



WIDER Working Paper 2017/46

Understanding intra-regional transport

Competition in road transportation between Malawi,
Mozambique, South Africa, Zambia, and Zimbabwe

Thando Vilakazi and Anthea Paelo*

March 2017

Abstract: Efficient transport links are critical to enhancing the integration of markets in Southern Africa. This paper assesses the structure of markets, competition, and prices and costs of road transportation between urban hubs in Malawi, Mozambique, South Africa, Zambia, and Zimbabwe. Key findings are that certain routes, such as that between Lusaka and Johannesburg, have become more competitive over time and relative to benchmarks due to the availability of loads in each direction, improved efficiencies, and greater competitive rivalry between trucking firms from different countries. However, border delays and control of access to loads by large brokers continue to negatively affect competition and efficiency.

Keywords: cross-border logistics, road transportation, Southern Africa, competition, regulation, regional integration

JEL classification: D40, F15, L1, L50, L91, L92

Acknowledgements: Support for this research, which was conducted by the Centre for Competition, Regulation and Economic Development (CCRED) at the University of Johannesburg (South Africa), was provided by the United Nations University World Institute for Development Economics Research (UNU-WIDER).

* Both authors: Centre for Competition, Regulation and Economic Development (CCRED), corresponding author: thandov@uj.ac.za.

This study has been prepared within the UNU-WIDER project on ‘[Regional growth and development in Southern Africa](#)’.

Copyright © UNU-WIDER 2017

Information and requests: publications@wider.unu.edu

ISSN 1798-7237 ISBN 978-92-9256-270-0

Typescript prepared by Joseph Laredo.

The United Nations University World Institute for Development Economics Research provides economic analysis and policy advice with the aim of promoting sustainable and equitable development. The Institute began operations in 1985 in Helsinki, Finland, as the first research and training centre of the United Nations University. Today it is a unique blend of think tank, research institute, and UN agency—providing a range of services from policy advice to governments as well as freely available original research.

UNU-WIDER acknowledges specific programme contribution from the National Treasury of South Africa to its project ‘[Regional growth and development in Southern Africa](#)’ and core financial support to its work programme from the governments of Denmark, Finland, Sweden, and the United Kingdom.

Katajanokanlaituri 6 B, 00160 Helsinki, Finland

The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

1 Introduction

The research focuses on understanding the competitive dynamics in the road transportation of commodities between Malawi, Mozambique, South Africa, Zambia, and Zimbabwe. Road transportation has been identified because it is the primary mode of transport for goods in Africa and the Southern African region in particular. Furthermore, road freight has become more important as rail networks in several African countries have declined in significance, thanks in part to low investment and maintenance. Good road transport networks and the ability to transport goods efficiently from areas of production to areas of consumption are critical to intra-regional trade and economic development, with which this research is ultimately concerned.

This research forms part of the project commissioned by the United Nations University World Institute for Development Economics Research (UNU-WIDER) on Regional Growth and Development in Southern Africa. As part of the project, this paper focuses on competition in the transportation of bulk dry commodities between the major urban hubs that have seen rapid growth in recent years or where there is significant potential for growth—specifically, Harare (Zimbabwe), Johannesburg (South Africa), Lilongwe (Malawi), Lusaka (and the copperbelt) (Zambia), and Maputo (Mozambique). These hubs are also identified as areas with strong trade and transport links with what is termed the North–South Corridor, which is the major route for goods transport in the Southern Africa region, stretching from the port of Durban in South Africa to the northern regions of Zambia and into Tanzania.

In total 33 interviews were conducted in Malawi, South Africa, Zambia, and Zimbabwe (see Appendix B) and these are relied upon in the paper as the primary source of data; secondary data includes information from previous studies. A second paper forming part of this research assesses competition in the transportation of perishable goods between the hubs as a concentrated, niche market, which is significant insofar as food exports in the region, particularly from South Africa, have increased significantly in the past decade (see Vilakazi and Paelo forthcoming). The findings of the second paper are complementary to those contained herein given the emphasis in refrigerated transportation on quality and timeliness of service and efficient transit through borders, for which customers are prepared to pay higher prices.

Understanding the competitive dynamics in transport between urban hubs is critical to enhancing intra-regional trade and industrial development given trends in urban development and consumption and the potential for goods to be manufactured and traded within regions. Having efficient, competitive markets for road transportation is central to reducing the transport cost burden of firms in a region where road transport costs can account for a high proportion of the cost of goods. The prevailing view in recent years has been that transport prices are high relative to those in other regions and developing countries, as discussed.

This paper considers, at the firm level, competition in road transportation as influenced by factors such as regulation. The key research questions explored are as follows:

- What is the nature of competition in road transport in the region?
- How have prices and costs of road freight evolved over recent years and what have been the primary influences on that evolution?
- What is the role of regulation, and differences in regulation between countries, in creating a more competitive regional road freight network?
- What interventions are necessary to optimize the road linkages between major hubs of production and consumption in the region?

Our key findings are that certain routes, notably that between Lusaka and Johannesburg, have become more competitive over time, with prices declining for both outbound and inbound legs. This relates to the availability of loads in each direction, improved efficiency and regulation of border processes, and rivalry between South African, Zambian, and Zimbabwean trucking firms, though delays account for a significant proportion of both costs and prices charged and are a key area for intervention. Overall, we find that costs on some routes have increased significantly while prices have been competed down, which is contrary to findings in previous studies. Certain distortions in the competitive process between transporters result from the involvement of brokers, e.g. in coordination at the industry association level, and the control of loads by large transport users. Large vertically integrated brokers, as well as the shipping companies involved, control loads in concentrated markets such as Malawi, where high costs are reflected in the prices charged.

The paper is structured as follows: Section 2 reviews the key literature as it relates to trade and transport in Africa, Section 3 outlines the methodology applied in this research, and Section 4 reviews key trends in trade between the countries on which we focus. Section 5 provides an overview of the structure of the markets and key characteristics by country, Section 6 critically assesses the evolution of transport prices and costs, Section 7 draws together additional factors that were found to affect competitive outcomes in the transport sector in the region, and Section 8 concludes the findings and provides recommendations for further research and policy intervention.

2 Review of relevant literature

2.1 Trade, transport, and economic development

The use of road freight is largely driven by trade patterns between countries, and poor road infrastructure and transport systems have a direct effect on trade. There is a clear link between trade and economic development, and trade is central to the process of economic growth (see, for example, Pedersen 2001; Ondrich et al. 2006; Elbeshbishi 2011; Lee and Huang 2012; Chatterji et al. 2013; Steiner et al. 2014; and UNCTAD 2013). It has been emphasized that the integration of markets in Africa is central to enhancing economic development (UNECA 2013). Trade has been linked to economic development through the sourcing of previously unavailable energy and resources, the introduction of new products and technology, and the creation of a market for domestically produced goods (Yamazawa 1990; Onafowora and Owoye 1998; UNCTAD 2013; Gwaindepi et al. 2014; Asfaw 2015).

Trade liberalization and facilitation has therefore been at the centre of World Bank and World Trade Organization efforts across countries (Grammling 2007). In this context, increased trade is facilitated through a range of mechanisms, including reduced regulatory barriers and improved transport and port infrastructure. The availability of good infrastructure and transport services increases access to markets, encourages foreign direct investment (FDI) and hence economic growth through economic activity and employment (WTO 2004; Nowak 2005; Hong et al. 2011; World Bank 2011).

The widely held view is that growth in Africa has been muted in comparison with other regions on account of high trade barriers, poor institutions, and high transport costs (Rodrik 1998; Balamoune-Lutz and Ndikumana 2007; Mbabazi et al. 2008; UNCTAD 2013). Road transport is the main mode of freight in intra-African trade (UNCTAD 2009), but the average price of transport in Africa still represents 7.7 per cent of total export value, which is twice the world

average of 3.7 per cent (UNCTAD 2013). There is therefore a rationale for considering in detail the competitive outcomes in the transport sector and the possible explanatory factors for poor outcomes.

2.2 Transport infrastructure, costs, and prices

An important distinction is made in the literature between transport prices and transport costs (Raballand and Macchi 2008). Transport costs are incurred by the transporter when transporting cargo, whereas transport prices are the rates charged by a transport company or forwarder to the shipper or importer (Raballand and Macchi 2008: 2). Variable costs are considered the most significant determinant of transport costs (Teravaninthorn and Raballand 2009). Transport costs directly influence the price charged by a transporter, but the literature suggests that a range of other factors also drive the transport price. The prevailing view in the recent empirical literature emphasizes two very important points:

- Transport prices in Africa are high relative to other regions of the world.
- Transport costs are not exceptionally high relative to other developing countries, and some developed regions (see, for example, Teravaninthorn and Raballand 2009; and Foster and Briceño-Garmendia 2010).

In Southern Africa prices were found to be relatively low by international standards and when compared with other African regions (Teravaninthorn and Raballand 2009). However, the routes in the region are profitable, suggesting that prices are high relative to costs given that the region is ahead of other regions on the continent in terms of the cost environment and quality of infrastructure.

The most significant variable costs are fuel and lubricants, which make up about 40 per cent of vehicle operating costs, although the authors find that, with low labour costs, transport prices and costs should still be much lower than they are along the major corridors (Teravaninthorn and Raballand 2009). The cost of fuel and tyres accounts for about 90 per cent of variable costs in Southern Africa, particularly in Zambia, where fuel costs, driven by high tax rates (80 per cent of the fuel price), are especially high and constrain freight transport (Teravaninthorn and Raballand 2009). Similarly, in Malawi, taxes on new tyres account for 32 per cent of the retail price of tyres. As discussed below, their findings are consistent with the findings in this paper.

Transport services are largely considered to be labour-intensive, not least because of the number of trucks and thus the amount of labour employed (Teravaninthorn and Raballand 2009). Given the relatively low labour costs in African countries, the expectation is that transport costs should be lower and that, other things being equal, the additional margins that accrue in transport prices should be passed through to users.

In the region as a whole, improvement of road infrastructure remains important, although it is less important in terms of improving efficiencies on major transport corridors (Foster and Briceño-Garmendia 2010). Key constraints to freight efficiency are largely administrative and relate to regulation, market structure, and efficiency in border procedures (Foster and Briceño-Garmendia 2010), which is consistent with findings in this paper. Taking the example of the Maputo–Gauteng route, Foster and Briceño-Garmendia (2010) argue that, despite improvements in road infrastructure and successful concessions at the Maputo port, the route still receives a very small proportion of traffic due to a combination of an unpredictable business climate, corruption, lack of transparency in traffic scanning processes, poor border service, multiple border controls, and over-regulation. Operating costs are not necessarily higher than those in Europe, but delays at border crossings and restrictions on market access increase prices on cross-border routes by 10–

30 per cent. Furthermore, exports to landlocked countries take four days longer than for countries with a sea port, while imports take nine days longer to arrive at their destination (Foster and Briceño-Garmendia 2010).

While improved infrastructure could reduce travel time and vehicle operating costs, a reduction of documentation and time spent at the border would increase vehicle utilization and reduce capital tied up during the transport operation (JICA 2010). In turn, this would decrease the need for high inventory levels to protect against unreliability in delivery times. This highlights an important point. Delays in the transit of goods between countries create opportunity costs for transporters, which are factored in to the prices charged.

2.3 Market structure and competitive dynamics

In terms of the available literature, only certain of the studies specifically consider competition and competitive dynamics between transport operators. Available studies have in general not focused on analysis at the firm level (individual transporters) in terms of understanding their strategies and competitive interactions in the market. Instead, more general analysis of the number of competitors and the overall market arrangements, such as quotas and freight-sharing relationships in West Africa, is provided.

Ncube et al. (2015) considered competitive dynamics in road freight transportation in Malawi, Tanzania, and Zambia by evaluating the transportation of fertilizer in each country as a case study. The findings were that outcomes in the transport sector were driven by a range of factors, including the availability of return loads for transporters, which is linked to increased economic growth, and trade, price regulations for transport through the state (such as in the transportation of subsidized fertilizer), and the bargaining power of user groups relative to one another. For example, in Zambia it was found that export growth in the copper mining and processing sector, and high demand for transport in this regard, allowed copper mines to dictate terms of transport, including the price. This in turn meant that fertilizer importers were able to bring fertilizer from ports at more favourable rates when trucks were on their return leg from transporting copper to the ports. This allowed fertilizer importers to obtain better prices, although they did not necessarily have similar volumes and thus bargaining power vis-à-vis transporters.

In Zambia, key changes in the regulations relating to transportation resulted in greater efficiency and rivalry (Ncube et al. 2015). For instance, a removal of duties on the importation of second-hand vehicles led to an influx of new trucking companies, and the simplification of processes for obtaining licences and permits contributed to an increase in cross-border transportation and in competition between cross-border transport operators. In terms of the route from South Africa, via Zimbabwe, to Zambia, the introduction of a one-stop border post at Chirundu (between Zambia and Zimbabwe) in 2009 has led to increased efficiencies.¹ There are, however, still delays at the Beitbridge border (between Zimbabwe and South Africa), due in part to high traffic volumes (Ncube et al. 2015). Importantly, competition from trucking companies from South Africa and Zimbabwe has led to an improvement in the efficiency and cost competitiveness of Zambian transporters. However, in the domestic market in Zambia there is a high-cost environment driven in part by high fuel costs.

