functions to goods trade values over 1995-2010 to project future goods trade values.

Figure 2: Direction of commonwealth average goods trade (% shares, 1995 v 2010)

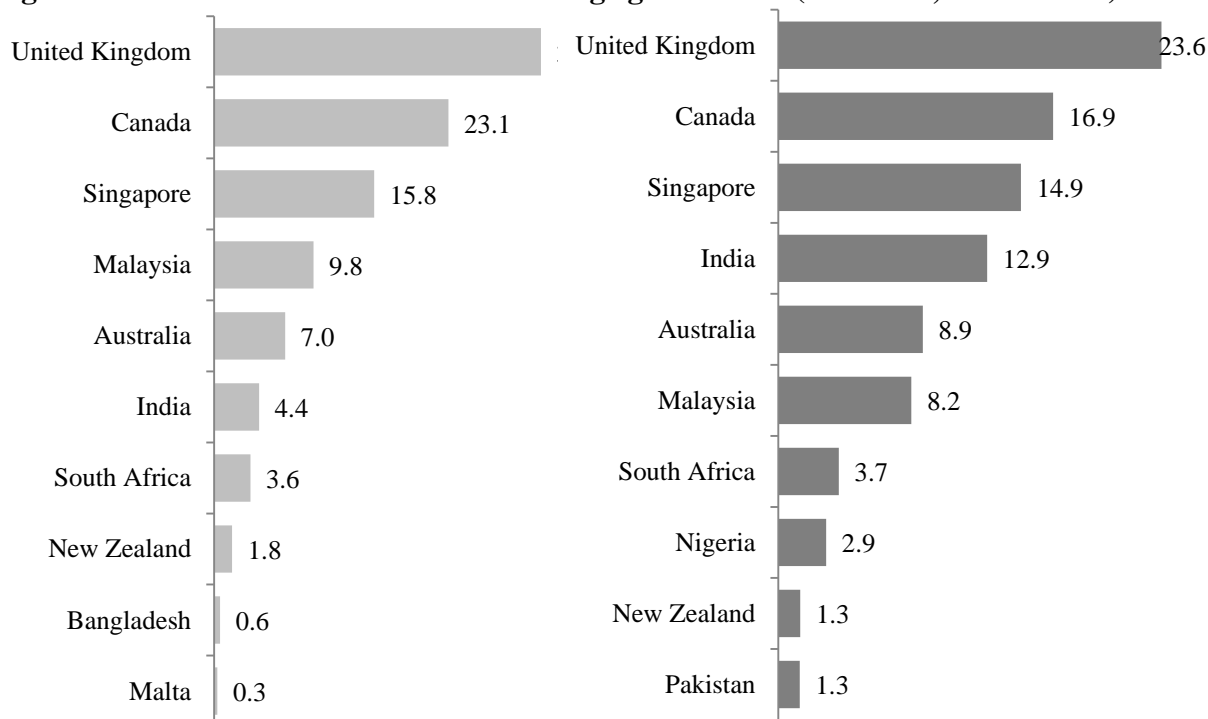
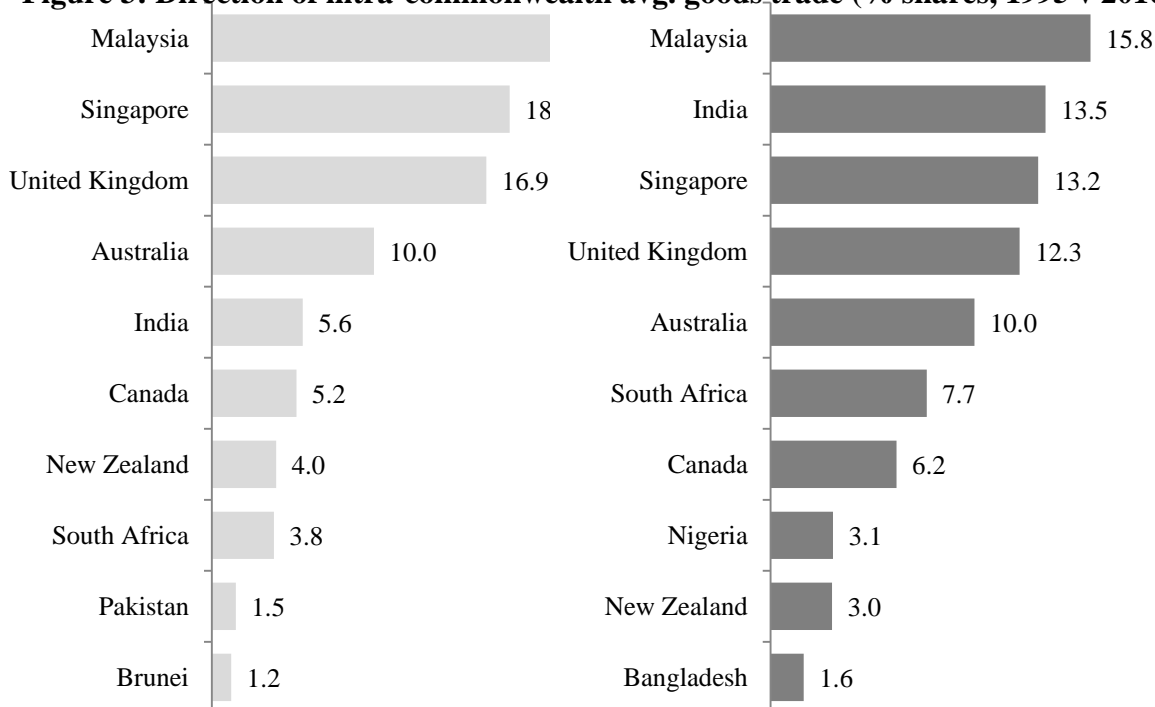


Figure 3: Direction of intra-commonwealth avg. goods trade (% shares, 1995 v 2010)



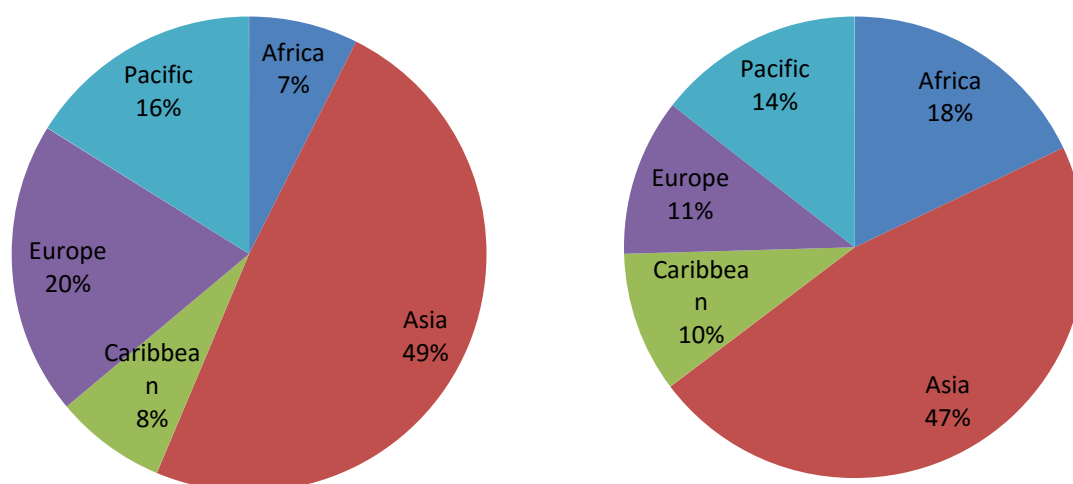
Source: UN Comtrade; own calculations

The ranking of the top ten CW trading countries globally in 2010 is different from the ranking of the top ten intra-CW trading countries in the same year (see Figures 2 and 3). Even over time, while the UK has been the largest CW trader globally, Malaysia has been the largest intra-CW trader. In contrast, the top ten intra-CW trading countries accounted for

86.4% of intra-CW trade in 2010, suggesting that the distribution was comparatively less skewed. Thus, the last four CW “trade quintiles” trade more amongst each other than with ROW, suggesting that the low-trade-volume CW countries may find the CW easier to trade with compared to the rest of the world (ROW), a finding which is consistent with Lundan & Jones (2001) and Bennett et.al (2010).

The direction of intra-CW goods imports (\$ 361.2 bn in 2010) is primarily Asian in origin (see Figure 4). Nearly 50% of intra-CW goods imports originate from Asia and this region’s importance did not change over time from 1995 to 2010. In contrast, the African CW became a much more important source of intra-CW imports (the region’s share increased from 7% in 1995 to 18% in 2010) while the importance of the European region declined (down from a 20% share in 1995 to 11% in 2010).

Figure 4: Source of intra-CW goods imports by region (% shares, 1995 v 2010)

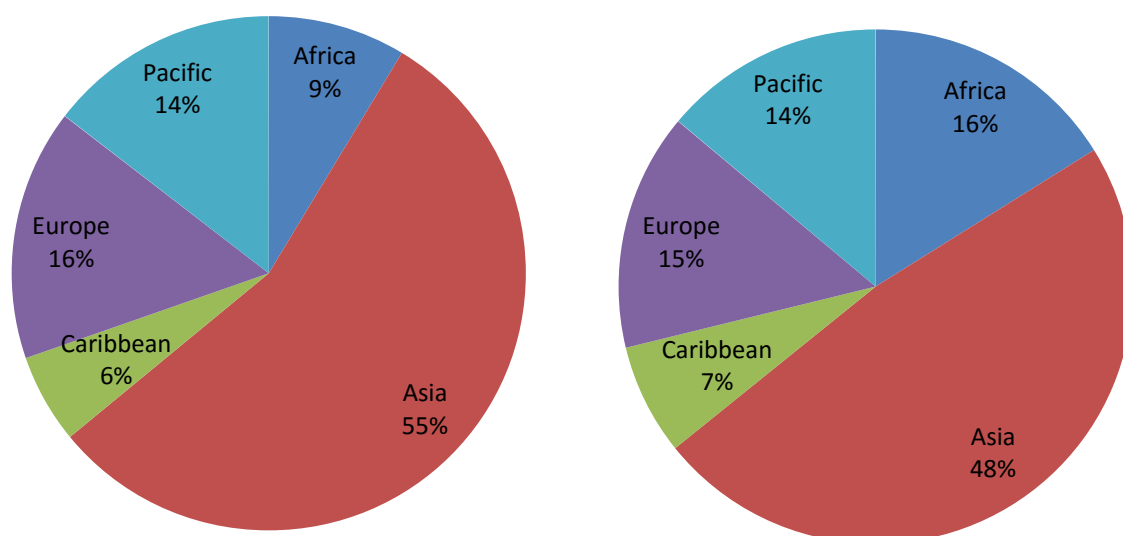


	Imports (% shares, 1995)					Imports (% shares, 2010)				
	Africa	Asia	Caribbean	Europe	Pacific	Africa	Asia	Caribbean	Europe	Pacific
Africa	20.4	3.0	4.7	18.1	3.4	38.1	9.2	12.5	17.5	5.2
Asia	24.7	65.4	17.6	36.2	33.2	32.7	58.8	16.9	35.8	42.9
Caribbean	10.6	5.3	8.7	20.0	6.9	4.2	4.1	8.8	27.3	4.4
Europe	39.9	18.4	52.4	5.9	16.5	21.9	13.3	56.2	4.4	16.4
Pacific	4.4	7.9	16.6	19.9	39.9	3.1	14.7	5.5	14.9	31.1

Source: UN Comtrade; own calculations

The direction of intra-CW goods exports (\$ 382.5 bn in 2010) is also primarily towards Asia (see Figure 5). More than 50% of intra-CW goods exports in 1995 and close to 50% in 2010 were destined to Asia. With the exception of the African region, the importance of other regions as a destination for intra-CW goods exports was almost stagnant over time from 1995 to 2010. The African CW became a much more important destination for intra-CW exports (the region’s share increased from 9% in 1995 to 16% in 2010).

