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Trade and Economic Development in Africa: The Interaction Between Logistics and Global Value Chains

Adebisi Adewole and John J. Struthers

1.1 Overview and Structure of the Book

This book provides a comprehensive explanation of the relevance of logistics and global value chains (GVCs) to trade on the African continent. It takes the reader through a structured but logical development of knowledge relating to these issues, backed up by extensive coverage of recent trends in African trade. A strength of the book is that the sections build on each other, thus it can be read on a section-by-section basis. Readers are assisted by pertinent and up-to-date references on the many different topics covered.

With the development and advancement of integrated logistics and supply chain frameworks and the untapped potential for trade in Africa, there is a need for a critical appraisal of the significant roles of

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logistics and GVCs and the relationships between the two concepts. This book sets out to examine how the demand and supply dimensions of supply chain architecture interact with the economic concepts of GVC. This inter-connectedness between supply chains/logistics and global value chains is conceptually critical to ensure a clear understanding of: long-term sustainability of supplier–customer relationships; environmental accountability; social responsibility; and the economic viability of actors within GVCs. These four elements are closely bound together and are reflected in each of the chapters that follow.

It is the authors' contention that this book will fill a significant gap in the trade literature on Africa by combining these two related but distinct areas of study. In so doing, the authors hope that justice will be done to the complexity of these intertwined aspects of trade in order that progress can be made on the African continent to achieve viable and sustainable supply chain/logistics along with equitable and efficient GVCs. Moreover, this can also contribute to a more collaborative multi-stakeholder approach that can help to bring about much-needed fair and more competitive trade deals for Africa.

1.2 Key Concepts in Logistics and Supply Chains

1.2.1 Logistics

The word "logistics" originated from the military lexicon during the Second World War when the allied forces employed logistics skills to try and win the war. Since the end of the First World War, business organisations have adopted similar logistics management skills to create competitive advantages. There have been varying views with regard to what logistics truly means. While some see logistics as having mainly to do with the application of mathematics in military concerns, others (particularly in the latter part of the twentieth century when the term crept into the non-military, commercial lexicon) regard it as a source of competitive advantage for business organisations.

The UK's Chartered Institute of Logistics and Transport (CILT 2018) described logistics as the time related positioning of resources to meet user requirement, and this involves getting the right products to the right place in the right quantity at the right time in the right conditions at the right costs; whilst the US-based Council of Supply Chain Management Professionals (CSCMP) suggests logistics to be "the process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements" (CSMP 2013).

These definitions suggest that logistics functions comprise processes and activities such as transport, warehousing, forecasting, order processing route design and customer services among others, which entail the movement of goods from point of origin to the point of use.

1.2.2 Supply Chain Management

The term "supply chain management" (SCM) was first conceptualised by consultants in the mid-1980s and has since gained considerable recognition from academics and business managers. The concept of SCM is wider than logistics and is derived from the idea of a network of processes linked together to form a web or a loop. SCM represents the management of a much broader inter-organisational relationship across the upstream (supplier end of the chain) and the downstream (customer end of the supply chain) echelons.

Christopher (2016) defines SCM as "the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole". He noted that the focus of SCM is on co-operation and trust and the recognition that, properly managed, the whole can be greater than the sum of its parts.

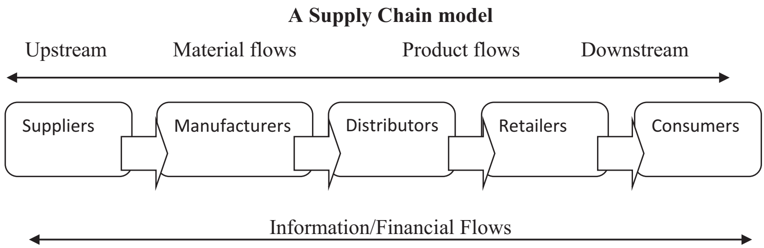

Fig. 1.1 A supply model. (Source: Model developed by author from the literature)

The supply chain comprises the flow of all information, products, materials and funds between the different stages of creating and selling a product. A company's supply chain represents every step in the process, starting from creating an idea for a good or service, designing and manufacturing the product, transporting it to a place of sale and then to selling it. In essence, the supply chain concept includes the management of all functions from initial idea to delivery (Fig. 1.1).