¹ See, for example, Curtis (2009) and TradeMark Southern Africa, 'Chirundu One-Stop Border Post saves US\$600 000 per day', available at: http://www.trademarksa.org/about_us/programme_news/chirundu-one-stop-border-post-saves-us600-000-day.

Ncube et al.'s (2015) study highlights the importance of understanding the interactions between transport companies and different user groups in determining outcomes. One important aspect of these is that large firms or users may prefer to enter into a single contract with a transporter with a large fleet to limit administrative and transaction costs, although this differs on a firm-by-firm basis (Ncube et al. 2015). Regulation can therefore favour larger users and large transport companies insofar as the administrative burden is lessened and passage through border posts, for example, is easier for large, reputable transporters, as discussed below.

In Malawi, the transport sector is concentrated into a small number of large transporters, although there are many owner-operators as well. Outcomes are also significantly affected by the fact that there are few opportunities for return loads within Malawi, which contributes to very high domestic transport prices (Ncube et al. 2015). In Tanzania, Ncube et al. showed that transporters operated as 'cartels' and access to loads, particularly at the port, depended on being part of particular associations or groups of truckers or on having some 'political' influence, given that several officials also had their own transport companies. This is akin to issues identified in Mozambique in this study.

2.4 Regional and international regulation affecting the road transport sector

Within regional and international trade agreements, countries are required to make commitments in terms of the liberalization of transport markets in order to facilitate increased trade. The main regional agreements governing trade in transport services in the five countries in this study are the SADC Protocol on Transport, Communications and Meteorology (1996) and the COMESA Treaty on Cooperation (COMESA 2003). One of the main objectives of the SADC Protocol is to encourage liberalization, particularly in the cross-border transport of goods. The key principles of the Protocol are:

- Equal treatment, non-discrimination, reciprocity and fair competition
- Harmonization of operations and integrated transport systems
- Liberalization of market access policies
- Exclusion of cabotage
- Interim quotas and capacity management measures.

Countries also have bilateral agreements with each other, and there are regional regulations, both which affect transport outcomes. Almost all of the countries have common regulations through the SADC Protocol, WTO General Agreement on Trade in Services (GATS), and the COMESA Treaty on Cooperation—each of which speaks to aspects of liberalization—along with a range of bilateral agreements, though several have fallen short in terms of the implementation of the various agreements (Ward and Barreto 2011; McKinnon 2012). Nevertheless, there are strong incentives for the landlocked countries, Zambia, Malawi, and Zimbabwe, to cooperate with neighbouring countries, given that they are reliant on their neighbours for access to ports.

The rule against cabotage has been highlighted in previous studies as an important determinant of competitive outcomes in domestic road transport markets insofar as it affects the ability of foreign-registered trucking companies to compete in another country's domestic market. There are different views of the significance of this constraint. In a recent study of the road freight sector in Rwanda it was found that

cabotage regulation in the EAC does reduce the efficiency of transport corridors, but it is unclear how large the gains to be made are. At worst, removing this regulation would not increase the costs of transport along the corridors, and at

best it will improve it by some small margin. However, this will not improve the competitive position of Rwanda's industry and may in fact reduce it, due to the advantages that Kenya and Tanzania hold in the pursuit of business within their own territories [original emphasis] (Argent and Milanovic 2014).

Raballand et al. (2007) argue that lifting cabotage regulation and third-country rules in relation to Zambia would probably have a muted effect on the transport sector in Zambia:

Freight characteristics in Southern Africa, regional FDI flows in the trucking sector and the possibility of Zambian operators to benefit from cabotage in South Africa have induced similarity of operating costs between Zambian and South African operators. Hence, there is already limited scope for reducing costs on the international trade routes through complete liberalization (Raballand et al. 2007: 26).

Currently only South Africa allows cabotage, although substantial charges are levied for a cabotage permit, and there is likely to be opposition from transporters across countries to the removal of the third-country rule, as it protects domestic operators from competition (McKinnon 2012: 14). At different times, some countries in the region did allow third-country transit, including South Africa, Zimbabwe (on a reciprocal basis), and Malawi (during a defined period) (Raballand and Macchi 2008: 21).

3 Methodology and data collection

The research relies on in-depth interviews with various participants in the road transport industry in each country, as well as desktop research. In total 33 interviews were conducted in Malawi, South Africa, Zambia, and Zimbabwe (see Appendix B). These participants included the truckers/transporters, clearing and forwarding agents, and industry associations, as well as the different buyers of transport services, including retail chains. Fieldwork was not conducted in Mozambique and detailed information from other interviews is relied on in this regard. Findings relating to Mozambican routes are important for understanding the competitive dynamics in the region, suggesting that this is an important area for further research.

It is clear from the enquiries conducted that there is a lack of comparable and consistent data on the costs involved in transporting goods across borders. Face-to-face interviews have therefore been a critical source of information, and the research has relied on triangulating information from various sources. A key challenge in the research is that pricing and cost information has been available only on a comparative basis for different routes, and there is a clear need for obtaining data over time on both transport prices and transport costs.

Questionnaires specific to each of the relevant groups of interviewees were drafted and used as guidelines for obtaining the relevant information from the respondents. During the course of the interviews, the questions were adapted to suit particular interviewees and country contexts where necessary, and to match the information gained from the preceding interviews. The interviews were conducted at the premises of the interviewees and on average lasted an hour. In some cases, telephone conversations and follow-up emails were used either to confirm information received or to request further input.

The participants identified for the study were chosen by means of desktop research from publicly available sources as well as using recommendations and referrals from the participants themselves.

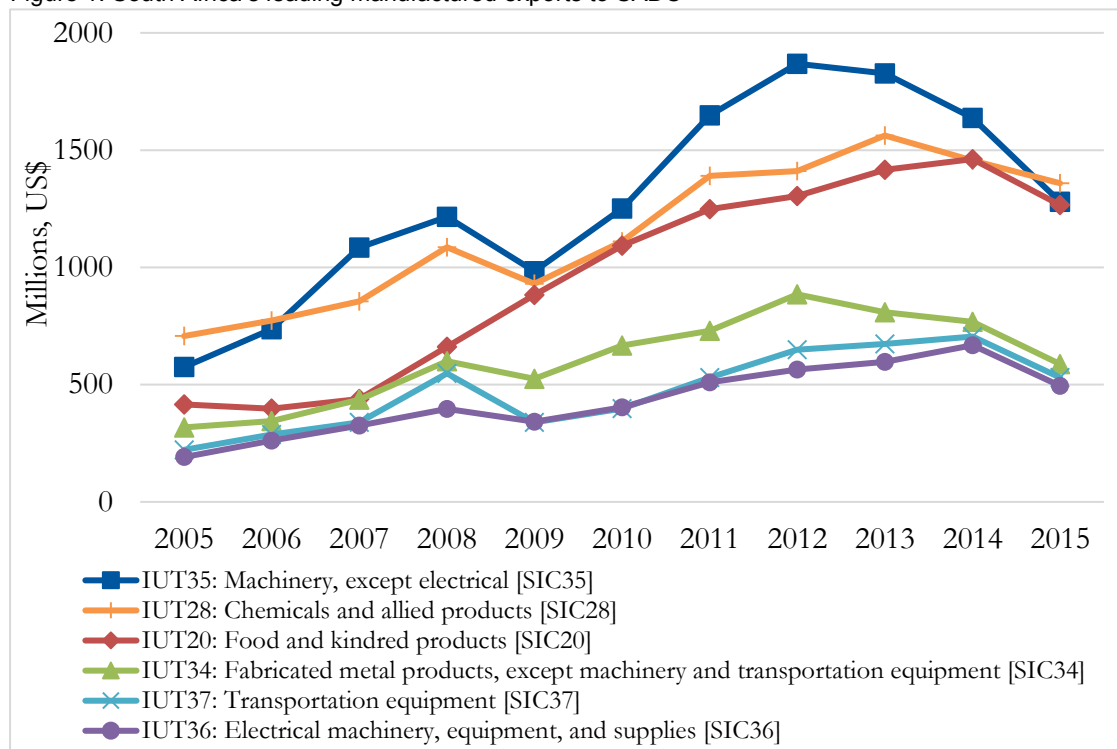
The road transport associations in particular were very helpful sources of information and referrals, and assisted with descriptions of the different parties involved, the roles of individual actors, and the dynamics between them, as well as of how the industry worked. In assessing aspects of prices and costs, our approach has been to rely on information received from the firms themselves, which was verified by industry associations.

Information obtained in other CCRED studies on transportation in the region as well as other concurrent research forming part of this project were also drawn upon to inform the interviews and analysis.²

4 Review of trends in trade in the region

Over the past five years, South Africa has experienced a trade deficit overall, but there is a significant trade surplus and growth in exports to countries in the Southern African Development Community (SADC). For example, South Africa’s main manufactured exports to SADC countries have grown since 2005 (measured in terms of value of exports in US\$ millions) (Figure 1). The data exclude the countries that form part of the Southern African Customs Union (SACU), these being Botswana, Lesotho, Namibia, and Swaziland, as these countries in effect constitute a common domestic market with South Africa and/or have relatively short transport distances from South Africa.

Figure 1: South Africa’s leading manufactured exports to SADC³



Source: Authors’ construction based on Quantec data.

² See, for example, das Nair and Chisoro (2015) and Ncube et al. (2015).

³ Includes only the main sub-categories under the general categories ‘Manufactured commodities’ [SIC2] and ‘Manufactured commodities not identified by kind’ [SIC3] in the Quantec data.

Exports of machinery, chemicals, and food products have led growth in exports overall, and account for the most significant share of export values. Growth in the export of food products (comprising processed, fresh, and frozen foods) has been the most significant (more than 200 per cent since 2005) and is linked with rising income levels and household consumption in recipient countries (for example, Zambia and Mozambique), as well as the increased presence and investment by South African retail groups in the region (see das Nair and Chisoro 2015). Growth in exports of machinery is driven by the recovery in mining activity in copper (mainly Zambia) and other key minerals. Chemical exports, which have also grown significantly, generally comprise consumption goods (such as soaps and drugs) and inputs to manufacturing and agriculture, such as various fertilizer products, basic chemicals, and paints and plastic materials, including those used in manufacturing activity.

The implication for road freight is that there has been a growth in loads available, particularly from South Africa to other countries in the region. The sum of all South African imports from SADC countries (excluding SACU) is small relative to exports; it equalled less than 35 per cent of export values in 2015, for example. The imbalance in trade implies that there are more goods and thus outbound transport loads from South Africa to other SADC countries than there are loads available on the return leg, which, as we discuss below, has important implications for transport rates.

5 Overview of the structure of transport markets in the region and the logistics supply chain

The transportation of commodities in the region relies on the linkages between border authorities and service providers, importers and exporters, freight forwarding (and customs clearing) agents, and transporters (Table 1). Compliance with domestic and international standards and practices for logistics means that the functions performed by each grouping in the logistics chain are the same across countries, although the structure of markets and the relative bargaining power of operators at different levels may differ by country. For example, exporters of bulky products such as mines hold greater bargaining power vis-à-vis truckers than small, one-off importers and exporters of non-commodity items.

In each country, and at every level, the market in terms of logistics firms comprises a range of small, medium, and large companies. The largest firms typically operate across the region and have offices or depots in each country, providing a range of services from clearing and forwarding to transport and warehousing. The main logistics operators, such as Imperial in South Africa, share integrated back office supply chain and inventory management systems with large retailers and producers such that the logistics operators are immediately aware of depleted stock and can transport the required products as necessary.⁴ These firms differentiate themselves from smaller logistics companies on the basis of the provision of a comprehensive, reliable service. For example, Imperial is vertically integrated throughout the logistics chain either directly or through various subsidiaries, leveraging capacity in terms of fleet size, storage and warehousing capacity, and management systems to win major contracts with customers.

⁴ Unpublished interview with Imperial Cold Logistics, conducted by the authors on 19 February 2016.