Figure 5: Destination of intra-CW goods exports by region (% shares, 1995 v 2010)



	Exports (% shares, 1995)					Exports (% shares, 2010)				
	Africa	Asia	Caribbean	Europe	Pacific	Africa	Asia	Caribbean	Europe	Pacific
Africa	22.3	1.7	3.4	17.0	2.1	53.4	8.8	19.1	17.1	3.8
Asia	23.6	74.3	25.7	48.2	30.3	26.3	66.5	31.2	36.9	50.0
Caribbean	3.7	2.0	12.9	17.0	6.2	1.9	2.6	13.0	27.5	3.6
Europe	45.3	13.1	49.2	6.2	22.4	13.8	8.1	30.3	3.2	11.0
Pacific	5.0	8.8	8.7	11.7	39.1	4.6	13.9	6.4	15.3	31.7

Source: UN Comtrade; own calculations

Further breakdown of intra- and total CW merchandise trade by member state for 2000, 2010 is shown in Tables 1 and 2, for exports and imports, respectively. These tables reveal the following interesting stylized facts: (a) the smaller-trading CW countries such as Cameroon, Malawi, Mozambique, Namibia have registered a much greater growth in both imports and exports over 2000-10 than the larger-trading CW countries such as Canada, Singapore and the UK (b) This said, Bangladesh, Australia, Nigeria and India that are big CW traders have still shown remarkable growth exceeding 200% in all cases except Australia over this period (c) The smaller CW members states rely much more on the rest of the CW as a trading partner than the rest of the world.

The CW is a more important destination for the exports of smaller CW members than the rest of the world. For instance, more than 90% of St. Vincent and Grenadines exports go to the CW. This is also generally true of most Caribbean and Pacific CW island states. While Ghana's exports to the world grew by 213%, its exports to the CW grew by 580% over 2000-10. India's exports to the world grew more than 4 times and to the CW close to 5 times over 2000-10. Mozambique registered a 5 time increase in its exports, both to the world and to the CW, over 2000-10. In the case of Tanzania and Zambia, on the other hand, exports to the world grew much more (5 and 7 times, respectively) than exports to the CW (thrice and 72%, respectively). Nigerian and Tanzanian imports from both the world and the CW grew more

than 6.5 and 4 times, respectively, over this period. But the CW is not as important a source of their imports as the rest of the world.

Table 1: Breakdown of intra- and total CW goods exports by member (2000 v 2010)

Commonwealth trade (\$mn)	Exports to WLD		Exports to CW		% exports to CW		Export growth (% , 2000-10)	
Members	2000	2010	2000	2010	2000	2010	to WLD	to CW
Antigua and Barbuda	3	2	2	1	67.6	60.8	-19.7	-27.8
Australia	63766	206705	15369	44248	24.1	21.4	224.2	187.9
Bahamas, The	244	304	18	66	7.6	21.8	24.3	257.6
Bangladesh	5493	19231	766	3364	13.9	17.5	250.1	339.0
Barbados	190	236	131	158	69.1	67.0	24.2	20.3
Belize	186	282	60	91	32.3	32.4	52.0	52.5
Botswana	2763	4693	2139	3336	77.4	71.1	69.9	56.0
Cameroon	1823	3878	73	323	4.0	8.3	112.8	344.1
Canada	277113	362147	6369	23560	2.3	6.5	30.7	269.9
Cyprus	415	751	82	121	19.7	16.2	81.1	48.6
Dominica	51	28	42	21	82.6	76.3	-45.2	-49.4
Fiji	469	555	282	318	60.0	57.3	18.3	12.9
Ghana	1671	5233	468	3187	28.0	60.9	213.2	581.1
Grenada	71		12		16.6			
Guyana	518	890	285	525	54.9	59.0	71.6	84.3
India	42358	220408	7594	45213	17.9	20.5	420.3	495.4
Jamaica	1268	1247	341	310	26.9	24.9	-1.7	-9.1
Kenya	1571	5169	811	2321	51.6	44.9	229.0	186.3
Kiribati		4		1		28.5		
Lesotho	336		93		27.7			
Malawi	370	1065	119	361	32.2	33.9	187.5	202.4
Malaysia	98230	198791	28211	51359	28.7	25.8	102.4	82.1
Maldives	76	74	23	25	30.2	33.2	-2.6	7.2
Malta	2222	3717	567	656	25.5	17.7	67.3	15.7
Mauritius	1490	1490	485	561	32.6	37.7	0.0	15.7
Mozambique	364	2197	92	536	25.4	24.4	503.5	479.6
Namibia	1327	5848	833	2872	62.8	49.1	340.8	244.6
New Zealand	12773	29704	4282	10960	33.5	36.9	132.6	155.9
Nigeria	27079	86568	5359	21628	19.8	25.0	219.7	303.6
Pakistan		20989		3564		17.0		
Papua New Guinea	2407		300		12.5			
Samoa		60		54		90.8		
Seychelles	129		64		49.2			
Sierra Leone	12		1		5.4			
Singapore	137806	351867	39946	88884	29.0	25.3	155.3	122.5
Solomon Islands		208		33		15.9		
South Africa	26298	82626	6479	28063	24.6	34.0	214.2	333.1
Sri Lanka	5203	8304	1069	2160	20.5	26.0	59.6	102.2
St. Kitts and Nevis	29	27	8	2	27.1	8.7	-8.1	-70.4
St. Lucia	39		32		82.4			

St. Vincent and the Grenadines	43	35	40	32	92.4	92.2	-19.9	-20.1
Swaziland	891		690		77.4			
Tanzania	656	3922	332	1314	50.6	33.5	498.0	295.7
Tonga	9	8	2	2	19.1	25.1	-5.2	24.5
Trinidad and Tobago	4273	9992	1056	2306	24.7	23.1	133.8	118.4
Uganda	372	1152	158	394	42.6	34.2	210.0	148.9
United Kingdom	294899	422014	24021	38431	8.1	9.1	43.1	60.0
Vanuatu	23	46	13	19	54.6	41.1	98.8	49.7
Zambia	892	7200	628	1082	70.4	15.0	706.9	72.3
Average	22627	49278	3328	9106	37.0	35.0	141.9	147.2

Source: UN Comtrade; own calculations

Table 2: Breakdown of intra- and total CW goods imports by member (2000 v 2010)

Commonwealth trade (\$mn)	Imports from WLD		Imports from CW		% imports from CW		Import growth (%, 2000-10)	
	2000	2010	2000	2010	2000	2010	from WLD	from CW
Antigua and Barbuda	338	501	82	73	24.1	14.5	48.2	-10.9
Australia	67478	187868	14733	38961	21.8	20.7	178.4	164.4
Bahamas, The	2002	2862	48	102	2.4	3.6	42.9	113.0
Bangladesh	7611	30504	2106	8954	27.7	29.4	300.8	325.1
Barbados	1156	1196	393	291	34.0	24.3	3.5	-26.1
Belize	447	700	36	37	8.0	5.3	56.6	4.4
Botswana	2072	5657	1647	4826	79.5	85.3	173.0	192.9
Cameroon	1484	5115	388	1403	26.2	27.4	244.7	261.5
Canada	240091	388270	15167	22701	6.3	5.8	61.7	49.7
Cyprus	3845	8645	523	998	13.6	11.6	124.8	91.0
Dominica	148	225	58	68	39.4	30.1	51.6	15.6
Fiji		1808		1362		75.3		
Ghana	2933	8057	892	1620	30.4	20.1	174.7	81.5
Grenada	239		90	502	37.5			460.3
Guyana	573	1452	156	533	27.2	36.7	153.1	241.0
India	52940	350029	9988	1085	18.9	0.3	561.2	-89.1
Jamaica	3192	5225	644	3836	20.2	73.4	63.7	496.1
Kenya	2891	12093	866	53	29.9	0.4	318.2	-93.9
Kiribati		73				0.0		
Lesotho	613		500		81.6			
Malawi	532	2173	347	1269	65.2	58.4	308.4	265.4
Malaysia	81290	164466	16785	29411	20.6	17.9	102.3	75.2
Maldives	389	1095	266	605	68.3	55.2	181.8	127.7
Malta	3399	5732	850	1114	25.0	19.4	68.7	31.1
Mauritius	2081	4402	822	1948	39.5	44.2	111.5	137.0
Mozambique	1162	3561	551	1736	47.4	48.8	206.4	215.2
Namibia	1435	5980	1290	4930	89.9	82.5	316.7	282.1
New Zealand	13904	30158	4685	9783	33.7	32.4	116.9	108.8
Nigeria	5817	44235	1210	9446	20.8	21.4	660.5	680.6

Pakistan		37513		7017		18.7		
Papua New Guinea	1035		717		69.3			
Samoa		310		209		67.5		
Seychelles	342		133		38.9			
Sierra Leone	152		23		15.2			
Singapore	134546	310791	30886	58168	23.0	18.7	131.0	88.3
Solomon Islands		328		248		75.7		
South Africa	26771	82663	4393	15893	16.4	19.2	208.8	261.7
Sri Lanka	6178	12354	2010	5682	32.5	46.0	100.0	182.6
St. Kitts and Nevis	196	270	64	46	32.8	17.2	37.9	-27.9
St. Lucia	355		127		35.9			
St. Vincent and the Grenadines	162	379	70	177	43.2	46.8	134.9	154.2
Swaziland	1099		1037		94.4			
Tanzania	1586	8013	599	3086	37.7	38.5	405.1	415.4
Tonga	69	159	55	116	79.0	72.8	128.6	110.9
Trinidad and Tobago	3308	6479	355	818	10.7	12.6	95.9	130.3
Uganda	954	4664	567	1928	59.4	41.3	389.0	240.0
United Kingdom	370240	624118	35023	64813	9.5	10.4	68.6	85.1
Vanuatu	87	276	61	195	70.5	70.5	218.4	218.6
Zambia	888	5321	643	2385	72.4	44.8	499.2	270.7
Average	23819	56327	3452	7343	38.2	34.4	190.5	166.6

Source: UN Comtrade; own calculations

The composition of intra-CW average goods trade in 2010 reveals that the top ten traded intra-CW products accounted for 67% of intra-CW trade in that year. But just one product (mineral fuels and oils, HS2 code 27) comprised nearly 25% of intra-CW trade in 2010, suggesting a concentrated trade and production structure (see Figure 6).

