THE ROLE OF DRY PORTS IN SOUTH AFRICA

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ABSTRACT

This paper presents a case study of the City Deep dry port terminal in Johannesburg, South Africa. The findings show that City Deep functions well in terms of service delivery and providing extra services to both exporters and importers. However, a number of potential problems regarding City Deep's infrastructure were identified. It was found that train and truck congestion within City Deep is an everyday phenomenon. Importers and exporters prefer road transport to rail transport. This affects not only the infrastructure at City Deep, but also that of South Africa. More trucks on the roads exacerbate air pollution and road accidents, and overloaded trucks damage South African roads. Therefore, City Deep and the South African logistics system should focus on promoting rail transport to the seaports, so exporters and importers will rely on both modes for the transport of goods.

Keywords: transport costs, containerization, port efficiency, dry ports, inland terminals, South Africa, City Deep

INTRODUCTION

From across the world there is clear evidence that exports can drive economic growth and development. The African continent, however, faces significant challenges of growth and development while its countries have not been able to connect successfully to the world economy. Exporters from African countries face adverse geography and poor institutions. In a 2001 study Elbadawi et al. (2001) found that domestic transport costs act as a strong constraint to exports from Africa—a constraint that is even stronger than that of international transport costs. Lowering domestic transport costs in African countries can therefore contribute to exports and, more generally, to economic growth and development. One way of lowering domestic

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transport costs is to establish dry ports (or inland terminals) closer to exporters and importers.

This paper presents a case study of the City Deep dry port terminal in Johannesburg, South Africa. It is an interesting case for a number of reasons. First, South Africa opened up its economy in 1994 and has since implemented policies meant to encourage export-led growth. Second, transport costs are relevant as South Africa trades mostly with countries in the global north, which implies significant international transport costs. Also, the majority of South Africa's exports originate in the Gauteng region, which is located 600 km from the nearest seaport, thus incurring significant domestic transport costs. Therefore, for South African exports to remain competitive and for the country to achieve export-led growth, it is imperative to reduce the higher than average domestic transport costs (Ramos, 2005).

As suggested above, the establishment of dry ports can lower domestic transport costs. The aims of this case study are to: (i) evaluate South Africa's current inland terminals, with a specific focus on City Deep, located in Johannesburg, Gauteng; and (ii) determine whether or not the Government of South Africa should invest in more dry ports. The remainder of the paper is structured as follows: section 2 provides an overview of South Africa's spatial economy and the significance of transport costs for exports, section 3 contains the case study of City Deep and section 4 concludes with recommendations.

I. THE CASE OF SOUTH AFRICA

A particular characteristic of economic activity across South Africa and across the globe is its density. Geographically, economic activity tends to be unequally distributed and concentrated. In South Africa, 70 per cent of gross domestic product (GDP) is produced in only 20 per cent of places. What makes the South African case more interesting is that 37 per cent of GDP and 60 per cent of exports originate in cities in the landlocked Gauteng province (Regional Economic Explorer, 2006). This can be explained by examining trade and extraction along with the social engineering of apartheid.

South Africa has six "large" cities. Johannesburg, the East Rand (Ekurhuleni metro) and Pretoria (Tshwane metropo) are located inland in Gauteng province. Durban, Cape Town, and Port Elizabeth (Nelson Mandela metro) are the major port cities. Cape Town and Durban were first developed in the seventeenth and eighteenth centuries as trading posts on the shipping route between Western Europe and Asia. During the nineteenth century, this role changed with the discovery of diamonds and gold in the interior. The port cities developed from being stop-over and service points providing shipping services, to being ports through which commodities were handled. Today this dominance continues due to the importance of sea transport for South

Africa's international trade. Approximately 98 per cent of the volumes of South Africa's exports are conveyed by sea. The mineral wealth determined the location and growth of the inland cities, Johannesburg, the East Rand and Pretoria. The distances of the location of mining commodities, as well as the extraction technology required in mining then influenced the pattern of South Africa's inland development. Where railways and electric power were provided for mining, they also contributed to the development of the manufacturing sector. Industries such as steel and mining, which are heavy consumers of electricity, are predominantly located in the historic mining areas whilst chemicals are concentrated heavily around Durban from where the majority of the country's crude oil imports are obtained (Matthee and Naude, 2008).

