



Trade Hot Topics

Connectivity and Global Value Chain Participation: Cost and Capability Considerations

Ben Shepherd, Jodie Keane & Poorvi Goel*

Background

Following the universal adoption of the Sustainable Development Goals (SDGs) there is an urgent need to transform these aspirations into a practical implementation agenda, including through trade policy making. However, important targets such as those related to the costs of trade in goods as well as services (including digital trade), which can disproportionately affect small firms and countries, have not been adequately addressed by the SDG framework (Hoekman, 2016). A large number of Commonwealth members suffer from the small size of their domestic markets in conjunction with long distances from the global centres of commercial activities. This starting point can inflict severe economic disadvantage in terms of excessive trade costs to the current major hubs of global commercial activity.

This issue of *Commonwealth Trade Hot Topics* presents new findings from an up-to-date empirical analysis of trade costs across Commonwealth member countries and their subsequent interaction with Global Value Chain (GVC) participation, as currently defined. Focusing on small states in the Pacific, Caribbean and sub-Saharan Africa (SSA), the analysis first uses a metric which provides an overall indication of trade costs derived from a

global trade costs database across sectors and then between countries. Subsequently, it explores GVC participation based on analysis of changes in value added in exports. Finally, it analyses institutional variables related to logistic capabilities which can be directly influenced by policy.

Overall, the results presented in this paper suggest many members are only very weakly connected to global networks of trade in value added. This limited connectivity is in part related to high trade costs and limited logistics capabilities. In view of these findings, the evidence presented in this issue of *Commonwealth Trade Hot Topics* suggests that reducing trade costs is unlikely to be sufficient to induce GVC participation which promotes inclusive sustainable growth objectives. An alternative policy agenda to enhance connectivity to emerging hubs of GVC activity should focus on both trade cost and capability considerations.

The New GVC Literature

As described in the *Commonwealth Trade Review 2015* it is simply not possible to get a handle on GVC participation through one single method of analysis. Instead, bringing together several research strands becomes necessary. The recent empirical trade literature suggests a range of

* The authors of this article are Ben Shepherd (Principal of Developing Trade Consultants), Jodie Keane (Economic Adviser, Commonwealth Secretariat) and Poorvi Goel (Assistant Research Officer, Commonwealth Secretariat). This article forms part of a broader programme of work which seeks to explore costs and capability considerations related to GVC participation across the Commonwealth. The views expressed in this article of those of authors and do not necessarily represent those of the Commonwealth Secretariat.

methods and data sources to map and measure GVCs, which include:¹

- international trade statistics on parts and components;
- customs statistics on processing trade;
- international trade data combined with input–output (I–O) tables; and
- firm-level analyses.

New sources of data are needed in order for policy-makers to make better sense of the new GVC phenomenon with respect to trade in goods and services, including in the logistics sector, which have accelerated under the recent globalisation processes. However, although new understandings of how countries are positioned within GVCs have been made available through the creation of I–O tables,² this descriptive analysis fails to illuminate further on the incentives to fragment and relocate different parts of a production process. Hence, although many generic policy recommendations have arisen from the new GVC literature, more careful scrutiny of the data reveals some ambiguity.

There are recognised tensions between the comparative costs that create the incentive to ‘unbundle’ some parts of a production process, compared to agglomeration forces, which seek to bind parts of a process together and facilitate colocation (Baldwin and Venables, 2013). Only those functions which are easier to codify are likely to be fragmented (Gereffi et al., 2005). It is in this regard that analysis of trade costs within a GVC context assumes a particular importance. Given this, new estimates on trade costs for the Commonwealth Small State constituency are required.

Evidence on Trade Costs across the Commonwealth

One metric that provides an overall indication of a country’s degree of integration with world markets comes from a global database compiled under a joint initiative between UNESCAP and the World Bank.³ The measure of trade costs derived from this database incorporates all factors that drive a wedge between factory gate prices in the exporting country and consumer prices in the importing country. It therefore includes the full range of trade frictions, including tariff and non-

tariff barriers, regulatory measures, standards, differences in cultural and legal institutions, as well as geographical and historical factors.⁴ Bilateral data can be aggregated into a single number per country by calculating ‘average’ trade costs. This trade cost value, in turn, can be translated into an ad valorem equivalent, e.g. the amount payable if the product or service was taxed on the basis of its value. The results for selected Commonwealth countries are presented in Box 1 and summarised in the following sub-sections.