The trade composition of the Asian, European and Pacific CW regions is even more concentrated with just one product accounting for 30% of average regional intra-CW trade and the top ten traded products accounting for nearly 75% (see Table 3). With the exception of CW Europe, mineral fuels and oils (HS2 code 27) is the most traded intra-CW product. In the case of CW Europe, miscellaneous goods (HS2 product code 99) are the most traded product.

Figure 6: Composition of intra-CW average goods trade (% shares, 2010)

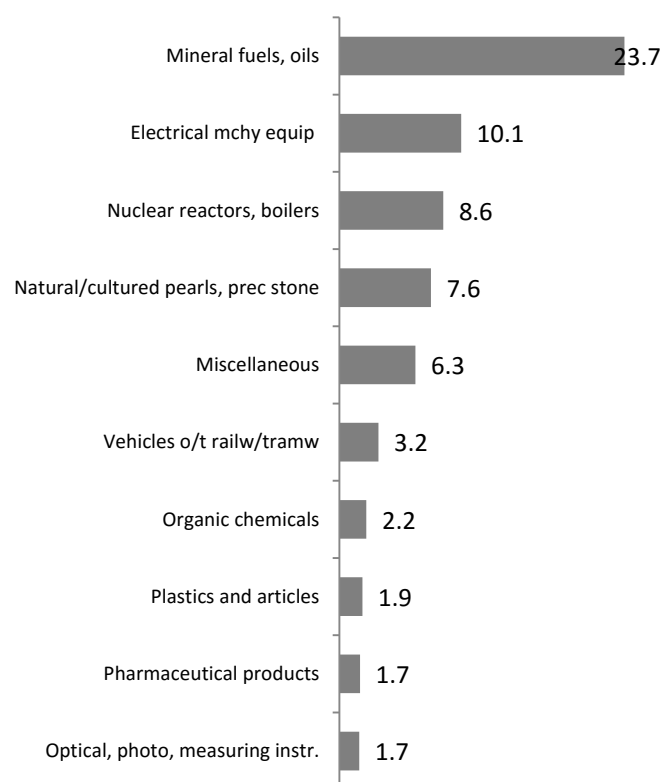


Table 3: Composition of intra-CW average goods trade by region (% shares, 2010)

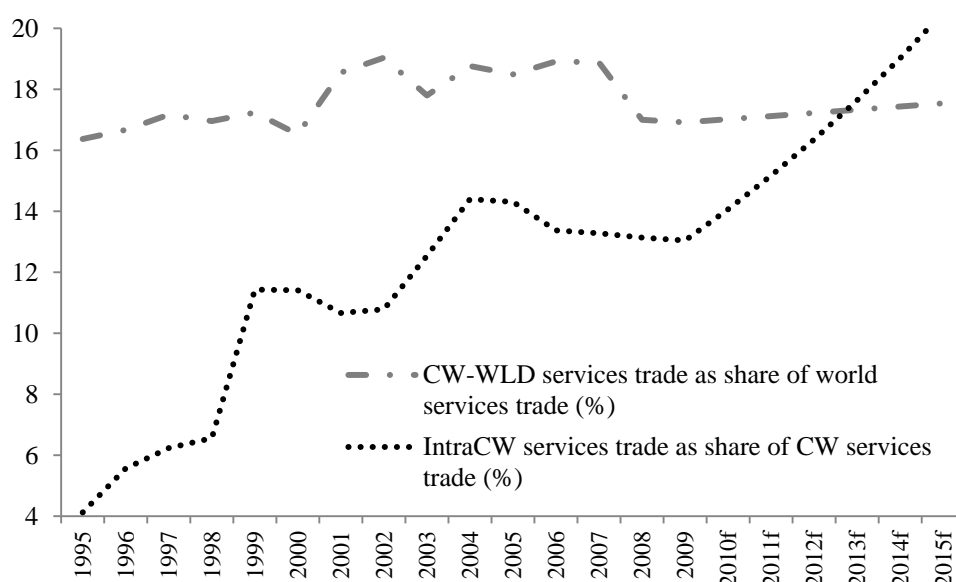
Africa		Asia		Caribbean		Europe		Pacific	
Products	% shares	Products	% shares	Products	% shares	Products	% shares	Products	% shares
Mineral fuels, oils	19.7	Mineral fuels, oils	29.8	Mineral fuels, oils	25.4	Miscellaneous	30.2	Mineral fuels, oils	30.2
Nuclear reactors, boilers	10.6	Electrical mchy equip	14.8	Nuclear reactors, boilers	10.4	Natural/cultured pearls, prec stone	12.1	Nuclear reactors, boilers	8.8
Vehicles o/t railw/tramw	9.4	Nuclear reactors, boilers	9.1	Electrical mchy equip	7.6	Mineral fuels, oils	6.5	Natural/cultured pearls, prec stone	8.3
Electrical mchy equip	7.2	Natural/cultured pearls, prec stone	7.8	Natural/cultured pearls, prec stone	6.4	Nuclear reactors, boilers	5.2	Electrical mchy equip	7.7
Articles of iron or steel	3.2	Animal/veg fats & oils	2.3	Pharmaceutical products	4.9	Art of apparel & clothing access	4.6	Vehicles o/t railw/tramw	3.8
Pharmaceutical products	3.0	Organic chemicals	2.2	Organic chemicals	2.9	Electrical mchy equip	4.1	Pharmaceutical products	3.4
Iron and steel	2.9	Plastics and articles	2.2	Vehicles o/t railw/tramw	2.9	Other art of apparel & clothing	4.1	Optical, photo, measuring instr.	2.2
Plastics and articles	2.7	Iron and steel	1.9	Beverages, spirits and vinegar	2.9	Organic chemicals	3.5	Plastics and articles	2.1
Animal/veg fats & oils	2.2	Cotton	1.7	Inorgn chem; compds of prec mtl	2.7	Vehicles o/t railw/tramw	2.4	Miscellaneous	1.9
Inorgn chem; compds of prec mtl	1.9	Optical, photo, measuring instr.	1.6	Optical, photo, measuring instr.	2.5	Beverages, spirits and vinegar	2.2	Paper & pulp	1.8

Source: UN Comtrade; own calculations

4.2 Trade in services

Commonwealth services trade with the world (forecast⁵ at \$1.3 tr in 2015) as a share of global services trade (forecast at \$7.4 tr in 2015) increased slightly from 16.4% in 1995 to 16.9% in 2009 (and is further projected to rise to 17.5% in 2015); world services trade more than tripled from \$1.25 tr in 1995 to \$4.1 tr in 2009. Significantly, intra-CW services trade (\$ 89.8 bn in 2009 and projected to rise to \$265.6 bn in 2015) as a share of commonwealth services trade with the world increased more than three times from 4% in 1995 to 13% in 2009. This share is further expected to rise to 20.5% in 2015 suggesting that trade in services amongst CW countries will become an even more important part of the CW's total services trade. Even as a share of global services trade, intra-CW services trade is likely to go up to 3.6% in 2015 from 1.9% in 2000. While the projections for intra-CW services trade seem large, these are consistent with the average annual 20% growth that intra-CW services trade has witnessed over 1995-2009; intra-CW services trade grew 9.6 times over this period, compared to the 1.6 times rise for intra-CW goods trade.

Figure 7: World, commonwealth and intra-CW average services trade over time

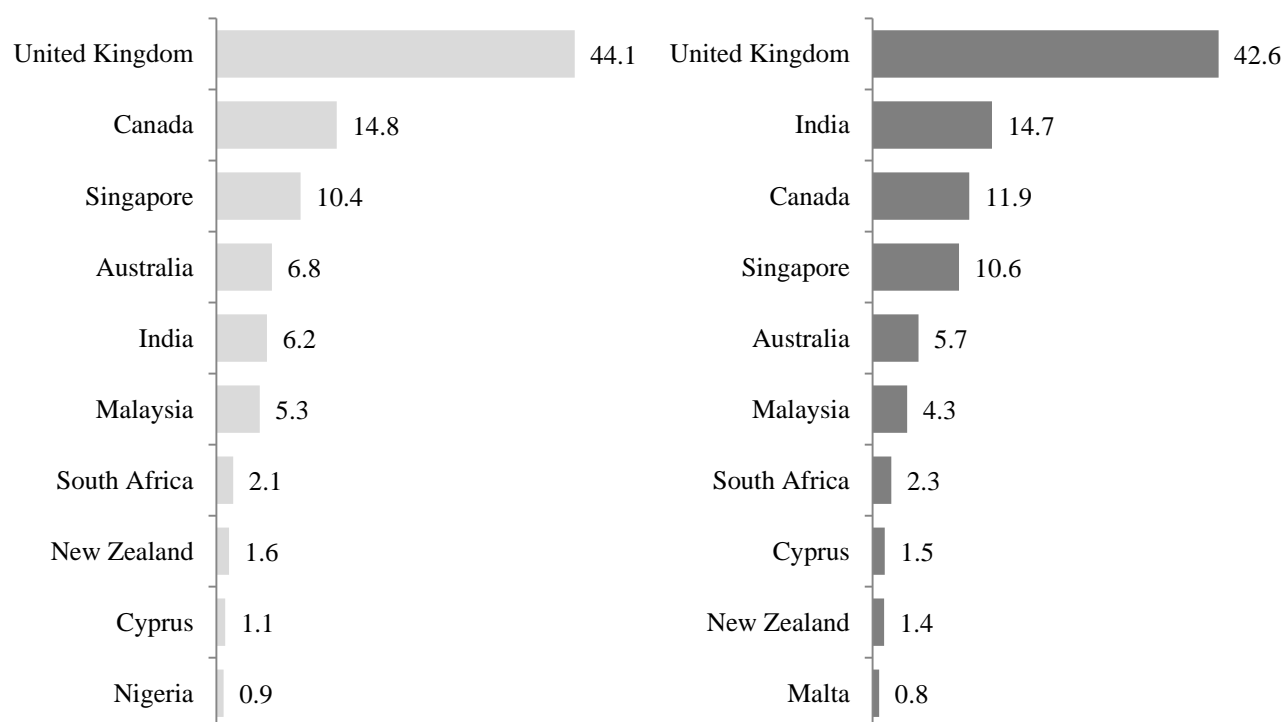


Source: Francois & Pindyuk (2013); own calculations

The direction of the commonwealth's global services trade also reveals a very concentrated distribution (see Figure 8). The top 4 CW countries contribute more than 75% of the commonwealth's global services trade; the top 10 accounted for more than 95% in 2009. The UK is the most dominant CW services trader accounting for more than 40% of the commonwealth's global services trade. Nine of the top ten CW services traders figured in the top 10 list both in 2000 and 2009. India became even more important in 2009, while Canada was less important compared to its relative position in 2000.