In the twentieth century, apartheid reinforced the historical regional development patterns induced by the emerging mineral-energy complex of the nineteenth century with its homeland policies and Group Areas Act. Support of inefficient industries in the homelands and the segregation of cities created a spatial economy characterized by inefficient land use, excessive transport costs, and underinvestment in transport infrastructure, telecommunications and electric power. It also resulted in segmented labour and consumption markets and created artificial internal barriers to trade (Krugell & Naudé, 2005).

The cost of unequal development was paid particularly by the manufacturing sector. Nel (2002) showed that, by 1970, South African had a relatively advanced and diversified manufacturing sector but thereafter output stagnated and employment declined. Contributing factors included: declining gold exports and gold prices, a reduction in global commodity demand from the early 1980s, the debt crises of the 1980s, depreciation of the value of the Rand, the imposition of sanctions, foreign exchange shortages, and skill- and capital shortages. By the 1990s job losses occurred in places and deindustrialization took place.

Against this background of spatial inequality, the new democratic government has, since 1994, been opening up the economy. This transition again changed the spatial structure of economic activity in South Africa (Naudé et al., 2000). South African industries were now exposed to international competition. Subsequently, industries that could not cope with increased levels of competition closed down (for example, the textile industry in the Western Cape contracted significantly). Other industries that were able to move into new markets thrived (for example, the motor industry in the Eastern Cape) (Naudé et al., 2000). The majority of manufactured exports originate in the vicinity of one of the major export hubs, namely the City Deep dry port (situated in Gauteng), Durban harbour (situated in KwaZulu-Natal), Port Elizabeth (situated in the Eastern Cape) and Cape Town harbour (situated in the Western Cape) (Matthee and Naudé, 2008).

South Africa's transport costs accounted for around 13 per cent of GDP in 2003, which is high in comparison with other emerging markets. Brazil's transport costs, for example, are only 8 per cent of their GDP (Ramos, 2005). Transport costs increased by 11 per cent over the last five years and the overall logistics costs remained flat at 15.2 per cent of GDP (CSIR, 2004). According to the CSIR (2001), the biggest driver of logistics costs in South Africa is transport costs. Transport costs make up 78 per cent of the secondary sector's total logistics costs and 60 per cent of the primary sector's (CSIR, 2001). Logistics rely heavily on multimodal transport and containerized freight transport to help decrease logistics cost, and thus transport costs, in South Africa.

II. THE CASE STUDY OF CITY DEEP

Intermodal transport has been proven to reduce domestic transport costs, as it utilizes different transport modes in a productive manner (Rodrigue et al., 2006). For an intermodal transport system to exist, it needs the necessary infrastructure which is provided by inland terminals. Moreover, inland terminals act as inland ports for container traffic transferring containers between rail and truck for either import or export purposes (DoT, 1997).

South Africa has six major inland terminals and nineteen satellite depots that are strategically located to connect with its seaports. Each of these terminals handles containers, cars and bulk traffic (Transnet, 2009). South Africa's inland terminals include City Deep (Eastcon and Kazcon), Belcon (Saldanha, Ashton, and Dalcon), Deal Party (East London and George), Pretcon (Phalaborwa, Witbank, Polokwane, Nelspruit, and Piet Retief), Bayhead (Newcastle), and Bloemfontein (Kimberly, De Aar, Kroonstad, Kakamas, and Bethlehem). These inland terminals and satellite depots are controlled by Transnet Freight Rail, the largest division of South Africa's public transport company, Transnet Limited (the sole shareholder is the South African government), specialising in the transport of freight (Transnet, 2009).

City Deep Inland Container Terminal was the first inland container terminal built in southern Africa in the 1970s. It is situated in Gauteng, just to the south of the Johannesburg Central Business District (CBD) and is close to the industrial areas of Johannesburg and the greater Gauteng province (DoT, 1997). City Deep is centrally located, as most inland exporters of manufactures are located within a 50 km radius. The nearest seaport to City Deep is the port of Durban (at a distance of approximately 600 km). City Deep is the largest container terminal in South Africa and handles three categories of containers, namely import traffic, export traffic, and domestic traffic. Import traffic includes the management of containers that enter through a South African port, such as the Port of Durban, with a domestic or cross-border destination further into Africa. Export traffic includes the

management of containers leaving South Africa through national ports, and domestic traffic includes the management of containers transported within South Africa's borders (Transnet, 2009).