Regional Results

For countries located in sub-Saharan Africa (SSA) trade costs are around twice as high as in the comparator markets (the UK and the USA) with the exception of South Africa. Importantly, although South Africa is geographically more distant from major markets than some other countries in the region, its trade costs are substantially lower. In the case of the Caribbean, trade costs are between two and four times as high as in the comparator markets (Canada and USA) in manufacturing, and between two and nearly six times as high in agriculture.

These results reinforce the view that, despite being geographically relatively close to the major markets of the USA and Canada, in practice, Caribbean countries remain isolated from international trade due to high overall trade costs. A similar trend emerges in the Pacific where trade costs are in the order of two or three times those observed in Australia and New Zealand.

Country Results

Looking closer at individual country performance (Box 2) within Sub-Saharan Africa (SSA), in the case of Tanzania, it is worth emphasizing that trade costs with the UK, and the even more distant USA, are sometimes lower than trade costs with regional partners for the manufacturing and agriculture sectors. Trade costs between Tanzania and Kenya, and Tanzania and South Africa are, however, particularly low in the manufacturing compared to agricultural sector. This result deserves further attention and analysis beyond the scope of this report, not least in view of the emerging literature on intra-regional value chains in manufactures for the continent.⁵

1 See Amador and Cabral (2014).

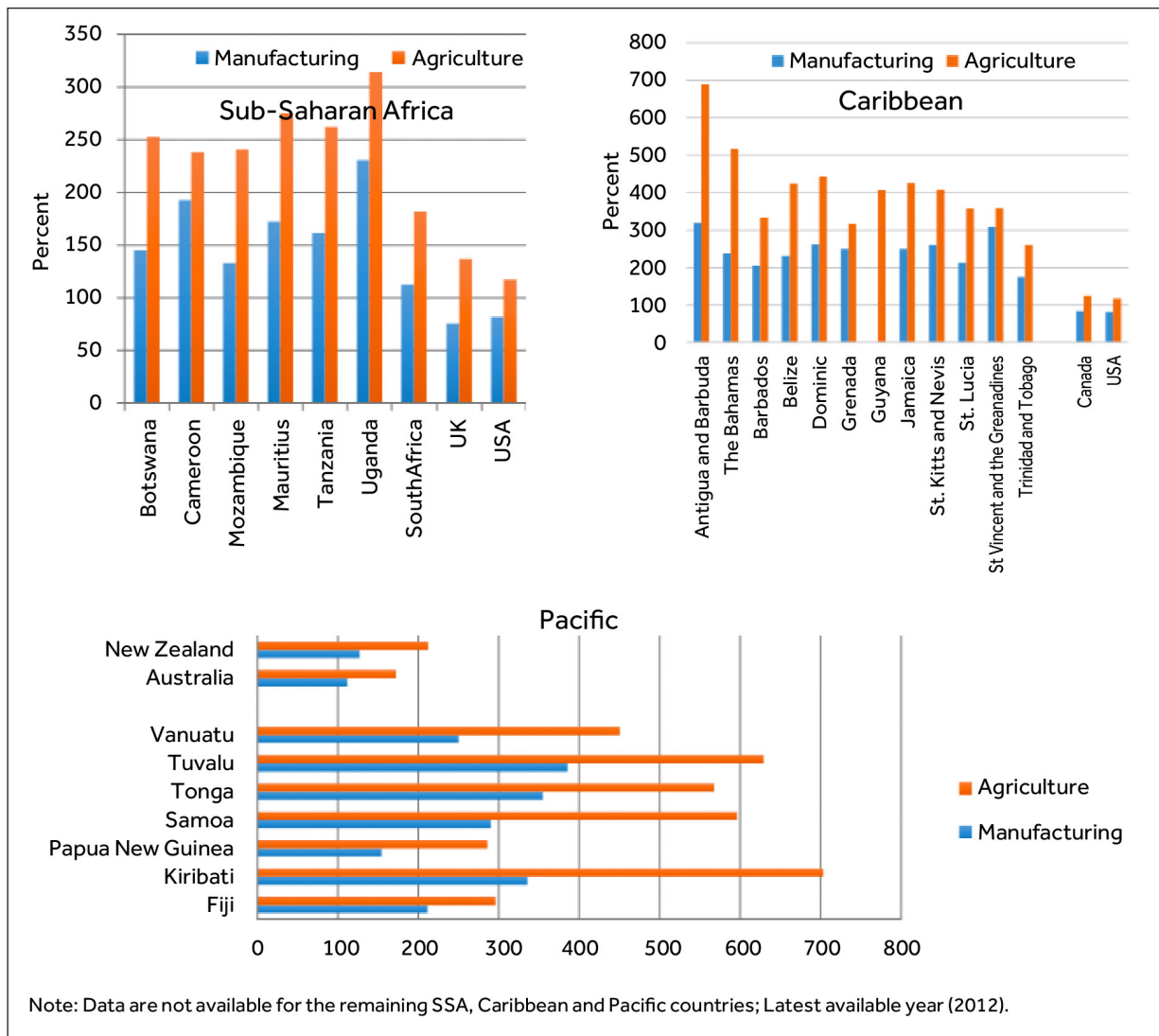
2 Although there are three main types, the United Nations Conference on Trade and Development (UNCTAD)/Eora database has the most country coverage.