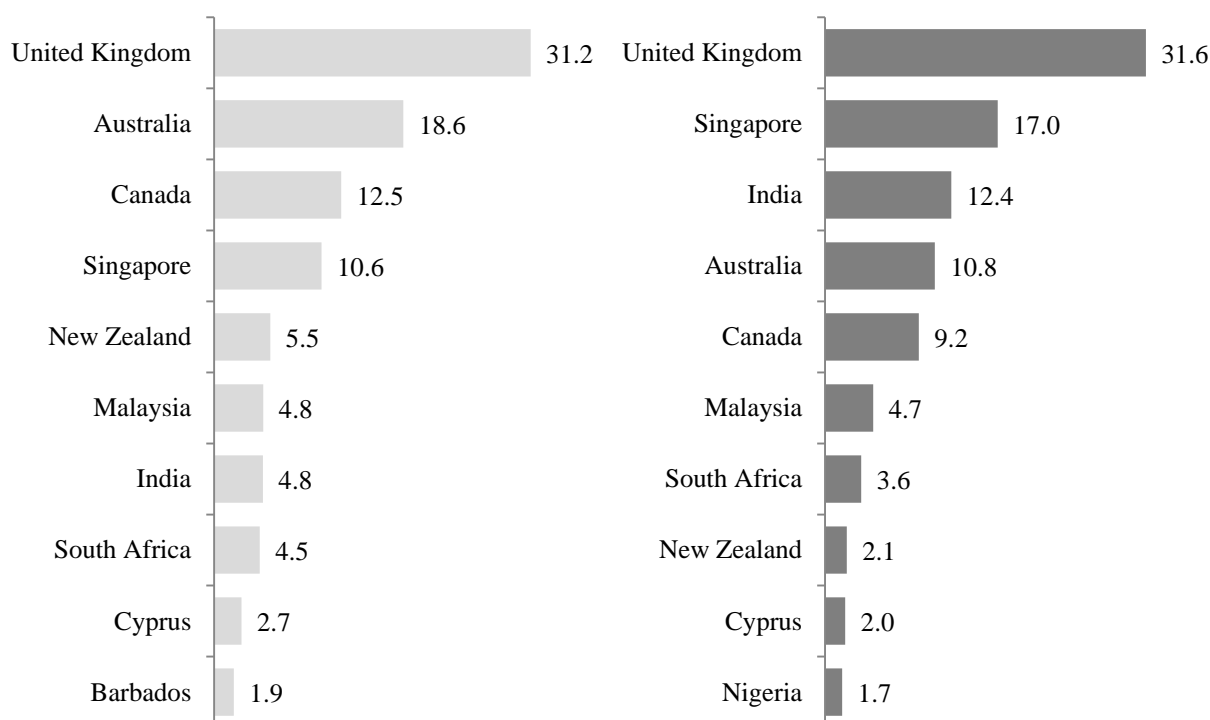
⁵ The forecasts made in this study for services trade fit exponential functions to services trade values over 1995-2009 to project future services trade values.

Figure 8: Direction of commonwealth average services trade (% shares, 2000 v 2009)



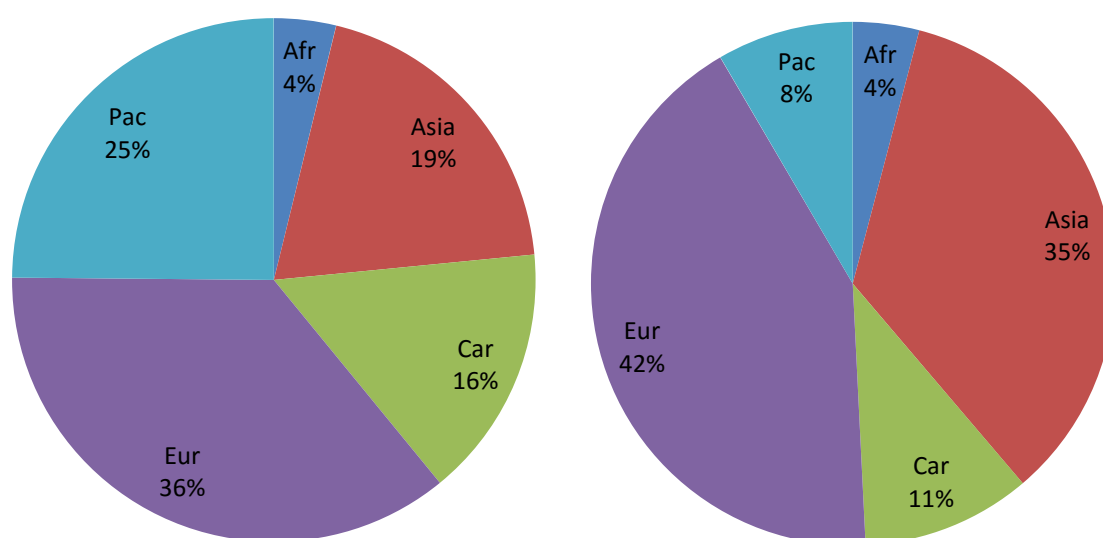
The geographical distribution of intra-CW services trade mirrors that of CW global services trade (see Figure 9). The top 4 countries contribute more than 70% of intra-CW services trade; the top 10 account for more than 95%. The UK is the most dominant intra-CW services trader as well accounting for nearly one-third of intra-CW services trade. Nine of the top ten intra-CW services traders figured in the top 10 list both in 2000 and 2009. While India and Singapore became more important in 2009, Australia and Canada were less important compared to their relative positions in 2000.

Figure 9: Direction of intra-CW average services trade (% shares, 2000 v 2009)



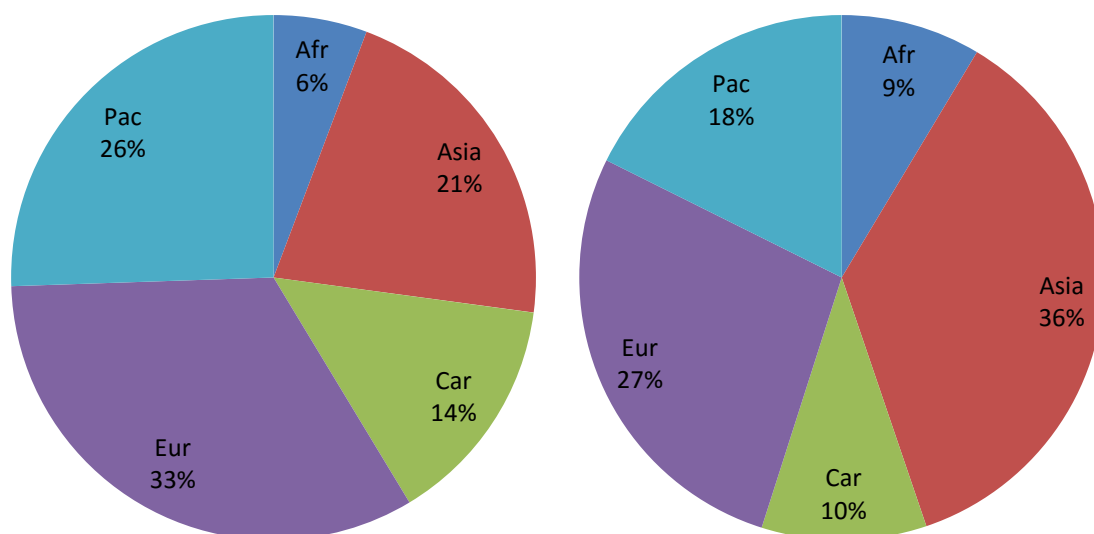
The direction of intra-CW services trade (\$ 89.8 bn in 2009) by region witnessed significant changes over 2000-09 (see Figures 10 and 11). The importance of CW Asia both as a source (up 35% in 2009 from 19% in 2000) and destination (up 36% in 2009 from 21% in 2000) region increased while that of CW Pacific declined significantly (down 8% in 2009 from 25% in 2000 as a source of imports and down 18% in 2009 from 26% in 2000 as a destination of exports). The importance of CW Caribbean has declined as well over time. CW Europe has become a more important source of intra-CW services imports (up 42% in 2009 from 36% in 2000) but a less important destination for intra-CW services exports (down 27% in 2009 from 33% in 2000).

Figure 10: Source of intra-CW services imports by region (% shares, 2000 v 2009)



	Imports (% shares, 2000)					Imports (% shares, 2009)				
	Africa	Asia	Caribbean	Europe	Pacific	Africa	Asia	Caribbean	Europe	Pacific
Africa	9.6	0.0	1.5	8.4	1.1	1.4	2.4	1.3	10.6	0.5
Asia	0.0	22.2	7.3	24.3	22.7	11.7	41.8	15.5	36.7	39.0
Caribbean	6.4	7.8	33.8	22.1	5.8	4.9	4.8	13.0	19.6	9.0
Europe	77.4	42.2	49.8	20.6	34.0	80.6	43.2	65.7	18.2	46.1
Pacific	6.7	27.8	7.6	24.6	36.4	1.5	7.8	4.5	14.9	5.4

Figure 11: Destination of intra-CW services exports by region (% shares, 2000 v 2009)



	Exports (% shares, 2000)					Exports (% shares, 2009)				
	Africa	Asia	Caribbean	Europe	Pacific	Africa	Asia	Caribbean	Europe	Pacific
Africa	14.4	0.0	2.3	12.4	1.5	2.9	2.9	4.0	16.4	1.6
Asia	0.0	24.2	10.7	25.0	23.9	21.1	43.7	16.6	36.9	33.3
Caribbean	5.6	5.3	30.7	19.6	4.3	3.2	4.5	12.7	15.7	5.4
Europe	72.9	40.9	46.8	18.9	32.8	70.6	29.0	51.6	11.8	48.6
Pacific	7.1	29.6	9.4	24.1	37.4	2.2	19.9	15.2	19.2	11.2

Source: Francois & Pindyuk (2013); own calculations

Further breakdown of intra- and total CW services trade by member state for 2000, 2009 is shown in Tables 4 and 5, for exports and imports, respectively. These tables suggest that the small island states are more reliant on the CW for their goods trade than for their services trade. Only Barbados (81%, 2009), Solomon Islands (87.2%) and Tonga (98.2%) had more than 75% of their total services exports destined to the CW for instance. Most of the top CW services exporters showed more than 100% growth in services exports to both the CW and ROW over 2000-09. This growth was exceptional for India (380% and 714%, respectively) in particular. At the same time, Bangladesh (515 times) and Nigeria (155 times) registered phenomenal growth in services exports to the CW over this period.

India is not only a major services exporter but also a major services importer; its imports from the world and CW increased close to 6 and 5 times, respectively, over 2000-09. Other rapidly growing services importers included Brunei (services imports from the world and CW increased 71 and 10 times, respectively, over 2000-09), Nigeria (services imports from the CW rose 230 times over 2000-09) and Samoa (services imports from the world increased more than 450 times over this period).