Although South Africa has six inland terminals mentioned above, City Deep is the only inland terminal that functions as a dry port, as it is the only inland terminal where customs clearance of goods takes place. The other inland terminals handle only domestic traffic, whereas City Deep handles container traffic both from abroad and domestically.

Although City Deep's infrastructure is owned and operated by Transnet Freight Rail, privately owned companies are allowed to use City Deep's infrastructure and facilities. Examples of these include companies at Kaserne and SACD (South African Container Depot). This case study of City Deep is based on an interview conducted within one of these privately owned companies, who for confidentiality reasons, wishes to remain anonymous. The purpose was to gather information on the service delivery of South African inland terminals, with specific focus on City Deep. A questionnaire was used during the interview with a number of open-ended questions that asked the following information: the current economic performance of the terminal, the terminal's location in relation to the spatial allocation of the production and consumption centres, operation areas of the City Deep container terminal and the general flow of transport. The information gathered is discussed in terms of the promotion of inland container transport as a means through which domestic transport costs in South African can be reduced.

A. Functions of the terminal

Intermodal transport is used to connect City Deep with South Africa's seaports and other inland terminals. The first part of the interview was to establish how the private companies operated within the City Deep terminal.

Transport

The City Deep container terminal handles approximately 1,500 containers of imports and 2,600 containers of exports per day. Both trucks and trains are used to transport goods from City Deep to the ports and vice versa. Transnet Freight Rail handles the private operators' rail transport of goods and containers to and from City Deep.

Trains arriving in Johannesburg are split into five different sidings. Each siding is allocated to one of the companies operating in City Deep. The containers carried on the trains belong to the shipping lines and usually contain imports. The trains deliver the containers at the siding of the company that is to handle the containers on behalf of the importer. The company then unloads the container with its content. Afterwards the

container is filled with goods on behalf of an exporter. These goods are to be exported on the shipping lines to which the container belongs. The container is loaded onto the train and railed to the harbour.

If road transport is preferred, then clients may choose their own freight hauler for the delivery of containers and goods. City Deep is also connected to other types of terminals (e.g. airports) via road transport. The nearest international airport connected to City Deep is OR Tambo International. City Deep only delivers the containers and or goods, the clients have to arrange for the loading of the container at the airport themselves.

Other functions

Several other functions are also performed by the companies operating at City Deep. These functions include wagon storage, providing trans-shipment tracks for train loading and unloading operations at the terminal interchange zone, from/to a hauler, or when lifted from or placed on a rail wagon at the railhead, conveyance between the interchange zone or railhead and the stacking area, providing storage and buffer lanes for intermodal transport units, storage of containers, the handling of containers by means of a container crane and/or gantry crane, loading and driving lanes for the trucks, providing an internal road network and custom clearance.

Customs

Customs clearance is conducted by the border police at City Deep who operate on a twenty-four hour basis to control illegal trade in drugs, stolen vehicles, firearms and counterfeit goods. The terminal has three gates: one is for the entry of trucks delivering containers, one is a rail track gate for the entry and exit of trains, and the third gate is an exit gate for trucks. The gates are only opened when a train or truck enters or leaves the terminal. Every gate has a twenty-four hour security guard. Containers of imports arriving at City Deep are subject to a number of import controls. The City Deep border police and customs must inspect all the necessary documents, description codes, seals on the containers, and check that imports comply with the import/export regulations pertaining to South Africa to ensure that no fraud or any other irregularities have occurred.

Value added services

The companies operating at City Deep also offer specialist services. For example, the client is offered confirmation that the goods are packed in the correct container before the container is loaded onto the train or truck. Goods arriving from Africa to South Africa for further exporting are usually not packed in containers. The companies' personnel pack the containers and take a photograph of the container before it is sealed. The photo is then sent to the client. As soon as the client gives the go-ahead, the container is

shipped. Quality control functions may also be performed on behalf of the clients. Samples of raw materials are taken to check the quality of the goods. The report is sent to the importer ensuring him that goods of the correct quality have been shipped. Another specialist service is one provided to the shipping lines. The private companies have maintenance divisions equipped to repair broken containers on behalf of the shipping lines they belong to.