3 See Arvis et al., (2016).

4 See also Hoekman (2016).

5 See Stariz et al. (2016) regarding the development of vertically fragmented value chains (textiles and clothing) on an intra-regional basis in SSA.

Box 1: Trade costs in agriculture and manufacturing, per cent ad valorem equivalent



In the case of the Caribbean, and in particular for Trinidad and Tobago, trade costs within the manufacturing sector are lower with Jamaica, Dominica and Barbados as compared with the USA. However, this is not the case regarding trade between Trinidad and Tobago and all other remaining Caribbean countries. This result also deserves further analysis beyond the scope of this report. In agriculture, the picture is clearer for the Caribbean: regional markets remain highly segmented relative to links with the USA. Only in the case of agricultural trade between Trinidad and Tobago and St Vincent and the Grenadines are trade costs lower than with the USA.

Trade costs with neighbouring countries in both agricultural and manufactured goods tend to be higher than with larger regional markets (Australia and New Zealand) in the case of Fiji in the Pacific. The order of magnitude, however, is considerably lower than expected and particularly so when considered in a comparison to the other individual country results presented in Box 2. This result is

suggestive of important differences in capabilities which can directly influence trade costs and, hence, be influenced by policy.

GVC Participation

The promotion of economic development nowadays necessarily entails engaging with contemporary patterns of trade and investment and participating in GVCs. However, although trade in tasks rather than final goods is becoming more pronounced in many parts of the world, the realities on the ground in relation to firm-level engagement differ from region to region as well as from sector to sector. Obtaining a more nuanced understanding of the way in which value chains operate internationally, with fragmentation processes often beginning as well as deepening at the regional level, means drawing on a broader of country experiences.

GVCs are networks of coordinated transactions between tiers of firms which operate across countries. In order to present an up-to-date

portrayal of how the Caribbean, Pacific and SSA are integrated within GVCs as measured by the Eora I-O matrices, as well as changes over time, we calculate for the aforementioned countries their value added in exports for their respective most important sectors and significant trading partners.⁶ We do this for two periods: 2000 and 2012. The main tool used was a set of network representations of international trade flows in value added, which focused on each country's largest export destination and then changes over time.⁷ The main findings for each region are summarised below.