Table 4: Breakdown of intra- and total CW services exports by member (2000 v 2009)

Commonwealth trade (\$mn)	Exports to WLD		Exports to CW		% exports to CW		Export growth (%, 2000-09)	
Member	2000	2009	2000	2009	2000	2009	to WLD	to CW
Antigua and Barbuda	170.3	98.9		6.3		6.3	-41.9	
Australia	19493.7	47152.4	6015.6	13615.5	30.9	28.9	141.9	126.3
Bahamas, The	1026.5	925.0	22.9	336.8	2.2	36.4	-9.9	1371.8
Bangladesh	1623.4	582.4	0.5	264.8	0.0	45.5	-64.1	51517.2
Barbados	718.2	1202.1	475.8	973.9	66.3	81.0	67.4	104.7
Belize	123.0	184.0		23.4		12.7	49.6	
Botswana	549.6	3.2		1.1		34.2	-99.4	
Brunei Darussalam	80.7	1420.6	75.7	399.7	93.8	28.1	1659.5	427.7
Cameroon	958.0	534.7		164.5		30.8	-44.2	
Canada	44795.3	87896.9	4105.2	7208.7	9.2	8.2	96.2	75.6
Cyprus	1728.8	8703.7	223.8	1059.4	12.9	12.2	403.5	373.4
Dominica	59.6	38.2		1.5		4.0	-36.0	
Fiji	334.4	25.3	118.9	14.1	35.6	55.8	-92.4	-88.2
Ghana	584.1	976.1		504.2		51.7	67.1	
Grenada	107.1	39.9		4.7		11.9	-62.7	
Guyana	194.4	124.3		56.4		45.3	-36.1	
India	19287.9	92670.0	1767.6	14392.6	9.2	15.5	380.5	714.3
Jamaica	1423.2	377.3	35.7	148.1	2.5	39.3	-73.5	315.1
Kenya	720.3	890.9		273.2		30.7	23.7	
Kiribati	0.0	4.7		4.7		100.0		
Lesotho	43.4	26.3		12.6		47.8	-39.4	
Malawi	167.3	97.2		45.7		47.0	-41.9	
Malaysia	16748.7	21604.1	2211.0	6737.9	13.2	31.2	29.0	204.7
Maldives	110.4	38.9		17.2		44.2	-64.8	
Malta	905.3	4450.1	86.6	914.6	9.6	20.6	391.6	956.5
Mauritius	763.6	646.1		248.2		38.4	-15.4	
Mozambique	447.0	424.6		131.6		31.0	-5.0	
Namibia	334.0	130.9		40.7		31.1	-60.8	
Nauru	0.0	0.1						
New Zealand	4555.9	7337.0	2031.3	2053.3	44.6	28.0	61.0	1.1
Nigeria	3302.0	5810.9	13.5	2101.2	0.4	36.2	76.0	15509.3
Pakistan	2252.0	1467.6	73.4	656.0	3.3	44.7	-34.8	794.3
Papua New Guinea	870.2	216.0	242.7	130.0	27.9	60.2	-75.2	-46.4
Rwanda	201.2	70.6		11.0		15.6	-64.9	
Samoa	3.2	9.2	3.2	0.0	100.0	0.0	190.6	-100.0
Seychelles	190.6	181.8		50.4		27.7	-4.7	
Sierra Leone	113.0	1416.7		73.7		5.2	1153.7	
Singapore	30982.8	51705.6	2916.5	9862.6	9.4	19.1	66.9	238.2
Solomon Islands	72.6	10.9		9.5		87.2	-85.0	
South Africa	6433.1	13944.3	1882.4	3753.6	29.3	26.9	116.8	99.4
Sri Lanka	1622.3	366.5		131.0		35.7	-77.4	
St. Kitts and Nevis	80.7	104.9		4.7		4.5	30.0	
St. Lucia	139.5	28.3		4.7		16.7	-79.7	
St. Vincent and the Grenadines	61.6	56.2		4.7		8.4	-8.9	

Swaziland	417.2	76.6	0.0	45.8	0.0	59.7	-81.6	
Tanzania	684.3	388.0		83.2		21.4	-43.3	
Tonga	0.0	8.0		7.8		98.2		
Trinidad and Tobago	388.2	643.1	39.0	337.4	10.1	52.5	65.7	764.2
Tuvalu	0.0	2.1		0.2		9.2		
Uganda	459.2	344.9		112.7		32.7	-24.9	
United Kingdom	115411.0	278563.0	10597.6	22643.8	9.2	8.1	141.4	113.7
Vanuatu	70.2	9.9		1.5		15.5	-85.9	
Zambia	355.0	149.7		72.4		48.3	-57.8	
Average	5323.8	11965.7	1497.2	1726.0	23.6	33.3	75.5	3498.7

Source: Francois & Pindyuk (2013); own calculations

Table 5: Breakdown of intra- & total CW services imports by member (2000 v 2009)

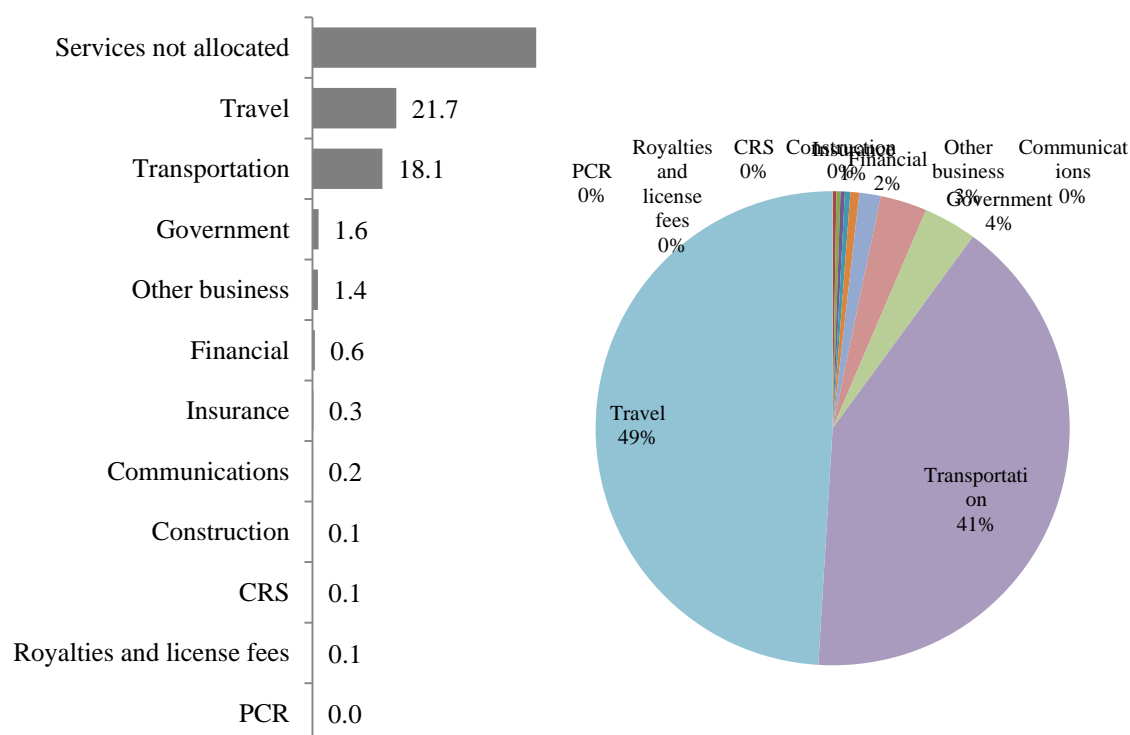
Commonwealth trade (\$mn)	Imports from WLD		Imports from CW		% imports from CW		Import growth (%, 2000-09)	
Member	2000	2009	2000	2009	2000	2009	from WLD	from CW
Antigua and Barbuda	432.8	517.2	1.7	0.0	0.4	0.0	19.5	-100.0
Australia	19939.0	30620.1	6262.7	5779.8	31.4	18.9	53.6	-7.7
Bahamas, The	1973.4	2266.1	72.0	0.0	3.7	0.0	14.8	-100.0
Bangladesh	816.1	1957.0	0.2	0.0	0.0	0.0	139.8	-100.0
Barbados	1508.9	1464.0	799.9	0.0	53.0	0.0	-3.0	-100.0
Belize	153.4	344.4		0.0	0.0	0.0	124.5	
Botswana	325.8	312.4		0.0	0.0	0.0	-4.1	
Brunei Darussalam	18.0	1288.7	18.0	198.7	100.0	15.4	7068.3	1005.2
Cameroon	591.2	1234.2		0.0	0.0	0.0	108.7	
Canada	40751.8	76033.2	4139.9	9371.0	10.2	12.3	86.6	126.4
Cyprus	4539.0	11930.3	1546.9	2505.1	34.1	21.0	162.8	61.9
Dominica	108.9	117.9		0.0	0.0	0.0	8.2	
Fiji	426.3	705.6	216.1	0.0	50.7	0.0	65.5	-100.0
Ghana	504.5	1969.7		0.0	0.0	0.0	290.4	
Grenada	182.7	151.7		0.0	0.0	0.0	-17.0	
Guyana	170.0	170.8		0.0	0.0	0.0	0.5	
India	16695.2	109739.0	1398.7	7925.1	8.4	7.2	557.3	466.6
Jamaica	2027.7	2650.7	94.9	0.0	4.7	0.0	30.7	-100.0
Kenya	993.8	2885.4		0.0	0.0	0.0	190.3	
Kiribati	0.0	0.0		0.0				
Lesotho	43.8	77.3		0.0	0.0	0.0	76.6	
Malawi	35.0	95.1		0.0	0.0	0.0	171.8	
Malaysia	14100.2	37080.6	974.4	1764.0	6.9	4.8	163.0	81.0
Maldives	349.3	659.7		0.0	0.0	0.0	88.9	
Malta	1340.2	6595.3	390.5	1437.0	29.1	21.8	392.1	268.0
Mauritius	1070.9	2229.5		0.0	0.0	0.0	108.2	
Mozambique	326.3	611.7		0.0	0.0	0.0	87.5	
Namibia	225.4	634.2		0.0	0.0	0.0	181.4	
Nauru		0.0						
New Zealand	4466.1	12256.4	1610.6	1785.3	36.1	14.6	174.4	10.8
Nigeria	1839.9	3655.9	4.0	932.1	0.2	25.5	98.7	22972.4

Pakistan	1380.0	3983.1	22.2	568.4	1.6	14.3	188.6	2458.0
Papua New Guinea	318.6	195.6	96.5	0.0	30.3	0.0	-38.6	-100.0
Rwanda	59.8	341.1		0.0	0.0	0.0	470.7	
Samoa	0.3	149.1	0.3	0.0	100.0	0.0	46654.5	-100.0
Seychelles	287.8	404.1		0.0	0.0	0.0	40.4	
Sierra Leone	42.7	52.5		0.0	0.0	0.0	23.0	
Singapore	28880.9	94620.2	4049.1	20655.1	14.0	21.8	227.6	410.1
Solomon Islands	52.2	70.9		0.0	0.0	0.0	35.7	
South Africa	5453.7	17706.7	1074.4	2642.7	19.7	14.9	224.7	146.0
Sri Lanka	940.3	1892.4	1.5	0.0	0.2	0.0	101.3	-100.0
St. Kitts and Nevis	104.0	131.9		0.0	0.0	0.0	26.8	
St. Lucia	332.8	352.6		0.0	0.0	0.0	6.0	
St. Vincent and the Grenadines	143.1	138.9		0.0	0.0	0.0	-2.9	
Swaziland	289.4	200.8	181.7	105.4	62.8	52.5	-30.6	-42.0
Tanzania	628.2	1854.7		0.0	0.0	0.0	195.2	
Tonga	0.0	34.8		0.0		0.0		
Trinidad and Tobago	555.3	764.8	41.1	0.0	7.4	0.0	37.7	-100.0
Tuvalu	0.0	0.0						
Uganda	213.7	966.3		0.0	0.0	0.0	352.2	
United Kingdom	139224.0	307706.0	9941.5	34083.6	7.1	11.1	121.0	242.8
Vanuatu	129.8	227.1		0.0	0.0	0.0	75.0	
Zambia	115.0	240.9		0.0	0.0	0.0	109.5	
Average	5675.1	14005.4	1372.5	1759.9	12.5	5.1	1209.3	1133.3

Source: Francois & Pindyuk (2013); own calculations

The composition of intra-CW average services trade in 2009 reveals that unallocated services accounted for 34.6% of intra-CW services trade in that year (see Figure 12). Of those allocated, OBS, transportation, travel and PCR accounted for more than 90%; all other services contributed the remaining 8% (of which government, financial, insurance and construction services were the major sectors).