Table 1: Main logistics chain participants

Market participant	Role	Key characteristics
Clearing agents	These are private firms mainly responsible for facilitating the regulated customs clearing of goods between countries, which involves interaction with revenue authorities in particular. This involves facilitating the completion and approval of customs documentation and procedures as required by the authority at or relating to ports of entry. It also includes interaction with port authority where relevant. In some countries, clearing agents are registered by the revenue authority.	Low barriers to entry. Large number of providers in each country, including large multinational and small 'briefcase' agents.
Freight forwarders and/or brokers	Normally private firms involved in the organization and coordination of the process of shipment of goods on behalf of importing or exporting firms. This typically includes coordinating handling, (off)loading, customs clearance, warehousing, organizing export/import papers, port clearance, and sea freight and road transportation on behalf of clients. It includes also interaction with port authorities where relevant. The functions of forwarding agents in many cases overlap with those of clearing agents, both of which seek to provide a complete, one-stop service to customers.	Relatively low barriers to entry. Large number of providers in each country, including large multinational and small 'briefcase' operators. Forwarders/brokers deal directly with the importer or exporter and sometimes subcontract functions such as trucking.
Transporters/truckers or freight companies	Individual truck owners and companies involved in the physical movement of goods by road (and sometimes integrated vertically with other functions, such as forwarding and clearing).	Entry barriers vary by country. For example, leasing of trucks and equipment is more prevalent in SA but the need to use (expensive) new trucks, owing to limits on second-hand imports, is a barrier for some. Large number of operators in each country—some focused on domestic routes (mostly the large number of small firms), others large multinational firms with depots and offices in several countries and very large fleets for cross-border transport.
Customs agencies	Representatives of the national revenue authority tasked with revenue collection (taxes, tariffs, duties, etc.), border control for goods, and verification and inspection of goods entering and leaving the country.	Involved in verification of loads, with opportunities for rent-seeking in some countries. Greater use of electronic systems improving agency practices.
Associations	Industry associations are active at various levels of the value chain; there are different associations for transporters, agents, and forwarders in most cases. Associations are typically mouthpieces for industry operators serving to aggregate industry views on matters of mutual interest such as regulatory changes, industry standards for goods specification and quality, areas of concern common to players in the industry. Membership is typically based on a nominal membership fee, and is voluntary in most, but not all, cases.	Close coordination between players on industry standards, regulations, and in some cases guideline prices.

Source: Authors' interpretation from various interviews in each country.

Large customers with frequent and large loads, such as the major South African retail chains, prefer to contract with a single major logistics provider to minimize transaction and administrative costs. Large multinational forwarding and clearing firms such as Bridge Shipping, UTI, Bolllore Africa,

and Manica specialize in brokerage services, but integrate vertically into trucking and storage through subcontracting relationships with preferred transport companies to provide comprehensive services to clients. At this level, just as for logistics providers such as Imperial, the market in the region is concentrated into a few major firms, on account of their scale of operations in each country and established relationships with large exporters and importers.

Available information indicates that there is coordinated behaviour between the major brokers in Zimbabwe and Malawi, as discussed below, whereby guideline rates for different services are published by the trade association. The practice is not uncommon in international forwarding and shipping. For example, the South African Competition Commission found that Schenker, Kuehne + Nagel, DHL, UTI, and several other international forwarders with operations in South Africa had been involved in agreeing to common fees and surcharges for various services internationally, which had an anticompetitive effect in the South African market (Competition Tribunal 2012a, 2012b).

The large forwarding firms typically enter into relationships with major transporters (if they do not have their own fleet for large loads). This involves long-standing relationships with large transport groups, such as J & J Africa, that tend to specialize in road transport rather than the provision of related services.

Transporters operating smaller fleets (small to medium-sized firms) generally do not have direct access to large-volume, long-term contracts with large clients. In each country, there is a far greater number of smaller operators relying on subcontracting by large transporters and forwarding companies to access loads from major exporters such as copper mines in the case of Zambia. This level of the market is not concentrated and entry barriers are generally surmountable. However, there is a high level of churn amongst the smallest transport companies (with between 1 and 10 trucks), given that they tend to use older vehicles, invest less in maintenance, IT systems, and fleet redundancy, and typically do not achieve efficiencies in their operations. Operators at this level are also more likely to service small exporters and importers with variable loads, as well as domestic routes.

In each country there are a large number of smaller firms—particularly in trucking, clearing, and forwarding—operating alongside the large companies. Some major firms involved in transporting, forwarding, and/or clearing offer one-stop service packages to importers and exporters and are present at multiple levels of the value chain and in more than one country (Table 2).

Table 2: Main players identified at various levels for cross-border transport, by country

	Zambia	Zimbabwe	Malawi	South Africa
Clearing and forwarding	Bridge Shipping, Manica, CML, Bollore Africa, Barloworld, Impala, VS Cargo, Celtic Freight	Manica, UTI, Freight World	Bollore Africa, Combine Cargo, TransMam, UTI, Bridge Shipping, CWT-Aquarius Shipping International, Manica, Alliance	Value Group, Barloworld, Bidvest, Bollore Africa, Manica, Imperial Logistics
Transporters— all goods	Bridge Shipping, J & J Africa, Barloworld, Celtic Freight, GDC Whelson (Super Group)	J & J Africa, Cargo Carries, GDC Whelson (Super Group), Leo Pack, Cross Country, Biltrans, Colbro, Unifreight Africa, Delta, TECS Haulage, Sabot	J & J Africa, AS Investments, Trans-Tech	Imperial Logistics, Value Logistics, Barlow World, Unitrans, Super Group, DHL and Cargo Carriers
Customs agencies	Zambia Revenue Authority (ZRA)	Zimbabwe Revenue Authority (ZIMRA)	Malawi Revenue Authority (MRA)	South African Revenue Service
Associations	Truckers Association of Zambia (TAZ), Zambia Export Growers Association (ZEGA)	Transport Operators Association of Zimbabwe (TOAZ), Shipping and Forwarding Association of Zimbabwe	Clearing and Forwarding Agents Association of Malawi (CAFAAM), Transporters Association of Malawi	Road Freight Association (RFA), South African Association of Freight Forwarders (SAAFF)

Source: Collated from various interviews in each country.

The remainder of this section considers specific country dynamics, which are of relevance to the assessment of competition and transport prices and costs between countries in the region.

5.1 Malawi

Road freight in Malawi is largely operated by foreign trucking companies from Mozambique and South Africa and the market at each level is concentrated amongst multinational firms and a small number of domestic operators.⁵ Malawi is a landlocked country. As a result, the majority of the country's imports come through ports in its neighbouring countries: Beira in Mozambique, Durban in South Africa, Dar es Salaam in Tanzania, and Nacala in Mozambique. Mozambican and South African truckers have the advantage of being closest to the port and therefore have easier access to loads in transit to Malawi.

Freight forwarders serve an intermediary role between trucking companies and users of transport services. Most of the companies belong to one of the two main industry associations: the Clearing and Forwarding Agents' Association of Malawi (CAFAAM) and the Indigenous Customs Clearing and Forwarding Association (ICCF).⁶ Some estimates suggest that there are about 150 registered clearing and forwarding agents in Malawi. There are eight major players in the market: Bridge Shipping, UTI, Combine Cargo, Transmaritime, Manica, Bollore Africa Logistics, and CWT-ASI. These are large companies offering a wide range of logistics, procurement, and supply management services. Some have their own fleet, although they also subcontract to transport companies, many

⁵ Unpublished interview with Siku Transport, conducted by the authors on 21 August 2015.

⁶ Unpublished interview with Clearing and Forwarding Agents Association of Malawi (CAFAAM), conducted by the authors on 13 October 2015.

of which are also large. The large domestic trucking companies include Siku Transport, R. Gaffar Transport, and J & J Africa.

With respect to Malawi (and Zambia and Zimbabwe to a lesser extent), an important shift has taken place since around 2012 in the direction of traffic—towards using Beira port in particular. The gradual shift away from Durban, which until recently accounted for the majority of loads of overseas exports from (and imports to) these countries, has been driven largely by significant improvements in the capacity and functioning of Beira.⁷ Dredging and computerization at the port since 2012 have improved performance significantly, although it took two to three years for the system to be fully effective.⁸ Furthermore, an advantage in using Beira is that road transport takes around two days from the port to Lilongwe, compared with six or seven days from Durban (two of which are typically for completing paperwork and border procedures).

Taken together, these factors mean that road routes to and from Beira have experienced higher levels of demand for transport, and consequently a greater influx of transporters, and Mozambican transporters in particular. By 2015, Beira accounted for around 40 per cent of transport company loads to and from Malawi (Durban and Johannesburg together accounted for around 30 per cent, and Dar es Salaam 10 per cent).⁹ Imports of key consumer goods are still largely drawn from South Africa, while exports are increasingly directed via Beira, which increases the imbalance in the availability of loads from and to cities in Malawi, Zimbabwe, and Zambia in particular. South African loads are now primarily of consumables and products manufactured in South Africa. When tobacco is exported via South Africa, it is usually in instances where some additional processing and warehousing is required for the products, whereas Beira is used in particular when no further processing is required before exporting.¹⁰

The rivalry that has emerged between the ports in the region is an important area for further research, and will increasingly affect outcomes in road transport along the main routes.

5.2 Mozambique

The main ports in Mozambique are Maputo, Beira, and Nacala, which are generally closer to Malawi and Zimbabwe than those in South Africa. The Maputo Corridor largely services South Africa and Swaziland, while the Beira and Nacala Corridors act as gateways into Zimbabwe, Malawi, and Zambia.

Freight companies based on the Beira corridor rely on the transit of goods into Zambia, Zimbabwe, and Malawi for the largest proportion of their revenues (Perez-Niño 2015). Due to their easy access to the ports, Mozambican truckers dominate cross-border road freight between Malawi and Mozambique.

The road freight industry in Mozambique experienced rapid growth in the mid-2000s, underpinned by loads carried for the World Food Programme (WFP) in the post-war period (Perez-Niño 2015). At the time, the WFP played a prominent role in the building and reconstruction of the country.

⁷ Unpublished interview with Bollore Africa, conducted by the authors on 13 October 2015, and unpublished interview conducted with Transtech Logistics Malawi, by the authors on 16 October 2015.

⁸ Unpublished interview with Bollore Africa, conducted by the authors on 13 October 2015.

⁹ Unpublished interview with Bollore Africa, conducted by the authors on 13 October 2015.

¹⁰ Unpublished interview with Bollore Africa, conducted by the authors on 13 October 2015, and unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

Transport companies were contracted to deliver humanitarian support and to bolster food supply in the country. Over time, firms developed capabilities to transport a wider range of goods and larger loads and increasingly earned subcontracted loads for the major shipping lines at Beira in particular.

There are two main road freight associations in Mozambique. The Mozambique Road Transport Federation (FEMATRO) engages with the government and policy-makers on the behalf of all transporters on issues such as fuel costs, road infrastructure, road safety, freight security, driver interests, law enforcement, and labour relations (VillageReach 2014). The membership of the Association of Road Freight Transport Companies (ASTROCAMA), on the other hand, mainly comprises the largest transport companies, whose specific interests it represents. ASTROCAMA's membership declined from 70 in 2003 to around 20 in 2014 due to consolidation and acquisitions in the industry. Large transport companies such as Lalgly and SuperSteel have fleets of between 100 and 1,000 vehicles (VillageReach 2014). They also typically subcontract and coordinate with smaller transport firms for access to rural areas. Interestingly, ASTROCAMA is also involved in coordinating tenders in both the private and public sectors, such as those in the tobacco industry (VillageReach 2014).

5.3 South Africa

South Africa is currently the largest trading partner of each of the other four countries in this study (see Appendix A). A majority of imports into Malawi, Mozambique, Zambia, and Zimbabwe either originate from South Africa or transit through South Africa from the ports in Durban or Cape Town. One estimate is that at least 50 per cent of the goods crossing into the region are from South Africa.¹¹ Another source estimates that over 63 per cent of road freight traffic starts and ends in South Africa, while 78 per cent of the trucks in the SADC region are South African in origin.¹² For the financial year 2014/2015, the Cross-Border Road Transport Agency in South Africa approved 62,647 goods permits into 10 African countries (CBRTA 2015).

The spread and expansion of South African retail chains is a contributing factor to the dominance of South African trucking companies in the industry. Over the last five years, supermarket chains (Shoprite and Pick n Pay in particular) have increased their footprint in the region (das Nair and Chisoro 2015). While a number of products are procured locally, a large percentage of products are still sourced from South Africa and transported by South African transport companies.

There are seven main logistics companies in the South African industry: Imperial Logistics, Value Logistics, Barlow World, Unitrans, Super Group, DHL, and Cargo Carriers. In terms of the provision of integrated services, Imperial is the largest at this level. Unitrans has a fleet of about 1,400 vehicles in Sub-Saharan Africa and Super Group at least 2,000 vehicles (Kneale 2013). It appears that only J & J Africa, which operates from a base in Mozambique mainly along routes to Malawi, Zimbabwe, and Zambia, has a comparable fleet size in the region.¹³ These companies also have branches in most of Southern Africa and are typically vertically integrated across the value chain, with interests in storage, clearing and forwarding, logistics systems, and even procurement.

¹¹ Unpublished interview with Road Freight Association (RFA), conducted by the authors on 12 February 2016.

¹² Unpublished interview with Cross-Border Road Transport Association (CBRTA), conducted by the authors on 23 October 2015.

¹³ Unpublished interview with J & J Africa Zambia, conducted by the authors on 25 September 2015.

5.4 Zambia

The Zambian freight industry is largely influenced by the transport volumes and requirements of its major mines in copper and chrome, and most of the large transport companies are involved in the transportation of these minerals to ports in the region. Only a few brokers and transport companies have access to the major, lucrative contracts, for which reputation and close relationships with users built over time matter. The large transport companies subcontract to small companies at a lesser fee when more vehicles are needed.