Caribbean

- Canada and the USA play vital roles as sources of demand for Caribbean value added exports in food and beverages and metal products. Although trade in value added patterns vary substantially across countries in the region, the persistent importance of these two markets is notable.
- No Caribbean country in either sector has its largest export flow with another Caribbean country, a feature of the network that is stable across the two periods (2000 and 2012). All countries have their largest flows with either the USA or Canada.

Pacific

- The underlying structure of trade in value added in 2000 and 2012 is basically the same, despite more than a decade apart. The overall structure of trade in value added has therefore remained rather persistent.
- For agriculture, no Pacific Island has its largest trade flow with another Pacific Island: all have it with either Australia or New Zealand. The situation is only slightly different for food and beverages, where Vanuatu has its largest export flow with Western Samoa.⁸

Sub-Saharan Africa

- Analysis of shifts in trade in value added confirms a key role played by the UK and the USA as a source of demand for SSA's value added in both the agricultural, and textiles and clothing sectors. These networks are seemingly rather stable between 2000 and 2012.

- However, over the period analysed, within the agricultural sector Mozambique has moved more towards the USA-centric cluster, via a connection with South Africa. The data suggest that Mozambique has developed stronger links with South Africa in agriculture, which in turn has led to an indirect linkage to the US market.
- For agriculture, only two SSA countries have their largest export flows with another SSA country (South Africa). For textiles and clothing, the picture is somewhat different, with large chains predominantly connecting African countries to the USA.

These results suggest limited changes in the structure of trade in value added for the Pacific region, which may be a reflection of high trade costs. On the other hand, it is clear that shifts in the structure of trade in value added are underway in sub-Saharan Africa with persistent, though varying effect of demand emanating from two of the main global hubs of economic activity (the UK and USA). This pattern is also similar for the Caribbean, though the USA and Canada remain major sources of demand for exports.

Logistics Capabilities

While much of the current GVC discourse has focused attention on connectivity in relation to trade costs, directly influenced by investment in the logistics sector, much more limited attention has been paid to role of the logistics sector in terms of the development of producers' capabilities. This is an important omission which assumes a particular importance in view of the role of the logistics sector in relation to conventional value adding processes: supporting development of the logistics sector can assist in enabling forms of upgrading. The ability to service multiple markets can also assist in enabling a type of 'multi chain upgrading' (Navas-Aleman, 2012). Countries seeking to benefit from GVC participation need to address underlying factors of their logistics capabilities (Memedovic et al., 2008).

Thankfully, more recent additions to the literature which apply econometric techniques, including factor content methodology, have been able to demonstrate the role of capabilities driving participation in GVCs (Pathikonda and Farole, 2016). Proximity to markets

6 This paper has explored the data in relation to trade in goods. Further analysis which explores patterns in relation to trade in goods as well as services for the two regions of the Caribbean and the Pacific is currently underway.

7 See Shepherd (2016) for further information.

8 However, please note that this finding at the current time needs to be interpreted with major caveats, as the data for 2012 for Vanuatu appear to be anomalous.

Box 2: Bilateral trade costs in manufacturing and agriculture, per cent ad valorem equivalent, selected countries, 2010.

Table 1: Sub-Saharan Africa, Tanzania			Table 2: Caribbean, Trinidad and Tobago		
Country	Manufacturing	Agriculture	Country	Manufacturing	Agriculture
Botswana	243%	1148%	Antigua and Barbuda	220%	N/A
Cameroon	424%	NA	Barbados	69%	143%
Ghana	283%	616%	Belize	124%	N/A
Kenya	56%	147%	Dominica	87%	183%
Malawi	133%	229%	Guyana	N/A	170%
Mauritius	254%	252%	Jamaica	78%	316%
Mozambique	137%	404%	St Kitts and Nevis	148%	293%
Namibia	128%	386%	St Vincent and the Grenadines	118%	94%
Rwanda	123%	238%	USA	102%	129%
South Africa	78%	192%			
Uganda	104%	242%			
Zambia	NA%	204%			
United States	226%	211%			
United Kingdom	178%	343%			

Table 3: Pacific, Fiji		
Country	Manufacturing	Agriculture
Kiribati	112%	NA
Papua New Guinea	NA	310%
Samoa	128%	NA
Tonga	139%	278%
Vanuatu	91%	174%
Australia	86%	124%
New Zealand	87%	113%

Note: Data are not available for the remaining respective bilateral regional trade partners

(which invariably reduces trade costs) and efficient logistics coupled with strong institutions are the major drivers of GVC participation (Pathikonda and Farole, 2016). In view of these findings, in the following subsection we explore linear and maritime connectivity in addition to more general logistics performance and relation to GVC participation (proxied by trade in value added).