Figure 12: Composition of intra-CW average services trade (% shares, 2009)



Source: Francois & Pindyuk (2013); own calculations

Note: CRS = Computer and related services; PCR = Personal, cultural and recreation services; OBS = Other business services

Intra-CW trade in other business services was dominated by merchanting and other trade-related services which contributed more than 95% of total intra-CW trade in OBS in 2009. The other important OBS traded within the CW included business, management consulting and public relations services and advertising and market research services. Intra-CW trade in transportation services was dominated by sea (primarily freight) and air (primarily passenger) transport services, together contributing 62.8% of total intra-CW trade in transportation services in 2009. Intra-CW trade in travel services was dominated by personal travel services, which contributed more than 75% of total intra-CW trade in travel services in 2009 (see Tables 6-8).

Table 6: Breakdown of intra-CW trade in other business services (2009)

Other business services (value in \$ mn)	14310.8	Shares (%)	Shares (%)
<i>Merchanting and other trade-related services</i>	13611.9	95.1	
<i>Operational leasing services</i>	11.5	0.1	
<i>Miscellaneous business, professional, and technical services</i>	600.4	4.2	
Legal, accounting, management consulting, and public relations	246.2		41.0
Legal services	52.3		8.7
Accounting, auditing, bookkeeping, and tax consulting services	44.5		7.4

Business and management consulting and public relations services	138.7		23.1
Advertising, market research, and public opinion polling	90.7		15.1
<i>Research and development</i>	4.5	0.0	
<i>Architectural, engineering, and other technical services</i>	26.8	0.2	
<i>Agricultural, mining, and on-site processing services</i>	2.9	0.0	
<i>Other business services</i>	209.7	1.5	
<i>Services between related enterprises, n.i.e.</i>	0.0	0.0	

Source: Francois & Pindyuk (2013); own calculations

Table 7: Breakdown of intra-CW trade in transportation services (2009)

Transportation services (value in \$ mn)	11772.8	Shares (%)	Shares (%)
<i>Sea transport</i>	4102.6	34.8	
Passenger	688.7		16.8
Freight	2739.7		66.8
Other	678.0		16.5
<i>Air transport</i>	3285.9	27.9	
Passenger	1627.8		49.5
Freight	213.1		6.5
Other	1444.4		44.0
<i>Other transport</i>	111.5	0.9	
Passenger	64.2		57.5
Freight	33.6		30.2
Other	13.5		12.1
<i>Other transport of which: Space transport</i>	0.0	0.0	
<i>Other transport of which: Rail transport</i>	72.1	0.6	
Passenger	64.2		89.0
Freight	7.7		10.6
Other	0.0		0.0
<i>Other transport of which: Road transport</i>	19.1	0.2	
Passenger	0.0		0.0
Freight	18.8		98.3
Other	0.0		0.0
<i>Other transport of which: Inland waterway transport</i>	0.0	0.0	
Passenger	0.0		
Freight	0.0		
Other	0.0		
<i>Other transport of which: Pipeline transport and electricity transmission</i>	0.0	0.0	
<i>Other transport of which: Other supporting and auxiliary transport services</i>	1.0	0.0	

Source: Francois & Pindyuk (2013); own calculations

Table 8: Breakdown of intra-CW trade in travel services (2009)

Travel services (value in \$ mn)	11232.7	Shares (%)	Shares (%)
<i>Business travel</i>	<i>1587.7</i>	<i>14.1</i>	
Expenditure by seasonal and border workers	82.6		5.2
Other	1507.9		95.0
<i>Personal travel</i>	<i>8465.1</i>	<i>75.4</i>	
Health-related expenditure	34.4		0.4
Education-related expenditure	891.7		10.5
Other	7541.9		89.1

Source: Francois & Pindyuk (2013); own calculations

5. Bilateral trade costs

Arvis et al. (2013) have used the inverse form of the gravity model developed by Novy (2013) to infer trade costs from the observed pattern of trade and production across countries. Their efforts have led to a joint UNESCAP-World Bank database on bilateral trade costs (BTC) for up to 178 countries over 1995-2010.

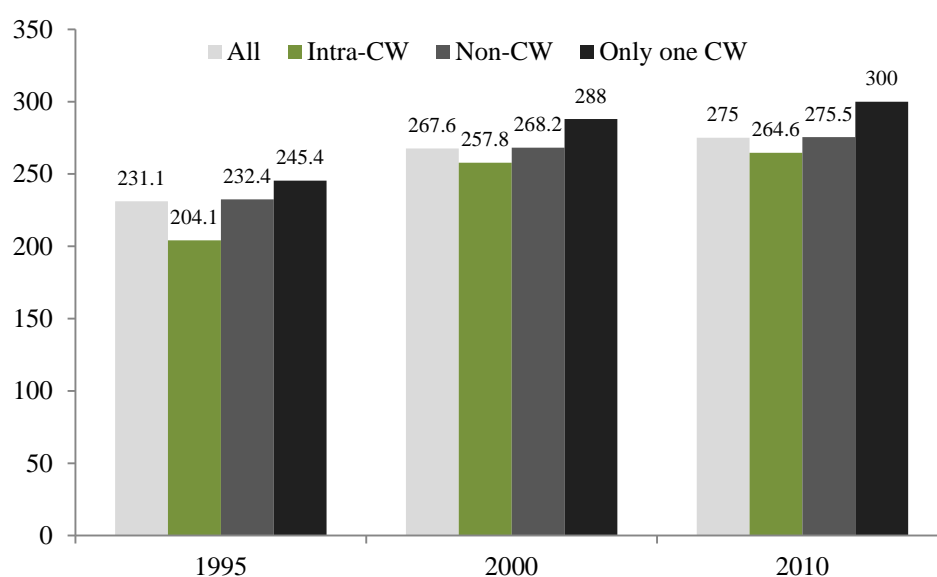
Their measure of BTC is the geometric average of international trade costs between countries *i* and *j* relative to domestic trade costs within each country. They capture the intuitive fact that trade costs are higher when countries tend to trade more within themselves than they do with each other. In contrast, when countries trade more internationally than domestically, international trade costs must be falling relative to domestic trade costs.

Importantly, this measure of BTC is a “top down” measure as it uses theory to infer trade costs from the observed pattern of trade and production across countries. Unlike “bottom up” measures, their measure of BTC includes all factors that contribute to the standard definition of iceberg trade costs in trade models i.e. anything that drives a wedge between the producer price in the exporting country and the consumer price in the importing country. Thus, BTCs include both observable and unobservable factors. Tariffs and traditional non-tariff measures are only one component of the overall measure of BTC; others include transport costs, behind-the-border barriers, and costs linked to the performance of trade logistics and facilitation services.

An analysis of the BTC from this database for different sample partners reveals that BTC are the lowest amongst intra-CW trading partners⁶ and have been so consistently over time (see Figure 13). Interestingly, BTC when only one of the two trading partners is from the CW are the highest and much higher than the BTC amongst two non-CW trading partners or even two intra-CW trading partners. These results support the findings of declining CW trade as a share of global merchandise trade and rising intra-CW trade as a share of the commonwealth's global merchandise trade over time shown in Figure 1.

⁶ Data on Nauru are not available in the BTC database.

Figure 13: Average bilateral trade costs over time amongst different sample partners



Source: Arvis et.al. (2013); own calculations

Further analyses of these BTC by region, reported in Table 9, reveal that the intra-regional BTC in 1995 were lower than the average intra-CW BTC in that year. Moreover, even the cross-regional BTC between Asia-Europe, Asia-Pacific and Caribbean-Europe were lower than the average intra-CW BTC in 1995. In contrast, the BTC between all other regions were higher than the average intra-CW BTC in 1995. In the year 2000, with the exception of CW Africa, the intra-regional BTC were still lower than the average intra-CW BTC in that year. The cross-regional BTC between Africa-Europe, Asia-Europe, Asia-Pacific and Caribbean-Europe were also lower than the average intra-CW BTC in 2000. The BTC between all other regions were higher than the average intra-CW BTC in 2000. The intra-regional pattern of BTC in 2010 was similar to that in 2000 with the exception that Asia-Pacific BTC were now higher than the average intra-CW BTC (see Table 9).

Table 9: Average intra-CW bilateral trade costs over time by region

	Average BTC, 1995					Average BTC, 2010				
	Africa	Asia	Caribbean	Europe	Pacific	Africa	Asia	Caribbean	Europe	Pacific
Africa	189.3	235.2	305.0	205.7	302.9	275.4	276.2	477.9	156.3	310.2
Asia	235.2	173.5	263.9	197.6	175.9	276.2	152.4	397.1	126.4	271.8
Caribbean	305.0	263.9	122.0	177.5	215.9	477.9	397.1	139.8	174.2	359.2
Europe	205.7	197.6	177.5	125.8	227.5	156.3	126.4	174.2	n.a.	282.0
Pacific	302.9	175.9	215.9	227.5	134.1	310.2	271.8	359.2	282.0	228.8

Source: Arvis et.al. (2013); own calculations

Note: The highlighted figures are lower than the intra-CW average BTC in that year.

Finally, a breakdown of BTC by individual CW member states for 2000 and 2010, reported in Table 10, shows that there are more CW countries for which BTC are significantly lower within the CW region than outside it and this was found to be especially true for Caribbean

and Pacific island states. For e.g. in the case of Dominica, intra-CW trade costs were only 40% of extra-CW trade costs in 2010. St. Vincent and Grenadines had 30% lower intra-CW trade costs in 2000 (50% lower in 2010). In contrast, for the Bahamas and Ghana, intra-CW BTC were 1.2 times extra-CW BTC.

On average, both intra- and extra-CW BTC went up over 2000-2010, with the average change being 6.7% and 3.6%, respectively. In some cases, such as Antigua & Barbuda (38.8% and 54.8%), Barbados (42.9% and 16.1%), Botswana (27.1% and 35.9%), the rise was much greater than these averages, both within and outside the CW. At the same time, several CW members including Australia (-5.4% and -3.7%), India (-19.9% and -11%), Namibia (-10.2% and -12.5%), Nigeria (-6.8% and -11.9%) show a fall in BTC over 2000-10 and in some cases, this decline has been significant for e.g. Dominica, Kenya, St. Kitts and Nevis saw a more than 30% fall in intra-CW BTC over 2000-2010.