As in Malawi, cross-border transport is impacted by foreign companies—in this case, South African companies (see Raballand et al. 2007). As a result, some companies do not venture into South Africa and choose to operate on routes into Namibia, Zimbabwe, Malawi, and the Democratic Republic of Congo, which are more lucrative and have less competition from South African truckers.

The Truckers Association of Zambia (TAZ) has 63 members.¹⁴ Approximately 80 per cent of its membership is made up of the largest companies in Zambia and the fleets of the member companies add up to about 2,100 trucks. The main transport companies are Bollore, Barlow World, Impala, VS Cargo, J & J Africa, and Celtic Freight. Several of these companies are also vertically integrated across the value chain or have preferred providers in terms of agents or storage suppliers.

5.5 Zimbabwe

The Transport Operators' Association of Zimbabwe (TOAZ) has about 90 members with about 5,000 trucks, although the association estimates that there are about 12,000 vehicles in the industry in total.¹⁵ The largest companies in the association are Cargo Carriers, GDC Whelson, J & J Africa, Truck Africa (a member of the Imperial Group from South Africa), Leopack, Cross Country, Biltrans, Colbro, Unifreight Africa, and Delta.

Most of the trucking companies depend on clearing and forwarding agents to acquire contracts. The biggest transport contracts in Zimbabwe are in the tobacco and chrome industry. These contracts are generally awarded to a small group of agents, who then subcontract truckers to carry out the transport of the product. The main agents are Manica, with branches in Zimbabwe, South Africa, Botswana, Zambia, and Malawi; Grid Shipping; and UTI. A number of agents are members of the Shipping and Forwarding Association of Zimbabwe. The agents in turn have preferred transporters, most of them being the large companies mentioned above. However, some smaller transport companies, such as Lonrho, have expanded into producing the products that they are contracted to transport on behalf of retailers as well as into providing broader supply chain services.

The Zimbabwean road freight industry is generally fragmented, with some large transport companies and many smaller players. Food chains such as KFC engage the services of the larger companies, as they are more likely to be able to match the required standards of hygiene and cleanliness for handling food products. Smaller companies, however, are often able to offer much lower prices given their lower cost base. More recently, it has become common in the Zimbabwean

¹⁴ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015.

¹⁵ Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015.

market for small transporters to travel to the Johannesburg market to purchase fruits in bulk at low prices and transport these to Harare for sale to retailers (leveraging the use of non-refrigerated trucks, which is technically an illegal practice).¹⁶

6 Evolution of transport prices between countries

Comparing the transport rates for different routes, and the changes in rates over time, is important for assessing the degree of competition in the market in general. If prices are on the whole high relative to costs, as has been argued of African transport markets (see, for example, Teravaninthorn and Raballand 2009; Foster and Briceño-Garmendia 2010), then there is likely to be some exertion of market power by transporters or brokers individually and/or jointly in the form of coordinated arrangements.

The cost base of transporters in Africa has been found in some studies to be comparatively low (relative to other regions in the world), although transport prices are amongst the highest globally (Teravaninthorn and Raballand 2009; Foster and Briceño-Garmendia 2010). Variable costs are in general considered to be a key driver of costs and, by extension, prices. However, there does appear to be a gap between these costs and prices.

6.1 Comparison of transport rates by route

Rates in the region are affected by the imbalance of trade flows between countries, more goods being transported from South Africa into the other countries in the region. As a result, prices for the import leg to Malawi, Zimbabwe, and Zambia from Johannesburg and Maputo are almost always higher than (and in some cases double) the price for the export leg.

Rates from South Africa are high, although many operators compete along the main routes (e.g. to Lusaka and via Harare). Importantly, certain large buyers of cross-border transport services from South Africa tend to procure only those services from a narrow subset of large transport companies that are able to provide additional ‘quality’ of service in terms of reliability, scale of operations and backup systems, insurance, and security and monitoring add-ons, for which large exporters are prepared to pay higher prices. These transporters are also able to leverage reputation and experience to ease the process of proceeding through problematic border posts such as Beitbridge, where officials are less inclined to raise issues and over-enforce on their vehicles than they are with small, unknown operators.

The prices charged are per trip or per tonne per kilometre and almost always include insurance, expected tolls, driver fees, and petty cash for emergencies and unexpected costs. However, trucking companies charge additional fees if there are delays at border crossings, as well as for demurrage (after a certain number of days of standing time due to a failure of the client to fulfil documentation requirements). The available data on prices obtained from interviews are compared across different routes (Table 3).

The price per tonne per kilometre is an important indication of the likely profitability of a truck on a route when compared to total costs per tonne per kilometre, including opportunity costs of downtime. Previous studies gave transport prices of US\$0.04 to US\$0.10 per tonne per kilometre

¹⁶ Unpublished interview with Fresh Produce Marketing Association of Zimbabwe (FPMAZ), conducted by the authors on 2 October 2015.

for long-distance road transport in Sub-Saharan Africa in 2010, compared with US\$0.03 to US\$0.04 in Pakistan and OECD countries (Rashid and Minot 2010). However, fuel costs have come down in several countries in the region since 2010 (see Figure 2), and variable costs for labour, along with the cost of second-hand vehicles, are lower in the region, suggesting that prices should be closer to the lower bound of the range \$0.04 to \$0.10 per tonne per kilometre.

We have calculated the average rates for the import and export leg, which approximate the rates that would prevail if loads were available on each leg of a trip. The average rate for Lusaka–Johannesburg, which is a competitive route, is \$0.06 per tonne per kilometre in 2015 (Table 3). The rate of \$0.06 for a competitive route is consistent with the rate charged between Cape Town and Johannesburg in South Africa (a distance of 1,398km) for a refrigerated truck of equivalent size.¹⁷ This rate between Johannesburg and Cape Town (in South Africa) is useful as a benchmark for what efficient, competitive rates might be in the absence of lengthy border crossings and the additional costs and risk associated with cross-border transit. Furthermore, the estimate (from the association in Zimbabwe and a transporter in Zambia) for a ‘viable’ rate charged by transporters on routes in Zambia and Zimbabwe is approximately \$0.07 per tonne per kilometre (\$2.1 per running kilometre),¹⁸ which is consistent with our own estimate, if not slightly overstated by the association.¹⁹

Table 3: Transport rates in 2015 by route pairs

Route	Distance (km)	Export rate (\$)	Export rate (\$/tkm)	Import rate (\$)	Import rate (\$/tkm)
Lusaka–Harare	495	1,500	0.10	1,800	0.12
Lusaka–Beira	1,042	2,500	0.08	3,400	0.11
Lusaka–Johannesburg	1,576	1,800	0.04	3,660	0.08
Johannesburg–Harare	1,121	2,500	0.08		
Harare–Maputo	1,286	1,350	0.03	1,950	0.05
Beira–Harare	548	1,500	0.09		
Cape Town–Harare	2,523	5,000	0.07		
Lilongwe–Beira	944	2,050	0.07	3,550	0.14
Lilongwe–Johannesburg	1,863	2,100	0.04	3,950	0.08
Blantyre–Beira	664	2,100	0.11		
Blantyre–Harare	593	1,800	0.10		
Lilongwe–Durban	2,400	3,600	0.05		
Johannesburg–Maputo	549	1,950	0.12		

Note: Rates relate to a 28- to 30-tonne flatbed tri-axle truck or equivalent, charged in total for the full one-way trip in each case and rounded to the nearest \$50. Where data were provided as a range, or if there were different estimates for a particular route, an average rate has been reflected. Rates for route pairs involving Cape Town, Blantyre (the main commercial city in Malawi), and Beira port in Mozambique are included as useful comparators.

Source: Authors’ own calculation based on information from various interviews.

¹⁷ Unpublished interview with HFR Logistics, conducted by the authors on 2 November 2015.

¹⁸ Taking an average of the viable rates indicated by the association and transporters of between \$2.00 and \$2.20 per running kilometre), which is \$2.10. The upper bound of \$2.20 per kilometre is apparently rarely achieved by transporters because customers are generally not prepared to pay rates at that level in Zambia (unpublished interview with Transtech Logistics Zambia, conducted by the authors on 23 September 2015). This suggests that it potentially overstates the benchmark rates in the market also, or is above the likely competitive rate.

¹⁹ Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015, and unpublished interview with Transtech Logistics Zambia, conducted by the authors on 23 September 2015. The members of the association are generally larger, formalized transport companies with higher overheads, which suggests that they would have higher expected rates in the market to cover their higher costs.

An estimate of \$0.06 per tonne per kilometre could therefore be applied as a benchmark for efficient transport in the region, indicating the achievable rates that should be targeted in the region through interventions to reduce delays and increase border efficiencies. The key question in this regard is why rates for routes in the region are in some cases higher, and whether specific route dynamics affect the poor outcomes observed in some cases?

Export and import rates for Lilongwe–Johannesburg and Lusaka–Johannesburg are similar for similar distances. Given high levels of concentration in transport in Malawi, it may be expected that rates would be higher than those for the Lusaka–Johannesburg route, which is considered the most competitive route. However, fuel costs declined in Malawi in 2014 and 2015. In addition, transporters from South Africa and Mozambique compete by offering lower rates for return legs and control inbound loads to Malawi, which had the effect of reducing rates in 2015.²⁰

The number of border crossings, and consequently the potential downtime, is typically factored into the rate charged along with distance travelled. The route from Johannesburg to Lilongwe, for example, includes three border crossings (via Zimbabwe and Mozambique) and covers a significant distance. The total one-way import rate is thus relatively high, just as with the route between Lusaka and Beira port.

In order to assess market rates against our benchmark of efficient rates, we compare an average of the import and export rates (for routes where both are available) in Table 3 with the upper bound of the benchmark efficient rate discussed above of \$0.06 per tonne per kilometre (Table 4). The margin between the average rate in the market and the benchmark efficient rate is indicated in the last column of the table.

Table 4: Mark-ups over efficient transport rate benchmark, 2015

Route	Distance (km)	Average import & export rate (\$/t/km)	Rate using efficient benchmark (\$)	Mark-up over efficient rate
Lusaka–Harare	495	0.11	891	85%
Lusaka–Beira	1,042	0.095	1,876	57%
Lusaka–Johannesburg	1,576	0.06	2,837	-4%
Harare–Maputo	1,286	0.04	2,315	-29%
Lilongwe–Beira	944	0.105	1,699	65%
Lilongwe–Johannesburg	1,863	0.06	3,353	-10%

Source: Authors' own calculation based on information from various interviews.

From the above some interesting observations can be made regarding the dynamics of competition on each route. The rate between Lusaka and Johannesburg is equivalent to the benchmark rate (with a minor difference of -4 per cent due to rounding), which is indicative of a competitive environment along this route. This is underpinned by much the higher volumes in route pairs with Johannesburg, the high supply of transporters, and more regular loads in both directions. Zimbabwean and South African truckers are particularly active on this route (and to the copperbelt in the north of Zambia in relation to copper loads), such that rates are reflective of a competitive market.²¹ Some truckers choose not to operate on this route due to the high levels of rivalry.

²⁰ Unpublished interview with Siku Transport, conducted by the authors on 21 August 2015.

²¹ See, for example, unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015.

Lilongwe is a similar distance from Johannesburg and has a relatively narrow mark-up over the competitive benchmark, suggesting strong competition from South African transporters as well.

The 2015 transport rate between Lusaka and Harare is higher by some margin than the benchmark rate. There are several possible reasons for this. The majority of volumes and transport traffic relating to Lusaka are on the route pairings with Johannesburg/Durban, Beira, and Dar es Salaam, particularly for the export of copper and related products. Copper exports account for the largest proportion of loads, and the copper mines in the north of the country command sufficiently large volumes to have a high degree of buyer power vis-à-vis transporters. Transporters are therefore concentrated on this route, sometimes through contracts with agents and brokers servicing the mines, while the routes to Harare and cities in Malawi, for example, are less significant and not prioritized. The implication is that there may be a shortage in supply of transporters on the Lusaka–Harare route relative to demand (which also varies with the seasons), and consequently a higher rate. Given the short distance, the rates may also reflect a higher cost base in those cities (given apparently high taxes, tolls, and fuel prices in the two countries) as well as a lower likelihood of return loads between them.

Lusaka and Lilongwe are situated close to Beira in comparison with Durban, but rates between both centres and Beira are significantly above the efficient benchmark. There are several possible reasons for this. First, the volume of loads on these routes has increased, as discussed above, but loads are dominated by Mozambican transporters with strong connections at the port.²² For example, J & J Africa operates more than 1,000 trucks and specializes in connecting the ports in Mozambique (where the company is based) with Harare, Lilongwe/Blantyre, and Lusaka (it does not serve South Africa at all).²³ Second, the rates charged are likely to reflect distortions in competition through patronage and control of access to loads at the ports by Mozambican transporters. Third, there is a high incidence of ‘informal’ truck stops and bribery, road taxes and tolls not charged to local truckers, delays linked with the contramarca transit bond system, a significant language barrier, theft, and fines issued at stops for minor offences, each of which acts against transporters from Malawi and Zambia.²⁴ These distortions in the ability of foreign transporters to compete contribute significantly to the relatively high rates, along with the high costs of trucking in Malawi²⁵, and are an important area for intervention.