Liner and Maritime Connectivity – Logistics Performance⁹

In view of what the available evidence suggests in terms of trade shifts in value added across selected Commonwealth countries, we explored some of the policy variables which may exert a direct influence on these trends. In order to do this, an index of value chain connectivity was created and used to explore the relationship with linear and

aviation connectivity.¹⁰ The main results from this analysis can be summarised as follows:

- In the case of maritime connectivity, using UNCTAD’s Liner Shipping Connectivity Index (LSCI), results for most SSA, Caribbean and Pacific countries suggest performance in GVC connectivity is approximately in line with what one would expect given their ability to connect to global shipping markets. However, results for some Caribbean countries suggest gains yet to be realised in view of maritime connectivity.
- In the case of air transport connectivity, using the World Bank’s Air Connectivity Index (ACI), most Caribbean countries are somewhat better connected than Pacific countries. However, better air transport connectivity has not translated into as much GVC participation.

9 Please see Shepherd (2016) for an explanation of how value chain connectivity is constructed and defined.
 10The full results of this research endeavor are presented in Shepherd (2016).

- In the case of the World Bank's Logistics Performance Index (LPI)¹¹ SSA's scores are more dispersed: South Africa performs well in a global context but results for many other countries suggests improvements in LPI could enhance value chain connectivity. The Caribbean and Pacific have relatively low scores relative to international benchmarks. Logistics performance in the Caribbean is reasonably similar to what is observed in the Pacific, with the exception of The Bahamas, which has a noticeably higher score.¹²

Concluding Remarks

The results presented in this *Trade Hot Topic* show that there is scope for sensible regulatory reforms to make it easier for the private sector to connect to global markets for goods, services, people and ideas. Although structural factors may constrain the range of sectors many Commonwealth Small States can engage with in relation to GVC-led trade, these limitations may be lessened by policy-relevant actions to increase competitiveness within specific sectoral niches through enhanced capabilities. In view of the recently universally adopted SDGs it is more appropriate nowadays to consider more targeted interventions such as export promotion to overcome information barriers. This proposal does not equate to large-scale subsidisation of exports, but instead to the correction of a common market failure that particularly affects small-scale firms and that can be amplified in small economies.

However, as described by Razzaque and Keane (2015) overcoming all exclusionary barriers to effective GVC participation within the same set of policy prescriptions is simply unrealistic. There is a need to more carefully distinguish between interventions designed to assist small and medium enterprises (SMEs) in entering into GVCs and developing relationships with lead firms, including through creating an enabling environment that promotes investment and long-term relationships with lead firms. As summarised by Pathikonda and Farole (2016), this necessarily entails both understanding what it takes to attract lead firms' interest and incentives for producers to upgrade to higher value-added activities.¹³ Different strategies will invariably be required in view of the nature of GVC participation, with subsequent implications for public policy.

Regarding donor support for connectivity, one starting point is the World Trade Organization (WTO's) new Agreement on Trade Facilitation: countries would be well served by being ambitious in their Category A notifications and should in any event conduct needs assessment exercises to identify obligations that will require technical and financial assistance from development partners to implement. However, this agreement is only the starting point for trade facilitation reform. Countries enhance their connectivity through investments in both institutional and physical infrastructure. Hence, it is important to question which trade costs and how connectivity – related to international, regional or domestic market access – really matters in view of inclusive, sustainable development objectives.