1.3 Global Value Chains

The idea of value chain was pioneered by Porter (1985). The five steps in the value chain give a company the ability to create value that exceeds the cost of providing the good or service to customers. Maximising the activities in any one of the five steps allows a company to have a competitive advantage over competitors in its industry. The five steps or activities are: inbound logistics; operations; outbound logistics; marketing and sales; and service. Inbound logistics include receiving, warehousing and inventory control. Operations include value-creating activities that transform inputs into products. Outbound logistics include activities required to get a finished product to a customer. Marketing and sales are activities associated with getting a buyer to purchase a product. Service activities include those that maintain and enhance a product's value, such as customer support.

The difference between a value chain and a supply chain therefore is that a supply chain is the process of co-ordinating all parties involved in fulfilling a customer requirement, while a value chain is a set of interrelated activities that a company uses to create a competitive advantage. Fredrick (2016) described the value chain as "the full range of activities that firms and workers do to bring a product from its conception to its end use and beyond". This includes activities such as design, production, marketing, distribution and support to the final consumer. The activities that comprise a value chain can be contained within a single firm or divided among different firms. Value chain activities can produce goods or services and can be contained within a single geographical location or spread over wider areas. In the context of developing countries, especially in Africa and in relation to commodities trading, the concept of value chain has expanded to include a stream of activities in GVC networks that comprise "the full range of economic activities that are required to bring a product from its conception, through its design, its sourced raw materials and intermediate inputs, its marketing, its distribution and its support to the final consumer" (Kaplinsky and Moris 2001). Simply put, a GVC includes all of the people and activities involved in the production of a good or service and its supply and distribution activities at the global level. A GVC is therefore similar to an industry-level value chain but encompasses operations at the global level.

GVCs also have another dimension that relates to the extraction of surplus or "rents" at different stages of the production, distribution, marketing and selling stages of the cycle. A number of authors, such as Gereffi and Korzeniewicz (1994), Fitter and Kaplinsky (2001) and Ponte (2002), have written seminal work on GVCs, which has been built upon by others since the turn of the century. International organisations such as UNCTAD (2013) and the Keane and Baimbill-Johnson (2017) have also focused on the role of GVC upgrading on the part of primary commodity producing countries as an essential requirement for them to benefit fully from world trade. A key point made in all of these studies is that every commodity (or material) has its own "bespoke" GVC, which is unique to that commodity. So, while the overall structure of a value chain may have common elements, they are all commodity specific. Even within commodity groupings, there are differences. For instance, within the "soft" tropical beverages group, the GVC for tea will be different from the GVC for coffee, and the GVC for coffee will be different from the GVC for cocoa. Similarly within the "hard" commodities group, the GVC for copper will be different from the GVC for iron ore, and so on.

1.4 Chapter Summaries

1.4.1 Part I

Chapter 1 is the introduction. The chapter discusses the relationships between logistics and SCM and GVC in relation to their contributions to, and facilitation of, trade and economic development in Africa. The chapter presents the reader with an overview of the contents and structure of the book.

Chapter 2 provides a general view of the dynamics of logistics infrastructure and its impact on trade and development in Africa. Adewole takes the view that despite Africa rapidly emerging as a strategic trade bloc with a growing wealth, the continent's inadequate infrastructural landscape is holding back trade and economic development. The author discusses the critical challenges facing logistics infrastructure in Africa, particularly in modes of freight movement, such as rail, road, sea and air transport. Adewole attributes the slow pace of logistics infrastructure development in Africa to: inadequate inland roads and railways; the high cost of operations; the lack of adoption of new technology; bureaucratic and inefficient port management; the absence of a defined strategy for freight transport; inadequate investment; ineffective regional collaborations; and a lack of political will. Despite these limitations, the chapter outlines some recent and on-going advances in trans-African highway development projects assisted by the African Development Bank and the United Nations Economic Development in Africa. He recommends better transport infrastructure with more connectivity across borders; a collective approach to an improved and more efficient intra-African transnational transport and logistics system; as well as the elimination of red tape bureaucracy and bottlenecks; and a common regulatory policy for freight logistics and transport in Africa.