One interesting finding from the discussion in this section is that the Arvis et.al.(2013) measure of BTC has gone up over time. Since the BTC is a measure of international trade costs relative to domestic trade costs, a rise in BTC over time could mean any or all of the following: (i) international trade costs have increased over time (ii) domestic trade costs have fallen over time (iii) a combination of (i) and (ii).

Table 10: Intra- and extra-CW bilateral trade costs by CW member (2000, 2010)

Bilateral trade costs (BTC)	2000		2010		2000	2010	% change over 2000- 10	
	IntraC W	ExtraC W	IntraC W	ExtraC W	Intra/Extr a	Intra/Extr a	IntraC W	ExtraC W
Commonwealth member								
Antigua and Barbuda	167.3	228.9	232.3	354.5	0.7	0.7	38.8	54.8
Australia	254.2	282.9	240.3	272.4	0.9	0.9	-5.4	-3.7
Bahamas, The	296.5	273.1	355.0	292.6	1.1	1.2	19.7	7.1
Bangladesh	319.6	300.8			1.1			
Barbados	226.5	358.8	323.8	416.4	0.6	0.8	42.9	16.1
Belize	269.0	328.8	287.1	298.7	0.8	1.0	6.7	-9.2
Botswana	263.8	285.6	335.3	388.3	0.9	0.9	27.1	35.9
Brunei Darussalam	305.0	359.5			0.8			
Cameroon	373.9	308.6	323.1	314.3	1.2	1.0	-13.6	1.9
Canada	262.8	244.8			1.1			
Cyprus	322.3	278.4			1.2			
Dominica	168.9	275.2	111.9	268.0	0.6	0.4	-33.8	-2.6
Fiji	257.0	348.4	238.8	421.8	0.7	0.6	-7.1	21.1
Ghana	280.8	256.0	353.9	307.7	1.1	1.2	26.1	20.2
Grenada	142.8	289.3			0.5			
Guyana	166.8	261.1	221.2	304.6	0.6	0.7	32.6	16.7
India	268.8	238.8	215.4	212.6	1.1	1.0	-19.9	-11.0
Jamaica	244.0	295.8	282.5	357.1	0.8	0.8	15.7	20.7
Kenya	266.8	289.0	167.3	296.1	0.9	0.6	-37.3	2.5
Kiribati	188.4	263.4	239.6	281.6	0.7	0.9	27.1	6.9
Lesotho	350.7	313.1			1.1			
Malawi	316.3	330.1	273.1	355.5	1.0	0.8	-13.7	7.7
Malaysia	218.4	219.4	203.4	224.2	1.0	0.9	-6.9	2.2

Maldives	224.1	313.8	304.5	326.8	0.7	0.9	35.9	4.1
Malta	275.1	237.4			1.2			
Mauritius	259.2	307.9	256.7	342.5	0.8	0.7	-0.9	11.2
Mozambique	256.4	309.2	233.5	317.1	0.8	0.7	-8.9	2.6
Namibia	306.9	317.2	275.6	277.7	1.0	1.0	-10.2	-12.5
New Zealand	260.8	285.6			0.9			
Nigeria	355.5	330.0	331.5	290.8	1.1	1.1	-6.8	-11.9
Pakistan			280.8	268.1		1.0		
Papua New Guinea	257.0	322.5	248.4	250.3	0.8	1.0	-3.4	-22.4
Rwanda	334.7	381.0	353.8	479.1	0.9	0.7	5.7	25.7
Samoa			282.4	430.0		0.7		
Seychelles	299.7	354.7			0.8			
Sierra Leone	289.7	315.1			0.9			
Singapore	311.3	338.4	292.8	313.0	0.9	0.9	-6.0	-7.5
South Africa	224.3	287.6	233.5	256.9	0.8	0.9	4.1	-10.7
Sri Lanka	216.4	228.0	304.5	270.3	0.9	1.1	40.7	18.6
St. Kitts and Nevis	239.8	443.8	160.8	350.5	0.5	0.5	-32.9	-21.0
St. Lucia	143.2	350.6			0.4			
St. Vincent and the Grenadines	109.3	377.1	128.9	271.5	0.3	0.5	17.9	-28.0
Swaziland	276.4	325.9			0.8			
Tanzania	259.2	335.7	240.5	322.5	0.8	0.7	-7.2	-3.9
Tonga	255.1	487.1	463.4	526.9	0.5	0.9	81.7	8.2
Trinidad and Tobago	259.8	287.0			0.9			
Uganda	300.4	365.3	372.3	358.9	0.8	1.0	24.0	-1.7
United Kingdom	156.2	161.6	180.2	162.3	1.0	1.1	15.4	0.4
Vanuatu			305.5	362.5		0.8		
Zambia	288.4	393.0	226.6	336.0	0.7	0.7	-21.4	-14.5
Average	257.2	308.2	267.0	321.1	0.9	0.8	6.7	3.6

Source: Arvis et. al. (2013); own calculations

6. Results from estimation

Table 11 reports the results from the 2WFE estimation of our baseline specification for bilateral goods and services trade; the dependent variable incorporates “export zeroes” in each case. All estimations include time-varying importer and exporter fixed effects to control for multilateral resistance. Standard errors are clustered by trading partner pair and year. For the sake of comparison, columns (2) and (4) also report the results from estimating equation (2) for bilateral goods and services trade, respectively, replacing the standard gravity controls described in Section 3 with data on ad valorem bilateral trade costs from Arvis et.al (2013). Since the latter are a measure of both observed and unobserved factors that impose a cost on trading in general, they can be used in both the goods and services trade equations.

Table 11: Estimation results

	Goods $\ln(X_{ijt} + \min X_j)$ 2WFE (1)	Goods $\ln(X_{ijt} + \min X_j)$ 2WFE (2)	Services $\ln(X_{ijt} + \min X_j)$ 2WFE (3)	Services $\ln(X_{ijt} + \min X_j)$ 2WFE (4)
Commonwealth membership	0.170** (0.062)	0.287*** (0.039)	-0.033 (0.044)	0.356*** (0.047)
PTA membership	0.259*** (0.034)		-0.231*** (0.032)	
ln(BTC)		-3.958*** (0.028)		-1.99*** (0.023)
Contiguity	0.219*** (0.055)		0.235*** (0.052)	
Common language	0.150*** (0.042)		0.152*** (0.028)	
ln(distance)	-1.551*** (0.021)		-0.976*** (0.015)	
Common colony	0.948*** (0.049)		0.849*** (0.039)	
Common legal system	0.626*** (0.021)		0.377*** (0.015)	
Common currency	-1.023*** (0.073)		-0.496*** (0.050)	
N	96328	70839	97009	70839
r ²	0.879	0.908	0.779	0.788
Fixed effects:				
Importer*time	Yes	Yes	Yes	Yes
Exporter*time	Yes	Yes	Yes	Yes

Note: (1) Levels of significance: #10%, *5%, **1%, ***0.1% (2) Standard errors, reported in parentheses, are clustered by trading partner pair and year

In the results reported in columns (1) and (3), commonwealth membership is found to increase goods exports by 18.5%, ceteris paribus and on average, while the impact of commonwealth membership on services exports is found to be statistically indifferent from zero.

With the exception of common currency, the impact of all other gravity controls is as expected and consistent with existing literature. Countries with a common language/legal system/colonial relationships or which are adjacent to each other also export larger values of goods and services to each other. Distance and having a common currency are found to reduce the value of trade between partners for both goods and services. PTA membership has a positive impact on goods exports though not on services exports.

In the results reported in columns (2) and (4), the effect of commonwealth membership is accentuated and it is found to increase goods exports by 33.2% and services exports by 42.8%, *ceteris paribus* and on average. These results also suggest that a 1% rise in ad valorem bilateral trade costs is associated with a 4% decline in goods trade and a 2% fall in services trade, *ceteris paribus* and on average.

Determinants of intra-CW goods and services trade

In complimentary empirical analyses, we also examine the determinants of intra-CW goods and services trade in line with equation (2). The dependent variable is now export value from *i* to *j* where both *i* to *j* are members of the CW. The dependent variable also incorporates “export zeroes” in the analyses.

These results reported in Table 12 suggest that the effect of commonwealth membership, at least for goods trade, shows itself through the presence of common language (columns 1 and 3) and colonial antecedents (columns 1 to 6). Geography (distance and contiguity) has a negative bearing on both goods and services trade in these results, confirming that commonwealth member states are not natural trading partners for each other.

In addition to the explanatory variables in equation (2), we also include regional dummy variables (columns 2 and 5) corresponding to the different regions of the CW (as shown in figures 4, 5, 10 and 11). In distinct specifications (columns 3 and 6), we also include a dummy variable for a trading partner being either one of Australia, Canada or the UK (ABC dummy) to examine the importance of these three countries in intra-CW goods and services trade.

The ABC dummy is statistically significant only for goods trade and the coefficient on this variable suggests that being an ABC country is associated with 98.2% greater merchandise trade than the average within the commonwealth member states.

In terms of regions within the CW, only Asian CW member states are associated with higher than average goods and services trade, with the magnitude of the latter twice that of the former. Caribbean, European and Pacific CW, in contrast, are associated with less than average goods and services trade. Significantly, these findings are consistent with the stylized facts in Section 4 that show the importance of the Asian CW region as both a source of and destination for intra-CW goods and services trade.

Table 12: Determinants of intra-CW goods and services trade

	Goods $\ln(X_{ijt} + \min X_j)$ 2WFE (1)	Goods $\ln(X_{ijt} + \min X_j)$ 2WFE (2)	Goods $\ln(X_{ijt} + \min X_j)$ 2WFE (3)	Services $\ln(X_{ijt} + \min X_j)$ 2WFE (4)	Services $\ln(X_{ijt} + \min X_j)$ 2WFE (5)	Services $\ln(X_{ijt} + \min X_j)$ 2WFE (6)
PTA membership	0.139 (0.198)	0.162 (0.193)	0.107 (0.197)	0.398 (0.244)	-0.094 (0.235)	0.400 (0.247)
Contiguity	-1.511*	-0.280	-1.523*	-2.555***	-1.416*	-2.554***

	(0.668)	(0.656)	(0.670)	(0.660)	(0.674)	(0.661)
Common language	0.690*	0.254	0.744*	-0.340	-0.237	-0.341
	(0.325)	(0.265)	(0.328)	(0.272)	(0.264)	(0.273)
ln(distance)	-1.689***	-1.295***	-1.705***	-0.935***	-0.544***	-0.934***
	(0.128)	(0.182)	(0.127)	(0.113)	(0.154)	(0.113)
Common colony	2.146***	2.025***	2.156***	0.935***	0.824***	0.935***
	(0.358)	(0.358)	(0.359)	(0.217)	(0.203)	(0.217)
Common legal system	0.601	0.652	0.633	0.369	0.558#	0.368
	(0.561)	(0.560)	(0.562)	(0.339)	(0.335)	(0.340)
Common currency	-2.374*	-0.933	-2.329*	0.696	0.340	0.695
	(0.948)	(0.674)	(0.948)	(0.852)	(0.958)	(0.852)
Caribbean		-1.504**			-0.777*	
		(0.462)			(0.374)	
Africa		3.690#			-1.159	
		(2.142)			(1.272)	
Europe		-0.914*			-2.606***	
		(0.356)			(0.353)	
Asia		0.660*			1.291***	
		(0.286)			(0.362)	
Pacific		-1.596***			-1.586***	
		(0.444)			(0.336)	
ABC			0.684***			-0.022
			(0.193)			(0.244)
N	2626	2626	2626	2626	2626	2626
r ²	0.912	0.914	0.912	0.835	0.847	0.835
Fixed effects:						
Importer*time	Yes	Yes	Yes	Yes	Yes	Yes
Exporter*time	Yes	Yes	Yes	Yes	Yes	Yes

Note: (1) Levels of significance: #10%, *5%, **1%, ***0.1% (2) Standard errors, reported in parentheses, are clustered by trading partner pair and year

Finally, the findings on the determinants of intra-CW goods and services trade are robust to the use of an alternative dependent variable: the share of commonwealth in total trade.