11 The LPI is a weighted average of six indicators, and is based on a survey of around 1,000 logistics professionals. It takes into account performance on trade and transport-related infrastructure, customs clearance, the ease of arranging competitively priced shipments, the ability to track and trace consignments, timeliness of delivery, and the competence and quality of logistics services.

12 The Bahamas has special trading arrangements with the USA, which might influence this conclusion.

13 See Pathikonda and Farole (2016).

References

- Amador, J. and Cabral, S. (2014) Global Value Chains: A survey of drivers and measures, *Journal of Economic Surveys*, Vol 30 (2): 278-301).
- Arvis, J.F., Y. Duval, B. Shepherd, C. Utotham, and A. Rajn (2016) 'Trade Costs in the Developing World: 1996–2010.' *World Trade Review*, Vol 15(3): 451-474.
- Baldwin, R. and Venables, A. (2013) "Spiders and snakes: Offshoring and agglomeration in the global economy," *Journal of International Economics*, Elsevier, vol. 90(2), pages 245-254.
- Commonwealth Trade Review: The Commonwealth in the Unfolding Global Trade Landscape*, Commonwealth Secretariat: London.
- Gereffi, G., Humphrey, J. and Sturgeon, T. (2005). "The Governance of Global Value Chains." *Review of International Political Economy*: 78-104.
- Hoekman, H. (2016) Trade and the SDGs: Making "means" of implementation a reality, *Trade Hot Topic No. 128*, Commonwealth Secretariat: London.
- Memedovic, O., L. Ojala, J-P. Rodrigue, T. Naula (2008) 'Fuelling the Global Value Chains: What Role for Logistics Capabilities?' *International Journal of Technological Learning, Innovation and Development* 1(3): 353–374.
- Navas-Alemán, L. (2011) 'The Impact of Operating in Multiple Value Chains for Upgrading: The Case of the Brazilian Furniture and Footwear Industries.' *World Development* 39(8): 1386–1397.
- Pathikonda, V. and T. Farole (2016) *The Capabilities Driving Participation in Global Value Chains*. World Bank Policy Research Paper 7804. World Bank: Washington DC.
- Razzaque, M. and J. Keane (2015) 'Delivering Inclusive Global Value Chains.' Discussion paper prepared for Annual Commonwealth and Francophone Dialogue with the G20, Commonwealth Secretariat, London.
- Shepherd, B. (2016) 'Infrastructure, Trade Facilitation, and Network Connectivity in Sub-Saharan Africa.' Paper prepared for the Overseas Development Institute.
- Staritz, C, M Morris and L Plank (2016), 'Clothing Global Value Chains and Sub-Saharan Africa: Global Exports, Regional Dynamics and Industrial Development Outcomes', *International Trade Working Paper 2016/16*, Commonwealth Secretariat, London.

Previous Ten Issues of the Commonwealth Trade Hot Topics Series

Issue 135: Modes of Service Delivery and Global Value Chain Participation

Issue 134: Graduation from LDC Status: Potential Implications for the Pacific Fisheries Sector

Issue 133: Trade Implications of Brexit for Commonwealth Developing Countries

Issue 132: Global Trade Slowdown, Brexit and SDGs: Issues and Way Forward

Issue 131: The Changing Global Trade Architecture: Implications for Sub-Saharan Africa's Development?

Issue 130: Trade Implications of Climate Policy after the Paris Outcome

Issue 129: The Paris Climate Agreement: What Implications for Trade?

Issue 128: Trade and the SDGs: Making 'Means of Implementation' a Reality

Issue 127: AGOA-IV and the Trade Prospects of Sub-Saharan Africa

Issue 126: International Trade in the Health Sector: Forgotten Frontier?



Trade Hot Topics

ISSN: 2071-8527 (print) ISSN: 2071-9914 (online)

Commonwealth Trade Hot Topics is a peer-reviewed publication which provides concise and informative analyses on trade and related issues, prepared both by Commonwealth Secretariat and international experts.

Series editor: Dr Mohammad A Razzaque

Produced by Trade Division of the Commonwealth Secretariat

For further information or to contribute to the Series, please email m.razzaque@commonwealth.int