In Chap. 3, Bvepfepfe outlines the concept of supply chains in the context of developing markets. He evaluates the key features of contemporary supply chains and provides an in-depth analysis of the attributes of SCM networks. The author explores the key organisational challenges facing supply chain managers generally and for businesses operating in sub-Saharan Africa in particular. Topics covered in the chapter include: the nature of SCM, supply chain optimisation and performance improvement, collaboration in supply chain operations, supply chain risk management and sustainability of supply chain operations. The author discusses each topic within a global context, viewing the sub-Saharan region from an economic development perspective. The chapter draws on primary and secondary data with supporting graphics, providing insights into the systems and network infrastructure. Bvepfepfe considers rail freight to be the more sustainable mode of transportation because of its capacity to carry large volumes of cargo over long distances and with fewer carbon emissions. The author suggests that in their supply chain operations, logistics network service providers and shippers in Africa should consider inter-modal freighting to reduce costs. The chapter concludes that sustainable logistics and supply chain operations are essential for economic growth and development in Africa.

In Chap. 4, Burl sets out a critical review of road freight transport in sub-Saharan Africa. He argues that Africa south of the Sahara has the least developed road transport infrastructure compared with the rest of the world. The chapter outlines some key freight transport challenges hindering trade and economic development in the continent including: poor intra-regional road networks; the high cost of road freight movement; overloaded vehicles; under-utilised vehicles; and the use of older vehicles as well as poorly trained vehicle operators. The chapter argues that due to geopolitical and socio-cultural problems, sub-Saharan Africa is yet to experience the global economic gains enjoyed by other regions of the world. The author suggests that the absence of a paved road network is a major contributor to Africa's retarded economic development. The chapter suggests that the adoption of inter-modal freight containerisation and the deployment of better road freight vehicles that are adapted to the terrain could partially overcome the problem of low-quality transport infrastructure. The chapter concludes that significant improvement in road freight transport technology is achievable and could result in much enhanced regional trade and economic improvement.

1.4.2 Part II

The fifth chapter, by Struthers, covers the range and scope of research on commodities since the 1970s, particularly in relation to African producers, and how that research has helped academics to analyse this important topic within African trade and development. The chapter focuses on the Commodity Dependent Developing Countries (CDDCs), which are defined as those countries where at least 60% of their overall export earnings come from these (mainly) primary commodities. Topics covered include: the rise and fall of International Commodity Agreements; the effects of market liberalisation on commodity markets during the late 1980s and early 1990s; the impact of commodity price volatility and possible commodity "super-cycles", especially after the 2007–08 global financial crisis, and the resultant "financialisation" of commodity markets; the emergence of market-based price risk management instruments such as commodity futures and options, which have been developed to help CDDCs mitigate such risk; and the development of commodity exchanges in a number of CDDCs including some in Africa, such as the Ethiopian Commodity Exchange. Finally, the chapter concludes with a discussion on the means whereby more and more of these CDDCs can participate in commodity GVCs in order to extract greater value from the very commodities that they produce. In so doing, the chapter also highlights the crucial role played by smallholders in the countries that produce these commodities, which serves both as a reminder of the constraints that many CDDCs face in securing these gains, but also the urgent need to continue attempting to do so, not least in terms of securing the livelihoods of such smallholders. This chapter also provides a bridge between the first section of the book, which has an emphasis on logistics and SCM concepts, and the second half of the book, which focuses much more on the crucial role of GVCs within the context of African trade.