7. Barriers to intra-CW trade and measures to enhance intra-CW trade

The analyses undertaken in this study reveal the growing importance of the Commonwealth member states both as a source and destination for the Commonwealth's goods and services. This said, barriers within the Commonwealth continue being high and there is ample scope for improving market access, especially for the Commonwealth LDCs that still face substantial tariffs on exports to Commonwealth developing and LDC members and for Commonwealth exporters of processed agricultural goods (for instance see ITC, 2013).

At the global level, for instance, Commonwealth countries faced an average weighted applied tariff of 4.6% in 2012. This was the same for Commonwealth LDCs, implying no preference margin for Commonwealth LDCs exporting to the world. While Commonwealth LDCs enjoy comparatively favourable tariff conditions within the markets of the six Commonwealth developed countries (Australia, Canada, Cyprus, Malta, New Zealand, UK), they face considerable tariffs in other Commonwealth developing and LDCs (see ITC, 2013 for details). Trade-weighted average intra-LDC tariffs were as high as 11.1% in 2012 while average Commonwealth developing country tariff on LDC exports amounted to 5.9%. Thus there is enough scope for reducing applied tariffs on LDC exports destined to other commonwealth developing countries.

In addition to reducing overall tariffs, there is scope for reducing intra-Commonwealth tariff escalation. Commonwealth countries generally faced higher tariffs for their processed than for their non-processed exports in 2012 (see ITC, 2013). Furthermore, Commonwealth tariffs on intra-Commonwealth imports were on average higher than the tariffs imposed by the rest of the world. Illustratively, processed agricultural exports of the 33 Commonwealth developing countries faced an average Commonwealth trade-weighted tariff of 20.3% compared to 16.6% in the rest of the world. Intra-commonwealth tariff liberalization would therefore particularly benefit Commonwealth developing and LDCs where the export pattern remains dominated by processed agricultural goods.

Apart from tariffs, non-tariff barriers (NTBs) such as technical standards are other significant obstacles to intra-Commonwealth trade, raising costs for exporters and serving as protective measures by importing countries (for details see Commonwealth Secretariat, 2008). Besides trade policy, there is a range of other policies as well as domestic conditions that affect the competitiveness of domestic production. There is considerable heterogeneity across the Commonwealth in the competitiveness of the policy and economic environment and considerable scope for promoting intra-Commonwealth trade by improving these domestic conditions.

While geography (remoteness and large distances) is a natural barrier to intra-commonwealth trade, international transaction costs are also raised by poor infrastructure, uncompetitive transport sectors and inefficient ports within the Commonwealth. These ‘unnatural’ barriers to intra-Commonwealth trade can be lowered by undertaking investment and policy reforms.

One striking finding from our empirical analyses of the determinants of intra-commonwealth goods and services trade is the statistical insignificance of PTA membership in all specifications. This suggests the scope for negotiating effective and deep agreements within contiguous regions of the Commonwealth where more targeted and focussed tariff liberalization, including for sectors with tariff peaks, may be pursued along with investment promotion and approximation/harmonization of NTBs like standards and technical barriers to trade.

Another obvious candidate is improving supply-side capacities especially those related to infrastructure, trade facilitation and to meeting technical standards in important export sectors in Commonwealth less developed and LDCs. This can be pursued more effectively through targeted trade interventions and AfT initiatives as well as by promoting more cooperation within the Commonwealth. Trade policy capacity building within the Commonwealth should also focus on these issues, support research, set common 'Commonwealth' positions and shape the agenda in bilateral, regional and other negotiations (Commonwealth Secretariat, 2008).

On the whole, intra-Commonwealth trade can be enhanced through the simultaneous implementation of various instruments and modalities. Another such instrument could be an economic cooperation agreement amongst selected developed and developing countries within the Commonwealth, which could, *inter alia*, also involve technical and financial assistance in the implementation of trade facilitation measures amongst Commonwealth countries.

8. Conclusion

This study assembles bilateral trade flow data on goods and services for 242 countries over 1995-2010 and uses both descriptive statistics and more sophisticated econometric techniques to understand the nature and structure of intra- commonwealth trade, its determinants, and the trade effect of being a part of the commonwealth. Given the much larger existing literature on barriers to commonwealth trade, the study only briefly discusses measures available to enhance intra- commonwealth trade.

None of the econometric studies in the existing literature examining the trade effect of commonwealth membership account for the presence of zero trade flows between bilateral trading partners, unobserved heterogeneity and multilateral resistance terms (MRT) in estimation, thus leading to biased estimates. Our analyses are an improvement on all these fronts. Moreover, the existing econometric studies only look at trade in merchandise goods, while we also include services trade in our analyses. Finally, we assemble a much larger sample of bilateral trading partners (242 countries each) than in the existing literature.

In our results, commonwealth membership is found to increase goods exports by 18.5-33.2% and services exports by 42.8%, *ceteris paribus* and on average. Our analyses on the determinants of intra-CW goods and services trade suggest the positive role of common language (only for goods trade) and colonial relationships as well as the negative impact of geography (both distance and contiguity), thereby confirming that commonwealth member states are not natural trading partners for each other. Our empirical analyses also document the importance of the Asian CW region as both a source of and destination for intra-CW goods and services trade. Finally, being one of Australia, Canada and the UK is associated with 98.2% greater merchandise trade than the average within the commonwealth member states. However, a similar effect is not observed in the case of services trade.

References

- Anderson, J. E. (1979). 'A theoretical foundation for the gravity equation', *The American Economic Review* 106-116.
- Anderson, J. E. and Van Wincoop, E. (2003). 'Gravity with gravitas: A solution to the border puzzle', *The American Economic Review* 93(1):170-192.
- Anderson, J. E. and van Wincoop, E. (2004). 'Trade costs', *Journal of Economic Literature* 42:691-751.
- Arvis, J. F., Duval, Y., Shepherd, B., & Utoktham, C. (2013). 'Trade costs in the developing world: 1995-2010', *World Bank Policy Research Working Paper*, (6309).
- Baier, S. L. and Bergstrand, J. H. (2007). 'Do free trade agreements actually increase members' international trade?', *Journal of international Economics* 71(1):72-95.
- Baier, S. L. and Bergstrand, J. H. (2009). 'Bonus vetus ols: A simple method for approximating international trade-cost effects using the gravity equation', *Journal of International Economics* 77(1):77-85.
- Bennett J., Sriskandarajah D. and Ware Z. (2010). 'An Uncommon Association, A Wealth of Potential: Final Report of the Commonwealth Conversation', London: Royal Commonwealth Society.
- Commonwealth Secretariat (2008). 'Trading on Commonwealth Ties A Review of the Structure of Commonwealth Trade and the Scope for Developing Linkages and Trade in the Commonwealth', Economic Paper 79, Commonwealth Economic Paper Series.
- Eaton, J. and Kortum, S. (2001). 'Trade in capital goods', *European Economic Review* 45(7):1195-1235.
- Francois, J. and Pindyuk, O. (2013). 'Consolidated data on international trade in services', IIDE Discussion Papers 2013/01/01, Institute for International and Development Economics.
- Guimaraes, P. and Portugal, P. (2010). 'A simple feasible procedure to fit models with high-dimensional fixed effects', *Stata Journal* 10(4):628.
- Harrigan, J. (1996). 'Openness to trade in manufactures in the OECD', *Journal of International Economics* 40(1):23-39.
- Head, K. and Mayer, T. (2013). 'Gravity equations: Toolkit, cookbook, workhorse', *Handbook of International Economics* 4.
- Head, K., Mayer, T., and Ries, J. (2010). 'The erosion of colonial trade linkages after independence', *Journal of International Economics* 81(1):1-14.
- ITC (2013). 'Commonwealth trade: Prospects for stronger cooperation', Doc. No. MAR-13-229.E, Geneva: ITC, 2013. ix, 39 pages (Technical paper)

Lundan S. and Jones G. (2001). 'The 'Commonwealth Effect' and the Process of Internationalisation', *World Economy* 24(1):99-118.

Novy, D. (2013). 'Gravity redux: measuring international trade costs with panel data', *Economic Inquiry* 51(1), 101-121.

Santos Silva, J. and Tenreyro, S. (2006). 'The log of gravity', *The Review of Economics and Statistics* 88(4):641-658.

Santos Silva, J. and Tenreyro, S. (2010). 'On the existence of the maximum likelihood estimates in poisson regression', *Economics Letters* 107(2):310-312.

Standard Chartered (2014). 'Commonwealth trade unbundled', *Global Research*, 17 July.

Annex Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Goods exports (\$mn)	105251	1003.8	6666.1	0	332846.7
Services exports (\$mn)	105251	275.9	1652.8	0	62765.5
Goods trade agreement	105251	0.2	0.4	0	1
Services trade agreement	105251	0.1	0.3	0	1
Contiguity	97023	0.0	0.2	0	1
Common language	97023	0.1	0.3	0	1
Distance	97023	6527.9	4326.5	20.3	19539.5
Common colony	97023	0.0	0.2	0	1
Common law	97023	0.3	0.4	0	1
Common currency	97023	0.0	0.2	0	1
Bilateral trade costs	71087	204.3	117.0	0.2	2299.7
Commonwealth_reporter	105251	0.2	0.4	0	1
Commonwealth_partner	105251	0.2	0.4	0	1
Commonwealth_both	105251	0.0	0.2	0	1

Annex Table 2: Trade projections

Avg. trade in goods (\$bn)	2020	2030	2040	2050
World	42966.2	112224.7	293123.1	765617.3
Commonwealth	4769.0	10254.9	22051.4	47417.9
Intra-commonwealth	891.8	2138.7	5129.0	12300.7
Avg. trade in services (\$bn)				
World	12126.4	32728.1	88330.0	238394.3
Commonwealth	2191.6	6281.5	18003.8	51601.5
Intra-commonwealth	655.8	3999.7	24392.1	148755.9