B. Problems and challenges

The second part of the interview asked the private operator about what they regarded as the problems and challenges facing their operations in City Deep. The biggest obstacle for the effective operation of City Deep is infrastructure. Train and truck congestion within City Deep is an everyday phenomenon. The existing infrastructure cannot handle the number of trains and trucks entering City Deep. Container blockages of approximately 5,400 containers can take up to six weeks to clear. As a result, shipping lines may impose a port congestion surcharge on imports and exports because of blockages caused by container delivery hold-ups. Also, clients prefer road (truck) transport to rail transport. Therefore, the number of trucks entering and leaving City Deep causes congestions and delays. This not only affects the infrastructure at City Deep, but also that of South Africa. Roads are rapidly deteriorating (in many cases trucks are overloaded) and congestion on the national roads increase the amount of air pollution, road accidents and collisions. Another reason that clients prefer to make use of road (truck) transport is because transport by rail takes much longer to deliver the goods than by road.

Theft is also a major problem of rail transport. When cargo is transported from Johannesburg to Durban by rail, regulations require that the drivers on the train have to be changed every two to three hours. This implies that the train stops at a pre-determined station and the driver leaves the train. In many cases the train stands at that particular station for hours at an end before the next driver commences the next leg of the journey. The cargo is left unprotected at these stations and risk of theft and pilferage is high. A client or freight forwarder cannot check the location of the cargo during its journey to the container depot in Durban. In comparison, when the cargo is transported by vehicle from Johannesburg to Durban, the cargo is also at risk, but the risk is lower. The drivers are also legally required to stop every 3 to 4 hours of the journey. The driver stops at a designated rest stop for a few hours before carrying on to the next rest stop. The difference here is that the driver of the vehicle generally does not leave the vehicle without supervision. The driver usually has an assistant driver and they take turns at guarding the vehicle. Most transport companies also protect their vehicle fleets by satellite tracking and protection services. This implies that the vehicle is under 24 hour a day security and can be tracked at any time during the journey (Matthee, Grater and Krugell, 2007).

Thus, the question becomes whether the establishment of another dry port would alleviate the problems faced by City Deep. The answer appears to be no. The respondents indicate that although there is currently congestion, the volumes of trade do not justify the costs involved in developing a new dry port. They believe that the Government of South Africa, via Transnet, should rather invest in upgrading the existing infrastructure. The upgrading of infrastructure should include adding a sufficient amount of wagons for trains to minimize time delays. This type of upgrading would also serve the overall purpose of promoting rail transport in South Africa.

The role of the government in customs clearance also has to be more hands-on. Transnet Freight Rail must also become a more active partner interacting with the private companies in City Deep. For example, Transnet Freight Rail could establish an undertaking that, as the carrier of freight, it will require a declaration from the client that the contents of the container are as described on the form. The Transnet Freight Rail document could then be compared with the customs declaration, and these two independent systems could then be used for cross-referencing and profiling.

CONCLUSION

The purpose of this study was to gather information on the service delivery of South African inland terminals. City Deep is South Africa's major dry port and is linked with an intermodal transport system to the major seaports in South Africa. City Deep could reduce transport costs in South Africa, as it provides the transport infrastructure for containerization. City Deep seems to function successfully in terms of service delivery and extra services provided to both exporters and importers. It was found that it would benefit City Deep to focus on making Transnet Freight Rail a more active partner in both the logistics and operational processes. They could act as the third party in the logistics process, leading to a reduction in transport costs. As for the establishment of additional inland terminals or dry ports, the government needs to invest more in the existing infrastructure, as the export volumes do not justify the cost of building a new inland terminal.

This answers the question of whether dry ports can lead to a reduction in transport costs. Dry ports have the benefits of the modal shift from road to rail. Therefore, City Deep and the South African logistics system must focus on promoting rail transport in order for exporters and importers to focus on both transport modes for the transport of goods. This will also enable South Africa to take its place in better and more competitive global value chains.

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