Chapter 6, by Banini and Gayi, has the thought-provoking title "Does Africa have what it takes to upgrade in global value chains?" After setting out recent trends in international trade and how these have benefited many African countries, the chapter outlines the growing challenges faced by many African countries in the face of rapid globalisation. Partly due to the fact that these GVCs, especially in manufacturing and services, have become geographically spread around the world, many CDDCs remain at a severe disadvantage in terms of the upgrading process that will be required on their part to benefit from the GVC process. Given the many structural constraints faced by a number of African countries, the chapter argues that appropriate development policies will be required to achieve this objective, even partially. A bright spot highlighted in the chapter, which might at least support the aim for regional value chains to emerge within the process, is the potential offered by increased intra-African trade. Improved intra-African trade has been a desire of many African leaders for many decades and is the basis for the multiplicity of regional trade agreements such as COMESA, SADC, EAC and ECOWAS that operate across the continent.[1] Progress is hampered by a combination of physical and infrastructural bottlenecks (e.g., costly and laborious border procedures and poor transportation facilities); high trade costs caused by a plethora of non-tariff barriers and non-tariff measures; and the lack of opportunities for genuine product differentiation. According to the authors, only with genuine reform of institutions, structural change and a possible enhanced role for the private sector, will such upgrading along the GVCs be possible.

Chapter 7, by Keane, follows on from Banini and Gayi by suggesting that the possibility of future "fragmentation" in GVCs—that is, the creation of "regional clusters" in the production of goods and services around the world (Factory South, Factory US, Factory Europe, Factory Asia)—will put additional pressure on small firms (and producers) especially in the developing world. This will lead to a "very different global trading landscape" according to Keane. The author also argues, and this resonates with the main purpose of this book, that the role of logistics capability per se, and the potential to service multiple markets will be a crucial, possibly decisive, component of future GVCs. Where does this leave developing countries, particularly in Africa? Keane tries to address this question, at least partially, by highlighting the case of the cut flower sectors in Kenya and Ethiopia. Both countries have managed this transition, albeit in these limited sectors, by progressing from simply supplying the commodity at the lowest end (or tier), within the appropriate GVC, to delivery to the final markets. This has been achieved in these two countries because investors in Kenya commenced production in this activity in Ethiopia, which is a lower-cost producer than Kenya. Ethiopia's participation in this GVC has been facilitated by foreign direct investment (FDI) linking the supply of cut flowers to Dutch auction houses. This is known as the "flying geese" phenomenon, with the logistics carried out by Kenyan companies. With increased intra-African trade and the involvement of FDI, including intra-African FDI, there is no reason why this cannot be replicated over time in other African countries.

The chapter by Pesce, Tumuhimbise, Davis and Sommer on the importance of the services sector for Africa adopts an innovative approach to a neglected part of the economy, at least as far as the African continent is concerned. Improving the continent's services sector is also highlighted in Chap. 5, by Banini and Gayi, who urge Africa to move from low value services to high value services. Starting with an overview of recent trends in services provision in less developed countries, including many in Africa, the authors measure the value-added effects of the services sector. This is done at the aggregate level as well as at the subsector level. The authors also focus on a number of specific countries, such as Ethiopia, Liberia, Equatorial Guinea and Nigeria, which have all, over recent years, seen substantial growth in the contribution of the services sector to their gross domestic product (GDP). In Nigeria, for example, this has been particularly true of the telecommunications and ICT sector that, according to the authors, contributed 10.4% of the country's growth over the period 2010 to 2013. Additional by-products of growth in the services sector in Africa are that it not only attracts inward investment (FDI), it can also contribute positively to achieving the Sustainable Development Goals (SDGs) including improved infrastructure, greater financial inclusion, and skills development among Africa's population.

Chapter 9, by Eba and Struthers, approaches the issue of commodity price volatility in Africa from the perspective of the various market reforms and institutions set up to stabilise commodity prices or, at least, to stabilise the income received by the farmers and producers of these commodities. The impact of these reforms on participation in agricultural supply chains is discussed in general. This is followed by a detailed discussion of the impact of market reforms in three African countries and their respective commodities: Ivory Coast (coffee and cocoa); Ghana (cocoa) and Burkina Faso (cotton). The chapter then proceeds to discuss the impact of the market reforms from a principal–agent perspective. The creation of local commodity exchanges, such as that in Ethiopia, as a means of mitigating the effects of commodity price volatility, is then analysed. It has been suggested by some authors (Struthers 2017) that the setting up of a commodity exchange can not only mitigate some of the principal–agent problems that often beset commodity production but also reduce the potential transaction costs, improve price discovery on the part of commodity producers and give them greater access to well-structured foreign markets. This chapter also highlights the problems that producers, especially smallholder farmers, have in fully engaging with GVCs for their commodities. The chapter concludes by suggesting that the creation of successful commodity exchanges can complement the market reforms that have been carried out in many African countries. Moreover, some statistical evidence is provided to suggest that such innovations can not only reduce transaction costs but also increase value-added to the farmers and producers by reducing the number of middlemen/intermediaries within the supply chain.