The route between Harare and the Maputo port city appears to have different dynamics and the rates in the market are lower than the benchmark price. It is not clear why rates are comparatively low on this route, although it may be a result of aggressive competition with transporters from Mozambique, particularly in the case of the low rates for the return leg to Maputo.²⁶ Given the shorter distance from Harare to Beira, loads may be directed to Beira rather than Maputo, and it is thus likely that demand on this route is limited in each direction. This is an important area for further research, given that interviews were not conducted in Mozambique as part of this study.

The issues that emerge as common across countries relate to the availability of return loads and rivalry from foreign transporters. In the case of Mozambique, there are important constraints to

²² Unpublished interview with Transtech Logistics Zambia, conducted by the authors on 23 September 2015, and unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015.

²³ Unpublished interview with J & J Africa Zambia, conducted by the authors on 25 September 2015.

²⁴ Unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015, and unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

²⁵ Unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

²⁶ Unpublished interview with Siku Transport, conducted by the authors on 21 August 2015.

competition that need to be addressed, many of which have to do with the application of formal and informal regulation, particularly with respect to foreign transporters. On routes where there is competition between foreign and domestic transporters, and where there is availability of return loads (e.g. Lusaka–Johannesburg), rates are consistent with efficient transport benchmarks. Competitive outcomes can also be affected by border procedures and delays, as discussed further below.

6.2 Comparison of transport rates over time

Previous studies have assessed transport conditions and rates in the region and provide a useful comparator for outcomes in 2015. Considering changes over time is helpful in terms of providing a context for the rates observed from interviews in 2015, and to assess whether markets have become more or less contested over time.

We note that we are not able to compare rates obtained from the same transporters in the form of a panel study, although the comparisons from different studies are nonetheless indicative of certain changes in the market. The trucking companies interviewed as part of this study were asked for rates pertaining to the market as a whole, as well as average rates and ranges for various routes (particularly as some considered the information to be commercially sensitive).

Ncube et al. (2015) assessed transport rates on key routes in Southern Africa, as discussed in the review of literature, and provided rates for 2014. We also consider data provided by a firm that operates transport routes throughout the region (for this purpose, named Trans Co.), allowing for a comparison of its 2014 and 2015 rates from Johannesburg to Lusaka. We show an average of the 2014 import rates provided in Ncube et al. (2015) and those of Trans Co. in the table below for Lusaka–Johannesburg, for which both sources have stated rates. This results in a rate of \$165/tonne in 2014.

On the import leg of the Lusaka—Johannesburg route, the price charged appears to have decreased between 2014 and 2015 by a margin of approximately 24 per cent (Table 4). This observation is consistent with the findings in Ncube et al. (2015) that cross-border road transportation on routes to and from Zambia (Lusaka) has become more competitive and cheaper in recent years due in part to greater rivalry from foreign transporters. On the other hand, the trip from Beira to Lusaka has remained at more or less the same rate in 2014 and 2015.

Table 5: Comparison of Lusaka import rates over time

	\$ rate (2015 rates)	\$/tonne (2015 rates)	Ncube et al. (2015) & Trans Co. (2014 rates)
Lusaka–Beira	3,400	115	120
Lusaka–Johannesburg	3,660	126	165

Sources: Ncube et al. (2015), Trans Co., and various interviews.

It is worth noting that both Ncube et al. (2015) and the current study relied on estimates of market rates provided through interviews by a number of firms, which supports their reliability. Furthermore, the Trans Co. estimates for 2014 are consistent with those in Ncube et al. (2015)

(\$159/tonne and \$170/tonne, respectively), as well as with other rates for 2015 obtained from interviews as part of this study.²⁷

Competition on the Lusaka–Johannesburg route has seen rates decline by around a third to \$126 per tonne in one direction (a reduction of approximately \$0.04 per tonne per kilometre or 24 per cent on this route), and to just less than \$70 per tonne on the export leg from Lusaka in some cases. This, combined with the effect of the elimination of around two days of delays (at \$13/tonne), can push rates down to around \$50–60 per tonne (\$0.04 per tonne per kilometre), which is consistent with the lower bound of the efficient rate estimated above and with rates in OECD countries and Pakistan. Measured against the price of a tonne of soya bean, for example, which was around \$400 in 2015, the reduction in transport rates from \$120 per tonne to \$60 is equivalent to a 15 per cent saving on the price of the commodity, which significantly enhances the competitiveness of soya bean landed in South Africa.

Lall et al. (2009) estimated rates from locations in Malawi to international destinations in the region to be approximately Kw10–12 per tonne per km (around \$0.07 to \$0.09 using annual average exchange rates for 2009). Taking the upper bound of this range, it is possible to compare rates from the previous studies against the rates observed in the Malawian market in 2015 (Table 6).

Table 6: Malawi cross-border rates over time

	Export rate (\$/tonne) (Lall et al. (2009))	Export rate (\$/tonne), 2015
Lilongwe–Beira	85	66
Lilongwe–Johannesburg	168	75
Lilongwe–Durban	216	120

Source: Authors' calculations based on Lall et al. (2009).

Rates per ton from Lilongwe have come down significantly in this period. The rate from Lilongwe to Johannesburg fell by more than half to \$75/tonne by 2015, and a similar outcome is apparent in the Lilongwe–Durban route pair. Four important factors are considered to have resulted in this change on Malawian routes. The first is the high likelihood of return loads from South Africa to Lilongwe, given growth in South African exports, and the second is the availability of tobacco exports to the two port cities (and to Johannesburg for processing where required). The third is the presence of foreign transporters, which has meant that rates on these routes have been competed down (large Mozambican transport companies in particular have increased their operations along Malawian routes). Fourth, fuel rates in Malawi decreased significantly in 2015, which enhanced the competitiveness of Malawian transporters that operate on these routes, as discussed in following section (Figure 2).

6.3 Transport costs and margins

There are important differences in operators' costs across the countries, which affect pricing outcomes. Fuel forms a significant part of a transporter's costs—40–50 per cent of operating costs for a truck—and changes in the fuel price therefore influence the price charged.²⁸ Fuel prices are also influenced by the cost of transporting fuel, which is in general a niche market serviced largely by a narrow subset of major firms, such as Unitrans from South Africa. However, the price of fuel

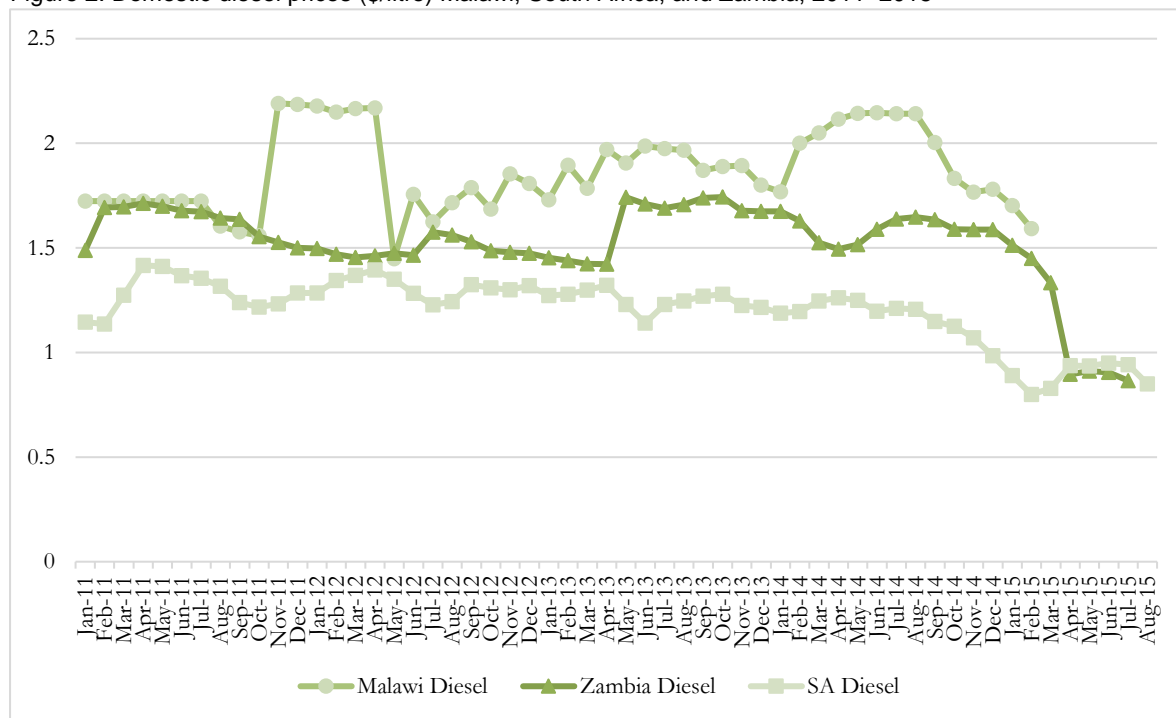
²⁷ Export rates from Zambia to South Africa appear to have also come down, from around \$110/tonne in 2014 (Ncube et al. 2015) to just below \$70/tonne on average in 2015.

²⁸ Unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

is also largely influenced by regulation in individual importing countries, such as Malawi (see World Bank 2015) and Zambia, where levies and taxes on fuel are part of the application of domestic fuel pricing models. Over and above these issues, there is the effect of global fuel prices and related fluctuations in exchange rates. In the sample of countries considered, fuel is imported both as a finished product and as crude to be refined. Mozambique and South Africa have the most significant domestic production and refining capacity, although there is some refining capacity in the north of Zambia as well.

In Figure 2, diesel prices in Malawi are compared with those in Zambia and South Africa to understand the extent to which a fuel price differential between the countries can explain differences in transport rates. Between 2012 and 2014, Malawi prices lay well above those for Zambia and South Africa²⁹, and the gap with South Africa widened in this period. (This could be due to a range of factors, including changes in the exchange rate, the varying regulation of fuel markets in each country, and domestic economic conditions.) On average, through this period the Malawi fuel price was around 150 per cent above South Africa's, and 16 per cent above Zambia's, which makes a significant difference in the relative cost base of transporters in each country. Rates for Malawi declined from 2014, which improved the competitiveness of Malawian transporters (noting exchange rate effects as well).

Figure 2: Domestic diesel prices (\$/litre) Malawi, South Africa, and Zambia, 2011–2015³⁰



Note: Data for Zimbabwe and Mozambique unavailable.

Sources: Malawi Energy Regulatory Authority (MERA) website, Zambia Energy Regulation Board website, Department of Energy South Africa website, authors' own calculations.

Other factors contribute to transport costs, including various variable and fixed costs such as the cost of tyres, and here again there are important differences between countries. For example, a

²⁹ The differences may also capture exchange rate effects.

³⁰ Fuel prices for Malawi were not available from MERA for 2009 and 2010, so a longer time series could not be included in the figure.

truck tyre was approximately R5,200 (\$433 in 2015) in Malawi compared with around R3,000 (\$250) in South Africa.³¹

Changes in variable costs directly affect margins. Margins for transport are around 10 per cent, which means that firms rely on achieving high volumes.³² Smaller transport companies could have margins of around 30 per cent or charge a lower transport rate.³³ It is difficult to fix a benchmark for costs, given that these vary by operator and country or route, and according to age of fleet, type of fleet, and sources of spares and supplies. For example, routes to the DRC have a high cost base of around \$2.00 per kilometre, while those on routes between Zambia and Malawi/Zimbabwe have a base of approximately \$1.50 per kilometre (or less if the operator wishes to remain viable over time).³⁴ For the routes considered in this study, \$1.50 per kilometre (\$0.05 per tonne per kilometre), when compared with the efficient rates benchmark, implies margins of approximately 17 per cent. This is before potential reductions in the costs of transporters, e.g. through reducing delays, are considered.

Each route is affected by border delays, as has been found in previous studies.³⁵ Byiers and Vanheukelom (2014) found that delays at border crossings can cost up to \$300 a day for an eight-axle truck. In 2015, delays at the border could cost between R7,000 (\$550) and R8,000 (\$630) a day (or between \$18 and \$21 per tonne). This estimate is consistent with others we obtained, of around \$400 per day (\$13 per tonne) for a truck that is stationary.³⁶ For example, on a trip between Harare and Lusaka, which carries a one-way export rate of \$1,500, a day's delay is equivalent to approximately one fourth of the rate charged.³⁷

This provides a useful benchmark for understanding the costs incurred by a truck operator, although of course it does not in practice include fuel costs when the vehicle is stationary. Included in this rate are the driver's pay and the opportunity costs of not running the vehicle, such as the reduced number of trips and thus revenue that a truck can make in a month. Considered in terms of the load carried, \$400 a day equates to approximately \$13 per tonne for a route generally charged at \$50 per tonne (26 per cent of the one-way export rate of \$1,500). A delay of one day is equivalent to \$0.01 per tonne per kilometre on this route. By removing the typical delay of two days, the rate for Lusaka–Harare could be reduced by \$0.02 per tonne per kilometre to \$0.09 (from \$0.11), which is a reduction of 18 per cent.