The final chapter of the book, by Isah Dara, presents the findings of an empirical econometric study of a number of African countries in terms of the links between human development (using the UN's human development index (HDI)) and trade openness. The HDI is a composite index that measures human development in relation to aspects such as healthcare and life expectancy; education levels; and standard of living, along with other parameters. Improving these aspects of human development in Africa is of course a top priority, not least to assist the poorest members of society to improve their life chances. It can also lead to stronger economies based on more effective engagement of these countries with GVCs and trade generally. Improvement in human development (human capital, knowledge, skills and capacity) are a sine qua non in this context. The chapter provides strong support econometrically for a link between trade openness and human development for the countries covered in the empirical analysis (Chad, Democratic Republic of Congo, Central African Republic, Niger, and Sierra Leone over a 30-year period) and outlines some key policy requirements for governments to implement (Fig. 1.2).

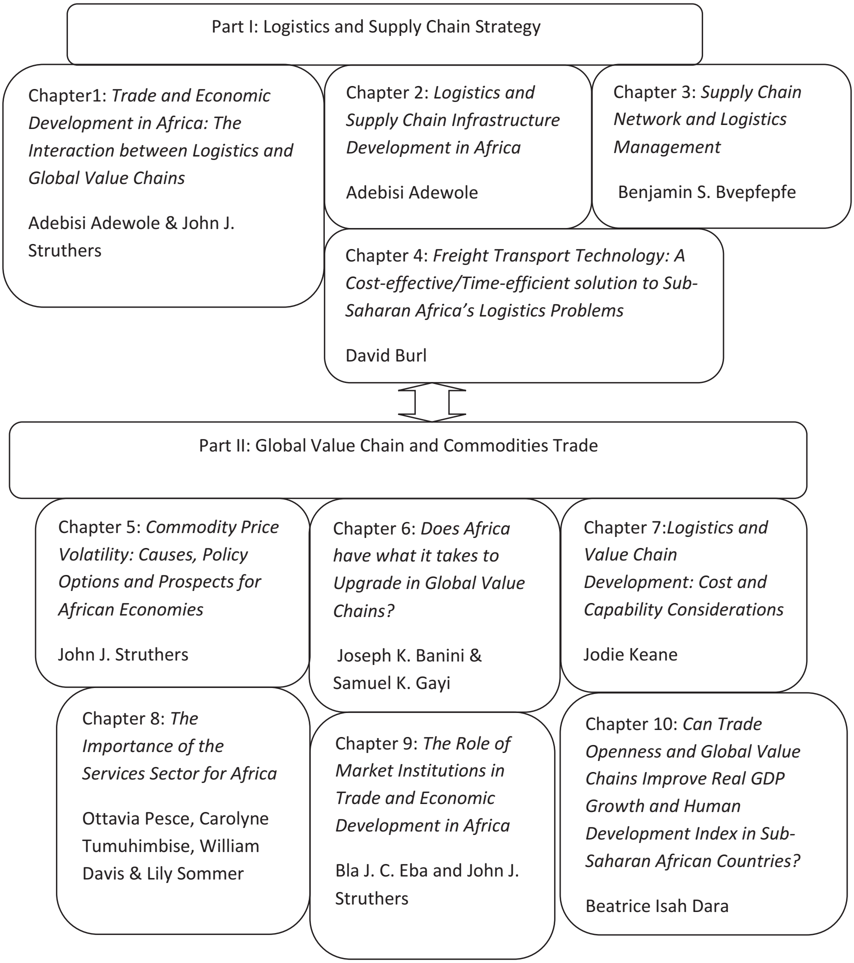

Fig. 1.2 Diagram showing structure of chapters. (Source: Developed by author)

Notes

1. COMESA is the Common Market for Eastern and Southern Africa; SADC is the Southern Africa Development Community; EAC is the East African Community; and ECOWAS is the Economic Community of West African States.

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