Importantly, truckers factor likely delays into the rate charged or alternatively bill clients for this after the fact, which means that rates in general could be reduced significantly through reducing the extent of delays, particularly at border crossings. In 2014, the expected passage time through the Beitbridge border post between South Africa and Zimbabwe was two days (Curtis 2014), although this can now take twice as long in some cases.

³¹ Unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

³² Unpublished interview with Siku Transport, conducted by the authors on 21 August 2015, and unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

³³ Unpublished interview with Siku Transport, conducted by the authors on 21 August 2015.

³⁴ Unpublished interview with Transtech Logistics Zambia, conducted by the authors on 23 September 2015.

³⁵ It is important to note that delays can be due to negligence or inefficiency on the part of the customer or the forwarding agent representing them.

³⁶ Unpublished interview with J & J Africa Zambia, conducted by the authors on 25 September 2015.

³⁷ Unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015.

From the perspective of importers of goods, there are also costs relating to the services provided by agents and brokers. These firms generally apply a 10 per cent margin or more above the transport rate charged to a customer.³⁸ Broker fees can be in the region of \$150 to \$200 per load (single leg),³⁹ which is broadly consistent with the view that they charge about 10 per cent of the transport rate for their own services.⁴⁰ Alternatively, where the broker arranges the contract directly with the customer, the customer may insist on a particular total transport price and the broker may reduce the rate they pay the transporter. This is a controversial area for most transporters, who feel that brokers abuse their position to reduce returns to transporters. Some also argue that brokers charge an excessively high fee for their services given that they assume no risk in terms of transporting the goods, as insurance costs lie with the transporter; indeed, in deciding which operator to use, customers will consider whether a transporter has goods in transit (GIT) insurance.

Additional cost parameters

SADC-recommended toll fees are \$10 per 100 km, although a number of SADC countries exceed this level.⁴¹ In Zambia, for example, tolls are around \$15 per 100 km.⁴² There are also road taxes, which generally vary by country. In Zimbabwe, for example, the revenue authority charges a tax on every litre of fuel, although it appears that the use of long-distance fuel tanks makes it possible to refuel only once upon leaving the city of origin of the goods and again at the destination city, thus avoiding the need to refuel in Zimbabwe. In cases where this is necessary, we expect that the tax is already captured in the fuel rate charged to customers.

Also specific to Zimbabwe are a road permit fee of \$150 per annum, parking fees of approximately \$5 per 12 hours/per night (Curtis 2014), and a Removal in Transit (RIT) fee, charged at \$120 per leg.⁴³ Cross-border road permits are governed by bilateral arrangements between countries, as is the use of a COMESA permit (\$150 in total; based on Curtis (2014)). For example, between South Africa and Zimbabwe, the annual permit fee is \$75, as it is between Zimbabwe and Zambia.⁴⁴ This grants the transporter the right to operate on a particular route and is generally honoured by the authorities in each country once obtained. Together, these costs are captured in the cost benchmark referred to above.

³⁸ Unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015.

³⁹ Unpublished interview with Verbena Logistics, conducted by the authors on 29 September 2015.

⁴⁰ Unpublished interview with Freight World, conducted by the authors on 30 September 2015.

⁴¹ Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015.

⁴² Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015.

⁴³ Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015. The RIT fee is charged by clearing agents for facilitating the clearing process at the border, including documentation, and the revenue authority charges for goods passing through another country en route to a destination country (in bond). The Shipping and Forwarding Agents Association of Zimbabwe (SFAAZ)-recommended rate for RIT is \$200, as published on its [website](#). We discuss the issue of recommended rates by agents' associations below.

⁴⁴ Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015.

In Malawi, transporters' margins have decreased since 2011, when the cost base for operating trucks increased substantially due primarily to a fall in the exchange rate.⁴⁵ Similarly, changes in trade volumes due to exchange rate fluctuations have effects on the demand for and costs of transport. For example, devaluation reduces the attractiveness of imports, decreases the loads available for the import leg, and in turn has the effect of reducing the transport rate, given an excess supply of trucks relative to loads, other things being equal. Currency devaluation also has the effect of increasing the input costs of truckers, including those of importing trucks and equipment, fuel, spares, and parts.

Conclusion on transport rates and costs

Throughout the interviews transporters were asked to consider various costs and drivers of transport prices in relative terms, considering which drivers of outcomes are more important than others. The prices charged by transporters are primarily driven by the following factors:

- The cost of delays, which includes the reduction in the number of trips per month that can be completed.^{46,47}
- The supply of and demand for trucks and the influence of large buyers such as mines. Demand is driven by trade volumes between countries, which, as discussed, tend to be skewed, resulting in higher rates to reflect the low availability of return loads. The rate from countries with ports (South Africa and Mozambique) to cities in the region, for example, is almost always around 50 per cent higher.⁴⁸
- Fuel costs are an important (albeit exogenous) driver of transport costs (up to 50 per cent of operating costs), although costs overall are not the only factor affecting rates. Rates are primarily linked to delays and return load availability (trade flows), as noted above.

Other factors, such as tolls and permit fees, contribute less as a proportion of total costs and rates.

7 Additional factors affecting outcomes in transport

There are additional factors that affect outcomes in the transport sector, and that potentially distort the efficient functioning of markets along key routes. Some of these are discussed below, including competition from transport companies in South Africa, competition from small transporter companies, the role of agents in the industry, differences in regulation across countries, border procedures, and security risks.

⁴⁵ Unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

⁴⁶ Unpublished interview with J & J Africa Zambia, conducted by the authors on 25 September 2015, and unpublished interview with Road Freight Association (RFA), conducted by the authors on 12 February 2016.

⁴⁷ Transporters generally factor in certain 'fixed' costs, such as instalment payments on vehicles and salaries, in relation to the number of trips they are able to complete in a month.

⁴⁸ Unpublished interview with J & J Africa Zambia, conducted by the authors on 25 September 2015.

7.1 Relative costs of transportation

As discussed above, differences in the costs of transportation between countries can significantly affect the rates charged, although certain ‘small’ items such as permit fees are less of a concern to transporters than large drivers of costs such as fuel prices. One of the main concerns raised is that there are clear differences between countries, which are often regarded as ‘unfairness’ or an ‘unfair advantage’ given to transporters in one country versus those in another. For example, Mozambican truckers do not have to pay road tolls in their own country, while foreign truckers do. In addition, Malawi-registered truckers have to pay about \$300 for an import permit to Mozambique, while Mozambican truckers transporting goods into Malawi pay only \$100.⁴⁹

Some differences generate positive externalities in the industry. For example, the requirement in South Africa that South African truckers purchase new trucks or those of a restricted age results in lower maintenance costs, emissions, and breakdowns for those transporters.⁵⁰ However, the ability to import used trucks in other countries reduces the costs of market entry significantly, particularly in environments where interest rates for obtaining credit are high. For example, interest rates on loans to purchase trucks in Zimbabwe are generally between 15 per cent and 20 per cent,⁵¹ compared with less than 10 per cent in South Africa.⁵² In Malawi, the interest rate is approximately 32 per cent for purchasing trucks, while in Zambia, it can be as high as 45 per cent.⁵³ These differences result in contrasting cost structures, which can significantly affect the relative competitiveness of trucking companies.

Furthermore, the ability to access low-priced imported trucks from the EU and the US, where there are limitations on emissions and the age of trucks, has allowed the number of small- to medium-sized operators to grow significantly in each country (other than South Africa) from around 2010. These smaller firms have lower overheads and entry costs, which allows them to charge rates that are 10–30 per cent lower than the normal fee charged to clients by the larger transporters.⁵⁴ It is worth noting, however, that the impact on competitive outcomes of cost differences, particularly in acquiring vehicles, may be ambiguous. Small transporters face a greater risk of failing to survive in the market, as they invest far less in the maintenance of their vehicles; in most cases, they last only about five years. This is partly due to vehicle breakdowns and the inability to access larger clients with large fleet requirements, high quality standards, and insistence on systems for tracking of goods whilst on the road.

⁴⁹ Unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

⁵⁰ Unpublished interview with Unifreight Africa, conducted by the authors on 29 September 2015.

⁵¹ Unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015, and unpublished interview with Unifreight Africa, conducted by the authors on 29 September 2015.

⁵² Unpublished interview with TECS Haulage, conducted by the authors on 30 September.

⁵³ Unpublished interview with Transtech Logistics Zambia, conducted by the authors on 23 September 2015, and unpublished interview with Transtech Logistics Malawi, conducted by the authors on 16 October 2015.

⁵⁴ Unpublished interview with Lonrho Logistics Zimbabwe, conducted by the authors on 30 September 2015, and unpublished interview with Bollore Africa, conducted by the authors on 13 October 2015.

7.2 Role of agents, brokers, and forwarders

Brokers and forwarders have access to the largest contracts in key sectors such as for copper in Zambia, tobacco in Malawi, and cotton in Zimbabwe.⁵⁵ Forwarders that are able to offer a bundle of supply chain services ‘under one roof’ appear to be indispensable to large exporters in particular. For imports from overseas, importers may defer to the agents and forwarders of their suppliers if goods are imported on a delivered or CIF basis, although local forwarding partners may be employed to ensure the safe passage of the goods from ports in the region. There are concerns amongst agents about the proposed introduction of a regional transit guarantee or bond, which may mean that their role is negated in the region. The bond would allow a broker from the source country to arrange for the clearing and transport of a product right from the port of origin to the final destination, thus bypassing local brokers.⁵⁶

As noted above, the ability to control loads and to affect the payment passed through to truckers is of concern in that there is opportunity for rent-seeking and patronage in the allocation of truck loads. Furthermore, there is potentially a disruption in the competitive process, where truckers bid on the basis of their capabilities and costs for contracts. Subcontracted truckers are given smaller consignments and reduced margins. Moreover, payments to subcontracted truckers are sometimes delayed beyond the agreed period by intermediaries.⁵⁷ This seems to be especially prevalent in the transportation of minerals.⁵⁸ Only a select group of logistics firms and agents receive contracts to transport copper in Zambia, for instance. These companies then subcontract the transportation of these products to their own subsidiaries or to trucking firms within a small circle of acquaintances, with a minority of the consignments going to outside companies at a reduced margin. Sometimes, the companies that handle these small consignments further subcontract them to even smaller firms at a lesser fee. The last consignee may eventually get a price that barely covers the costs of one leg, let alone a return journey.⁵⁹

The effect of the involvement of agents in the practice of subcontracting is ambiguous. While large mines and bulk exporters are able to demand rates that suit them (given the excess supply of transporters and the large volumes involved in different contracts), in some cases they actually pay a premium for services because they demand attributes such as timeliness and reliability. They may also do so simply in order to eliminate the ‘hassle factor’ of handling logistics, which is not part of their core business. On the other hand, the practice of subcontracting to smaller companies at lower rates demonstrates that the required services and desired quality of service can in fact be provided at a lower rate than what is charged by the agent or broker to the user. The same applies

⁵⁵ Unpublished interview with Transport Operators Association of Zimbabwe (TOAZ), conducted by the authors on 29 September 2015, unpublished interview with Transporters Association of Malawi (TAM), conducted by the authors on 18 August 2015, and unpublished interview with Freight World, conducted by the authors on 30 September 2015.

⁵⁶ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015.

⁵⁷ Unpublished interview with Transtech Logistics Zambia, conducted by the authors on 23 September 2015.

⁵⁸ Unpublished interview with Kleiner Apex Ltd, conducted by the authors on 25 September 2015, and unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015.

⁵⁹ Unpublished interview with the Road Freight Association (RFA), conducted by the authors on 12 February 2016. The RFA in South Africa is helping the government to develop a law that restricts subcontracting to no more than twice down the line to directly address this concern.

to brokers, in that smaller ‘briefcase’ agents charge as little as 10 per cent of the rates charged by the multinational groups.⁶⁰

Some of the large users interviewed believe that they are able to assess whether they are being charged excessively because information on the cost parameters for transporting goods is widely available. There is thus a level of transparency in the transport value chain, which balances the likely effect of any asymmetry in information between users, brokers, and transporters. However, if this were completely the case, transporters would not complain of being underpaid or undermined by agents—although the large supply of trucks means that truckers can easily be replaced by others. They are also aware that raising concerns with agents may reduce their access to loads, or mean removal from preferred provider lists.

Seasonality in demand is an important contributor to cost variability, as the bargaining power of transporters is increased in periods of high transport demand. In the planting season, when fertilizer is imported, there is a benefit to exporters because they can pay lower rates, given the guarantee of a return load for the trucker. However, if there is competing demand for transport to export goods even within the region, prices paid to transporters can increase (one example in recent years was the large volumes of exports of maize from Zambia to Zimbabwe). If large agents are able to attract truckers to service the mines in the *Zambian copperbelt*, for instance, and if there is a constraint in the supply of trucks due to seasonality, supply is constrained overall, with the effect of increasing prices for transport. In this way the intermediaries play a critical role in negotiating prices on behalf of users.

When considered together, these different factors affect within-country and cross-border transport sector outcomes, particularly along the North–South corridor, where operators from different countries compete with one another.

The common attribute of country markets is the presence of the same major players in terms of lead forwarding groups, as noted. The largest operators view their operations on a regional level and coordinate effectively between their different branches. Charges applied appear to be agreed amongst agents at the level of forwarding and clearing agents’ associations. The Shipping and Forwarding Agents’ Association of Zimbabwe (SFAAZ), for example, publishes recommended rates for the industry on its website. Although the association does not have any legal power to enforce these rates, they are apparently followed by participants in the industry, who regard them as benchmarks.⁶¹ The same is true of the CAFAAM in Malawi.

The implications of this practice are complex. Benchmark rates, if ‘correctly’ set to reflect costs, can help to restrain prices from increasing excessively. However, as with typical antitrust cartels, coordination between firms generally results in prices and margins well above costs, as members seek to maximize profits jointly. In the absence of regulatory constraints on prices, the rates charged by the members may mirror those of a monopolist provider of services. In the present case, rates may be moderated by the presence of large numbers of small- to medium-sized brokers that may not be members of associations and that are able to undercut the large groups. However, it is clear in each country market that the largest agents together control the majority of loads and contracts and enjoy favourable relationships with large clients, which may not be willing to procure

⁶⁰ Unpublished interview with Bollore Africa, conducted by the authors on 13 October 2015.

⁶¹ Unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015, and unpublished interview with Freight World, conducted by the authors on 30 September 2015.

services from a small firm with no reputation. Smaller agents may thus not be able to affect the rates charged in the market except at the margin and for small exporters and importers.

Importantly, the 10–15 per cent commission charged by large agents could be lower in an openly competitive environment, to the benefit of all users. There may be scope for policy intervention by the SADC to assess the extent of compliance with recommended rates and to institute measures to address the associated competition issues.

7.3 Customs procedures and clearance

Border clearance procedures and constraints were consistently cited amongst the major challenges faced by transporters. Border proceedings are on average two days but can extend to eight days in the worst cases. There has been some improvement in terms of reducing the time spent at borders over the past two decades, including the creation of a one-stop border post at Chirundu. This is important, because delays add to the cost base of the transporter and may be transferred to the transport user, as discussed.

Pre-clearance of customs can be done at some borders and for certain categories of goods. This generally reduces the amount of time that is spent at the border. Pre-clearance involves ensuring that all the necessary documents are acquired and sent through to the customs authority electronically before the truck reaches the border post. The driver will still need to take hard copies of the documents to the border, although these will already have been processed by the customs authority.⁶² Pre-clearance is especially relevant for the transportation of perishable goods. If pre-clearance is obtained, the truck generally does not have to be inspected at the border post and is checked only at the destination by the customs authorities.

The documents needed at the border may differ depending on the type of good transported and the countries through which the vehicle will transit. The differences in the requirements of different countries are well known by transporters and agents and do not in themselves present a difficulty relative to the actual process involved at the borders in completing and approving documentation. However, the electronic, internet-based clearing systems used in the different countries are not integrated, resulting in unnecessary duplication of processes at either side of the border post between countries.⁶³ The systems are also susceptible to power outages, loss of internet connection, and break-downs of the electronic system.⁶⁴

In South Africa, border customs procedures are currently a combination of electronic and manual procedures, but the objective is to move towards a completely electronic process in partnership with the revenue authority. Documents must first be submitted electronically and drivers can only begin the trip to the border once they have received a message from the South African Revenue Authority indicating that the documents are in order. In a fully electronic system, the necessary checks would be conducted using non-intrusive methods, including scans,⁶⁵ although there are

⁶² Unpublished interview with Verbena Logistics, conducted by the authors on 29 September 2015.

⁶³ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015.

⁶⁴ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015, unpublished interview with Lonrho Logistics Zimbabwe, conducted by the authors on 30 September 2015, and unpublished interview with Kleiner Apex Ltd, conducted by the authors on 25 September 2015.

⁶⁵ Unpublished interview with Road Freight Association (RFA), conducted by the authors on 12 February 2016.

issues with this, given that agents and forwarders derive a significant proportion of their revenues from facilitating these procedures on behalf of clients.⁶⁶

The Automated System for Customs Data (ASYCUDA) is the internet-based system through which importers and clearing agents may submit clearance documents used in Zimbabwe and Zambia, although the two countries use different versions. The electronic ASYCUDA system (and others) are generally considered to have improved the efficiency of border services, although, as mentioned, the systems are susceptible to outages and loss of connection.⁶⁷ Power outages can last several hours, which can result in significant delays as the queues of vehicles get longer, compounded by the fact that borders generally do not operate for a full 24 hours, requiring truckers to park their vehicles in designated parking areas (at a fee), which are not necessarily safe. The lack of harmony in procedures, particularly in the coding of particular products and the taxes charged at the border between different countries, also increases delays at the border, which would be addressed by a centralized system.⁶⁸ It is important to note that, in the SACU area, systems are apparently harmonized, and it is possible to integrate them with systems in other countries, making this an important area for intervention at the bilateral and regional economic community level.⁶⁹

Taken in context, these delays can constitute a significant proportion of the travel time. On the trip from Johannesburg to Lilongwe via Tete, there are three border crossings and therefore six points at which goods clearance procedures must be conducted. However, it appears that the clearing procedures at the different points have improved significantly, and lengthy delays at the border are not as common an occurrence as they were even five years ago.⁷⁰

7.4 Differences and changes in regulation

Transport regulations vary from country to country and at times change from year to year. For example, differences in the axle load requirement for trucks can limit movement between countries. For instance, Zambian transporters cannot go into Tanzania with super-linked vehicles, as these are treated as abnormal cargo in Tanzania and are charged an additional fee based on weight per kilometre, consistent with findings in McKinnon (2012). Our understanding is that these requirements are more harmonized in other Southern African countries. Other examples of such variations arising from our interviews are:

- In Zimbabwe, the danger triangles a truck carries must be metallic, while in South Africa the material must be plastic, which can result in transporters incurring financial penalties.

⁶⁶ Unpublished interview with Road Freight Association (RFA), conducted by the authors on 12 February 2016.

⁶⁷ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015, unpublished interview with Lonrho Logistics Zimbabwe, conducted by the authors on 30 September 2015, and unpublished interview with Kleiner Apex Ltd, conducted by the authors on 25 September 2015

⁶⁸ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015.

⁶⁹ Unpublished interview with the Road Freight Association (RFA), conducted by the authors on 12 February 2016.

⁷⁰ Unpublished interview with Freight World, conducted by the authors on 30 September 2015, and unpublished interview with Lonrho Logistics Zimbabwe, conducted by the authors on 30 September 2015.

- In Zambia, regulations for vehicle weight and loading were adjusted in 2014 to allow for a 5 per cent excess per truck, but this regulation was revoked within a year of its implementation.⁷¹

Even if not significant on their own, delays and penalties due to incompatible or changed regulations can accumulate at the various inspection points. They can also be costly on their own, such as a change to a rule restricting the length of vehicles when transporters have invested in a particular type of vehicle, which is then deemed incompatible with regulations.⁷² This speaks to the unintended consequences of regulation, which may in fact be intended to improve safety and the harmonization of requirements across countries.

Finally, it may be expected that a prohibition of cabotage and the third-country rule will affect the ability of transporters to conduct operations in the region. Where a company has experienced difficulties with regulations, it appears to be common practice for it to register a subsidiary in the countries its trucks pass through to circumvent these constraints and increase its market access, although it has not been possible to quantify fully the extent of the practice and its impact. This, of course, has implications such as duplication of operations and additional investment. The extent of the challenge with cabotage may vary by country as well. For example, Malawian transporters were especially concerned about cabotage by Mozambican truckers within Malawi. However, the overwhelming view amongst transporters is that these rules remain necessary for protecting domestic operators in each country.

7.5 Security concerns

The routes in Mozambique (and into Lubumbashi in the DRC) and Zambia, as well as some routes in South Africa, have been mentioned as having significant security concerns. In Mozambique and the DRC, the concern arises from unscheduled and undesignated stops on the road, where it is difficult to determine whether the ‘officials’, who often issue fines for small offences and expect to receive bribes along with payment, are police officers or civilians. For some ‘offences’, fines of up to \$1,500 can be imposed, which are disproportionate to the offence committed, if any. Foreign trucks are known to draw the attention of criminals or repeated attention by police officers. There have also been cases of looting, where locals climb onto trucks to steal products or throw them off. In South Africa, there have even been several cases of hijacking of whole vehicles and/or cargo.

8 Findings and recommendations

The focus of this paper has been to assess the competitive dynamics in freight transport by road in the Southern African region. The analysis outlines the key drivers of transport sector outcomes by considering the structure of markets, regulatory issues, and the prices of road transport relative to the associated costs. In particular, the emphasis has been on understanding the explanatory factors for competitive outcomes on different routes between the hubs of production and consumption in the region, these being Harare, Johannesburg, Lilongwe, Lusaka, and Maputo. The assessment has been conducted on the basis of comparative information for different routes, and

⁷¹ Unpublished interview with Truckers Association of Zambia (TAZ), conducted by the authors on 22 September 2015.

⁷² Unpublished interview with TECS Haulage, conducted by the authors on 30 September 2015.

there is a clear need in the region for a common database on transport prices and costs over time, which is an area for possible intervention.

The review of the literature on road transport in this region emphasizes the fact that, while infrastructural development is important, improving the efficiency of border procedures, implementing and monitoring measures to address bottlenecks, and enhancing the efficacy of administrative systems for road transport are more important (see, for example, Byiers and Vanheukelom 2014). Our findings are largely consistent with this view.

Costs are driven by exogenous factors such as the price of fuel, but also indirectly by delays. Other items such as tolls and taxes obviously have an effect but are less significant as a share of the total costs for operating on a route. While there are differences by route, the prices charged by transporters are largely reflective of the key cost drivers but perhaps more so of the premium charged for the lack of return loads in the region. The latter is in turn reflective of a significant imbalance in trade between South Africa (the largest economy and a net exporter to countries in the region) and the other countries we assess.

Within this context, competition between transport operators has evolved differently by route. Certain routes, such as between Johannesburg (sometimes via Harare) and Lusaka, appear to have become increasingly competitive in the past five years due to growing flows of goods between the countries, a large number of transporters from South Africa, Zambia, and Zimbabwe competing with one another, and certain improvements in the management of border procedures (at least at Chirundu), which are now starting to come into full effect in terms of the benefits. On the other hand, the routes from Lilongwe to Maputo and Beira are characterized by asymmetry of competitiveness between high-cost Malawian transporters and well connected, lower-cost Mozambican transporters. Furthermore, it appears that the close control of loads and movements from Mozambique is resulting in pricing outcomes that do not reflect a competitive environment and suggest possible cartel and rent-seeking outcomes. Specifically, while rates are low, the expectation is that they should be lower, to reflect the shorter distances to Beira and Maputo. This in itself may be a function of the weak competitive impact of Malawian transporters, whereby domestic and cross-border transportation is concentrated and largely run by the major agents.

In addition, there has in the past five years been a clear shift towards the transportation of goods for Malawi, Zambia, and Zimbabwe via Beira, which is having a direct impact on loads carried via South Africa—though, while the majority of exports from these countries may be directed via ports in Mozambique, certain goods such as consumer products are still imported from South Africa. The net effect is that the problem of a lack of return loads will likely be enhanced over time.

We summarize the major findings and insights below:

- An imbalance in the flow of goods between countries affects the availability of return loads. This results in outgoing rates from South Africa that are around 50 per cent higher than rates on the return leg to South Africa. These effects may be moderated at times by seasonality, whereby, for example, an inflow of fertilizer for the planting season means cheaper transport for exporters of tobacco; they may also be exacerbated by the same factor.
- Agents and brokers in effect exercise control of loads and access to key customers, often to the benefit of transport users and to the detriment of transporters. Large users rely on agents for the efficient administration and handling of shipments and are prepared to pay a premium for this—although this is moderated by the fact that certain large users, such as copper mines, can demand particular rates in the market. The control exercised by the

broker in this scenario means that the margins of transporters (and not the brokers themselves) are squeezed, not least through complex subcontracting arrangements. The fees charged by unaffiliated ‘briefcase’ agents are indicative of the premium charged by large multinational brokers on this basis. Available information suggests that industry associations at this level are involved in issuing guidelines for the pricing of various ‘broker’ services.

- Delays cost around \$400 per truck per day, at a conservative estimate, which is consistent with the findings of previous studies. When factored into the price, this translates to around \$13 per tonne, which can be as high as one-quarter of the rate charged for the route in the examples we have quoted. We have argued that reducing delays on the Lusaka–Harare route could result in a saving of \$0.02 per tonne per kilometre, which equates to an 18 per cent reduction of rates on that route.
- On the basis of the benchmark for an efficient price of \$0.06 per tonne per kilometre, the route between Lusaka and Johannesburg is highly competitive, which is consistent with the views obtained in interviews. Rates from Lilongwe and Lusaka to Beira are high, reflecting the significant distortions in the competitive process resulting from, amongst other things, theft, informal stops and bribery, and patronage at the port.
- There are potential benefits from competition and reduction in delays, which can significantly affect the competitiveness of goods in the region. Measured against the price of a tonne of soya, for example, which was around \$400 in 2015, a further reduction in transport rates on the Lusaka–Johannesburg route (through competition and greater border efficiency) from \$120/tonne to \$60/tonne is a \$60/ton equates to a 15 per cent saving on the price of the commodity.

A key area identified for intervention is delays at border posts. Large-scale investments in one-stop border posts are potentially beneficial, as evidenced by the improved experiences of transporters at Chirundu (although there is still significant scope for improvement). However, there are also smaller interventions that can be made. Transporters highlight the fact that borders do not operate on a 24-hour basis, there are electrical and technical shutdowns in the border systems, and systems between countries do not speak to one another. Each of these areas can in our view be addressed at minimal cost (and potentially through partnerships with donors) with the support primarily of governments and agencies in terms of cooperation on measures to harmonize these processes. The potential gains from a reduction in delays have been discussed, and improvement in this area will significantly reduce prices for transport. In terms of causal links, cheaper rates for transport (that does not have to account for delays of three or four days) could increase opportunities for producers from, say, Malawi and Zambia to produce and deliver goods into other urban hubs in the region at more competitive prices, which would in turn enhance opportunities for industrial development.

References

- Argent, J., and Milanovic, M. (2014). 'Rwanda's Road Freight Industry Competitiveness Study'. Report for Trade Mark East Africa, 17 March.
- Asfaw, H.A. (2015). 'Trade Policy and Economic Growth in Sub-Saharan Africa: A Panel Data Approach'. *American Journal of Trade and Policy*, 2(4): 7–14.
- Balioune-Lutz, M., and Ndikumana, L. (2007). 'The Growth Effects of Openness to Trade and the Role of Institutions: New Evidence from African Countries'. University of Massachusetts Amherst Working Paper 2007-05.
- Byiers, B., and Vanheukelom, J. (2014). 'What Drives Regional Economic Integration? Lessons from the Maputo Development Corridor and the North–South Corridor'. European Centre for Development Policy Management Discussion Paper 157.
- CBRTA (Cross Border Road Transport Association) (2015). 'Annual Report 2014/15'. Available at: <http://www.cbrta.co.za/wp-content/uploads/2015-C-BRTA-Annual-Report-A4-v11-WEB.pdf> (accessed 13 February 2017).
- Chatterji, M., S. Mohan, and S.G. Dastidar (2013). 'Relationship between Trade Openness and Economic Growth of India: A Time Series Analysis'. SIRE Discussion Paper, Scottish Institute for Research in Economics (SIRE).
- COMESA (2003). Treaty Establishing the Common Market for Eastern and Southern Africa. Available at: www.comesa.int/summit2016/wp-content/.../09/160920_Latest_Comesa_Treaty.pdf (accessed 27 February 2017).
- Competition Tribunal of South Africa (2012a). Consent Order in Competition Commission vs. Kuehne + Nagel (Pty) Ltd, Case 110/CR/Dec11.
- Competition Tribunal of South Africa (2012b). Consent Order in Competition Commission vs. Schenker South Africa (Pty), Case 2007OCT3236.
- Curtis, B. (2009). 'The Chirundu Border Post: Detailed Monitoring of Transit Times'. SSATP Discussion Paper 10.
- Curtis, B. (2014). *Africa Road Corridors Handbook*. Transport World Africa.
- Das Nair, R., and S. Chisoro (2015). 'The Expansion of Regional Supermarket Chains: Changing Models of Retailing and the Implications for Local Supplier Capabilities in South Africa, Botswana, Zambia, and Zimbabwe'. UNU-WIDER Working Paper 2015/114. Available at: <https://www.wider.unu.edu/sites/default/files/WP2015-114-.pdf> (accessed 13 February 2017).
- Elbeshbishi, A.N. (2011). 'The Link between Trade, Poverty and Development'. Paper presented at the African Trade Forum, Addis Ababa, Ethiopia.
- Foster, V., and C. Briceño-Garmendia (2010). 'Africa's Infrastructure: A Time for Transformation'. Washington, DC: The World Bank.
- Grammling, S. (2007). 'Trade Liberalization and Development—WTO and the Doha Round'. FES Conference Report.
- Gwaindepi, C., M. Musara, and N.L. Dhoro (2014). 'Relationship between International Trade and Economic Growth: A Cointegration Analysis for Zimbabwe'. *Mediterranean Journal of Social Sciences*, 5(20): 621–27.

- Hong, J., Z. Chu, and Q. Wang (2011). 'Transport Infrastructure and Regional Economic Growth: Evidence from China'. *Transportation*, 38: 737–52.
- JICA (2010). 'Preparatory Survey for Southern Africa Integrated Regional Transport Program'. Final Report.
- Kneale, L. (2013). 'Freight Transport by Road'. Who Owns Whom Report (SIC code 7123).
- Lall, S., H. Wang, and T. Munthali (2009). 'Explaining High Transport Costs within Malawi: Bad Roads or Lack of Trucking Competition?'. World Bank Policy Research Working Paper 5133.
- Lee, C., and D. Huang (2012). 'Human Capital Distribution, Growth and Trade'. *Bulletin of Economic Research*, 66(1): 45–54.
- Mbabazi, J., C. Milner, and O. Morrissey (2008). 'Trade Openness, Trade Costs and Growth: Why Sub-Saharan Africa Performs Poorly'. CREDIT Research Paper 06/08.
- McKinnon, M. (2012). 'Liberalization of Road Transport Services in the SADC Countries: Consultations in Tanzania'. Report prepared for USAID Southern Africa Trade Hub. AECOM International Development.
- Ncube, P., S. Roberts, and T. Vilakazi (2015). 'Study of Competition in the Road Freight Sector in the SADC Region: Case Study of Fertilizer Transport and Trading in Zambia, Tanzania and Malawi'. Centre for Competition, Regulation and Economic Development (CCRED) Working Paper 2015/3.
- Nowak, R. (2005). 'The Impact of Transport Links on Trade, Investment and Economic Integration'. Presentation at the Preparatory Conference to the 14th OSCE Economic Forum, Geneva, Switzerland.
- Onafowora, O.A., and O. Owoye (1998). 'Can Trade Liberalization Stimulate Economic Growth in Africa?' *World Development*, 26(3): 497–506.
- Ondrich, J., J.D. Richardson, and S. Zhang (2006). 'A Further Investigation of the Link between Trade and Income'. *International Economic Journal*, 20(1): 19–36.
- Pedersen, P. (2001). 'Freight Transport under Globalisation and its Impact on Africa'. *Journal of Transport Geography*, 9: 85–99.
- Perez-Niño, H. (2015). 'The Road Ahead: The Development and Prospects of the Road Freight Sector in Mozambique – A Case Study on the Beira Corridor'. In C. Nuno Castel-Branco, N. Massingue, and C. Muianga (eds), *Questions on Productive Development in Mozambique 269*. Institute for Social and Economic Studies.
- Quantec (2017). Available at: <http://www.quantec.co.za/> (accessed 20 February 2017).
- Raballand, G., and P. Macchi (2008). 'Transport Prices and Costs: The Need to Revisit Donors' Policies in Transport in Africa'. Bureau for Research & Economic Analysis of Development Working Paper 190.
- Raballand, G., C. Kunaka, and B. Giersing (2007). 'The Impact of Regional Liberalization and Harmonization in Road Transport Services: A Focus on Zambia and Lessons for Landlocked Countries'. World Bank Africa Transport Department Policy Working Paper 4482.
- Rashid, S., and N. Minot (2010). 'Are Staple Food Markets in Africa Efficient? Spatial Price Analyses and Beyond'. Paper presented at the COMESA policy seminar on 'Food price variability: Causes, consequences, and policy options' on 25–26 January 2010 in Maputo, Mozambique. Available at: http://ageconsearch.umn.edu/bitstream/58562/2/AAMP_Maputo_12_spatial_price_variation.pdf (accessed 13 February 2017).

- Rodrik, D. (1998). 'Trade Policy and Economic Performance in Sub-Saharan Africa'. NBER Working Paper 6562.
- SADC (1996). Protocol on Transport, Communications and Meteorology.
- Steiner, K., J. Wörz, and T. Slacík (2014). 'Can Trade Partners Help Better FORCEE the Future? Impact of Trade Linkages on Economic Growth Forecasts in Selected CESEE Countries'. *Focus on European Economic Integration*, 1: 36–56.
- Teravaninthorn, S., and G. Raballand (2009). *Transport Prices and Costs in Africa: A Review of the Main International Corridors*. Washington, DC: The World Bank.
- TradeMap (2017). Available at: <http://www.trademap.org/> (accessed on 20 February 2017).
- UNCTAD (2009). 'Strengthening Regional Economic Integration for Africa's Development'. Economic Development in Africa Report E.09.II.D.7. New York and Geneva: United Nations.
- UNCTAD (2013). 'Intra-African Trade: Unlocking Private Sector Dynamism'. Economic Development in Africa Report E.13.II.D.2. New York and Geneva: United Nations.
- UNECA (United Nations Economic Commission for Africa) (2013). 'Harmonizing Policies to Transform the Trading Environment: Assessing Regional Integration in Africa VI'.
- Vilakazi, T., and A. Paelo (forthcoming). 'Understanding Intra-regional Transport towards the Integration of Markets: Competition in Road Transportation of Perishable Goods between Malawi, South Africa, Zambia, and Zimbabwe'. UNU-WIDER Working Paper.
- VillageReach (2014). 'Evaluation of Health System Transport Capacity and Demand: Mozambique Case Study'. Available at: <http://www.villagereach.org/wp-content/uploads/2009/08/062014-TSS-Assessment-Report-FINAL.pdf> (accessed 13 February 2017).
- Ward, N., and E. Barreto (2011). 'Road Freight Transport Services Diagnostic Study'. Technical Report for USAID Southern African Trade Hub.
- World Bank (2011). *Railway Reform: Toolkit for Improving Rail Sector Performance*. Washington, DC: World Bank.
- World Bank (2015). *Malawi Economic Monitor: Managing Fiscal Pressures*. Washington, DC: The World Bank.
- WTO (World Trade Organization) (2004). 'Exploring the Linkage between Domestic Policy Environment and International Trade'. World Trade Report.
- Yamazawa, I. (1990). *Economic Development and International Trade – The Japanese Model*. Honolulu: East–West Centre Resources Systems Institute.

Appendix A: Trade values and balance by country, 2010–2014 (US\$)

		Malawi	Mozambique	South Africa	Zambia	Zimbabwe
2010	Imports	2,173,038	3,564,230	82,948,718	5,320,834	5,852,267
	Exports	1,066,204	2,243,069	82,625,557	7,200,267	3,199,231
	Net	-1,106,834	-1,321,161	-323,161	1,879,433	-2,653,036
2011	Imports	2,427,696	6,305,647	102,698,696	7,177,788	8,599,251
	Exports	1,425,289	3,604,118	107,946,318	9,000,946	3,512,125
	Net	-1,002,407	-2,701,529	5,247,622	1,823,158	-5,087,126
2012	Imports	2,330,368	6,177,210	104,144,311	8,805,153	7,362,539
	Exports	1,182,866	3,469,852	98,872,228	9,364,653	3,882,429
	Net	-1,147,502	-2,707,358	-5,272,083	559,500	-3,480,110
2013	Imports	2,844,626	10,099,147	103,441,284	10,161,843	7,704,178
	Exports	1,207,984	4,023,719	95,111,531	10,594,069	3,507,296
	Net	-1,636,642	-6,075,428	-8,329,753	432,226	-4,196,882
2014	Imports	2,798,620	8,743,074	99,892,738	9,539,024	6,379,758
	Exports	1,421,597	4,725,331	90,612,104	9,687,918	3,063,741
	Net	-1,377,023	-6,075,428	-9,280,634	148,894	-3,316,017

Source: TradeMap (UN Comtrade data).

Appendix B: List of interviewees

AS Investments
Bollere Africa
Chipiku Plus
City Supermarket
Clearing and Forwarding Agents Association of Malawi (also Combine Cargo)
Cold Feet
Cross-Border Road Transport Agency of South Africa
Enviro Flor
Freight World
Fresh Produce Marketing Association of Zimbabwe
HFR Logistics
Imperial Cold Chain Logistics
J & J Transport Zambia Ltd
Kleiner Apex Ltd
Lonrho Logistics Zimbabwe
MANICA
NFB Logistics
Novatek
NutriFeed
OK Zimbabwe Ltd
Road Freight Association (South Africa)
Sana Cash n Carry
Shoprite
Siku Transport
TECS Haulage
Transporters Association of Malawi
Transport Operators' Association of Zimbabwe
Transtech Logistics Malawi
Transtech Logistics Zambia
Truckers Association of Zambia
Unifreight Africa Ltd
Verbena Logistics
Zambia Export Growers Association